201-16651

Via Electronic Submission

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ExxonMobil Chemical

November 14, 2007

Administrator
US Environmental Protection Agency
P. O. Box 1473
Merrifield, VA 22116
Attention: Chemical Right-to-Know Program

Re: C3-5 Butene-Isobutylene-Rich-Ether (BIR) stream, CAS No. 102479-87-8 for the HPV Challenge Program (ExxonMobil Chemical Company Registration Number for HPV Challenge Program)

To Whom It May Concern:

ExxonMobil Chemical Company (EMCC) is strongly committed to the chemical industry's Responsible Care® program and takes seriously its commitment to the responsible manufacture, testing, and safe use of its products. Under the U.S. Environmental Protection Agency (EPA) High Production Volume (HPV) Chemical Challenge Program (Program), ExxonMobil Chemical Company committed to voluntarily compile a Screening Information Data Set (SIDS) that can be used for an initial hazard assessment of the C3-5 Butene-Isobutylene-Rich (C3-5 BIR) stream, CAS #102479-87-8. Although there are no data for the stream, based on its composition, it was determined that data for three constituents can be used to characterize the SIDS endpoints because they comprise a large fraction of the stream and therefore, will define the fate and effects of the stream. The three substances are methyl-tert-butyl ether (CAS No. 1634-04-4), tert-amyl-methyl ether (CAS No. 994-05-8), and methyl-sec-butyl ether (CAS No. 994-05-8).

With this letter, EMCC submits the test plan and robust study summaries compiled into separate dossiers for the three main constituent substances in the C3-5 Butene-Isobutylene-Rich (C3-5 BIR) stream. Sufficient data and information exist to characterize all endpoints in the HPV Program. Therefore, no additional testing is proposed. With the submission of this test plan and dossiers, EMCC has completed its commitment under the HPV Program for the C3-5 Butene-Isobutylene-Rich (C3-5 BIR) stream.

Please contact me if you require any further information on the status of EMCC commitments to the U.S. HPV Program.

Sincerely,

Susan K. Blevins
Global Product Stewardship and Regulatory Affairs Manager
Email: susan.k.blevins@exxonmobil.com

Attachment

Bcc:

EMCC - Houston
R. Brown
C. Fairbrother

EMBSI - Clinton
A. Bachman
R. Davi
T. Parkerton
K. Pavkov
D. Winkelmann

HIGH PRODUCTION VOLUME (HPV)

CHEMICAL CHALLENGE PROGRAM

-

TEST PLAN

For

C3-5 BUTENE-ISOBUTYLENE-RICH

CAS #102479-87-8

Prepared by:

ExxonMobil Chemical Company

November 14, 2007

EXECUTIVE SUMMARY

Under the Environmental Protection Agency (EPA) High Production Volume (HPV) Chemical Challenge Program (Program), ExxonMobil Chemical Company has committed to voluntarily compile a Screening Information Data Set (SIDS) for C3-5 Butene-Isobutylene-Rich (C3-5 BIR), CAS #102479-87-8.

Existing data and technical analyses adequately characterize the SIDS endpoints for C3-5 BIR and support a screening-level hazard assessment, which informs the public about the SIDS-based hazards of this substance. Sufficient data and information exist to characterize all endpoints in the HPV Program. Therefore, no additional testing is proposed.

The C3-5 BIR stream is a complex substance that contains a predominant ether fraction in combination with a smaller hydrocarbon fraction. A search for existing studies/information and their review identified adequate data for select constituents to characterize all SIDS endpoints for the stream. Data suggest that the C3-5 BIR stream generally presents a low order of hazard for human health and low to moderate order of environmental hazard for the predominant groups of constituents as a whole. The predominant constituents of the stream are relatively volatile. Information on their fate in the environment suggests that once in the atmosphere, they will be largely degraded through physical processes at a relatively rapid rate.

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TEST PLAN FOR C3-5 BUTENE-ISOBUTYLENE RICH
CAS No. 102479-87-8

I. INTRODUCTION

Under the U.S. Environmental Protection Agency (EPA) High Production Volume (HPV) Chemical Challenge Program (Program), ExxonMobil Chemical Company committed to voluntarily compile a Screening Information Data Set (SIDS) that can be used for an initial hazard assessment of the C3-5 Butene-Isobutylene Rich (C3-5 BIR) stream, CAS No. 102479-87-8. Although there are no data for the stream, based on its composition, it was determined that data for three constituents can be used to characterize the SIDS endpoints because they comprise a large fraction of the stream and therefore, will define the fate and effects of the stream. The three substances are methyl-tert-butyl ether (CAS No. 1634-04-4), tert-amyl-methyl ether (CAS No. 994-05-8), and methyl-sec-butyl ether (CAS No. 994-05-8).

This assessment includes data for selected physicochemical, environmental fate, and mammalian and environmental effect endpoints identified by the U.S. HPV Program. Procedures to assess the reliability of selected data for inclusion in this test plan were based on guidelines described by Klimisch *et al*. (1997) and identified within the U.S. EPA (1999) document titled *Determining the Adequacy of Existing Data*. The following sections describe the C3-5 BIR stream and its manufacturing process, and data used to characterize the various endpoints in the HPV Program. After a review of the existing data, ExxonMobil Chemical Company believes that data needed to adequately assess all SIDS endpoints have been identified and that additional testing is not necessary.

II. CHEMICAL DESCRIPTION, MANUFACTURING PROCESS, AND USE

The C3-5 BIR stream is composed of several constituent substances (Table 1). The predominant chemical fraction in this stream is methyl-tertiary-butyl ether (also referred to as MTBE) which can comprise from approximately 65% of the stream. A second chemical fraction, which can also comprise a large proportion of the stream is 2-methoxy-2-methylbutane, which is also referred to as tert-amyl methyl ether (TAME). This fraction comprises approximately 28% of the stream. A third fraction, which can also comprise a significant portion of the stream, is methyl-sec-butyl ether (also referred to as MSBE), and can be as much as 4%. Together these three fractions can comprise up to 97% of the stream. All other groups or identified chemicals in Table 1 each comprise less than 5% of the stream.

In the chemical plant, a mostly C5 stream is brought into the isoamylene unit (IAU) from upstream fractionation. To remove the isoamylene (2-methyl-butene-1 and 2-methyl-butene-2), the stream is run across a catalyst that oxygenates the isoamylene into TAME (tertiary-amyl methyl ether) using methanol. This TAME is then fractionated away from the remaining C5 stream, and decomposed back to isoamylene and methanol and recovered as product. In the decomposition reaction, there are side-reactions that occur that cause generation of undesirable components. These are fractionated off as the IAU light co-product (C3-5 BIR stream) and are returned to the refinery for further processing and use in gasoline blending.

Table 1. Percent composition ranges of predominant constituents in the C3-5 Butene-Isobutylene Rich stream.

C3-5 BUTENE-ISOBUTYLENE RICH STREAM		
Component	**cas no.**	**Percent Composition Range**
MTBE (Methyl-Tert-Butyl Ether)	1634-04-4	64.8
TAME (tert-amyl methyl ether) (2-methoxy-2-methylbutane)	994-05-8	28.3
MSBE (Methyl-Sec-Butyl Ether)	6795-87-5	3.6
TBA (tert-butyl alcohol)	75-65-0	0.4
Other Voc		2.8

III. TEST PLAN RATIONALE AND DATA SUMMARY

The predominant constituent chemical group of the C3-5 Butene-Isobutylene Rich stream is the methoxypentanes (3 constituents), at as much as 97% of the stream, will be responsible for the biological effects exhibited by the stream as a whole. The few remaining chemical groups or individual chemical constituents, that are present at levels between 0.4% and 3%, will not contribute to a greater adverse biological effect than that resulting from the major group. Therefore, data from representative constituents from this group will be used to characterize the overall biological and fate characteristics of the stream.

The basic strategy of this test plan for characterizing the human health hazards of the C3-5 Butene-Isobutylene Rich stream is to evaluate data for the major components of the stream. The major chemical components of the stream in the C3-5 Butene-Isobutylene Rich stream have been tested for human health toxicity endpoints. Available data on these components prove to provide sufficient information to develop scientific judgment-based characterizations of the human health effects of the stream for purposes of satisfying HPV program requirements. Therefore, no additional human health toxicity testing is proposed. The hazard characterization for the C3-5 Butene-Isobutylene Rich stream will include the hazards of methyl-tert-butyl ether (MTBE), tert-amyl-methyl ether (TAME), and methyl-sec-butyl ether (MSBE).

The environmental fate and effects of the methoxypentanes (ethers) will be characterized by 2-methoxy-2-methylpropane, also referred to as methyl-tert-butyl ether (MTBE), and 2-methoxy-2-methylbutane, also referred to as tert-amyl methyl ether (TAME), which have SIDS datasets. Use of the MTBE and TAME data to characterize the ether group in this stream is supported by calculated results from the ECOSAR computer model (ECOSAR, 2004) using EPI Suite™ (2000) modeled input data. The 48- or 96-hour data for each of the freshwater fish, daphnid, and green alga endpoints show that the three ethers are expected to cause similar effects. The environmental

fate and effects of the remaining constituents will not be characterized as they do not occur in sufficient quantity to impart an effect.

All MTBE and TAME test data identified within this document were developed using the parent substance. Additional data for this group used to characterize the aquatic toxicity endpoints were developed using the ECOSAR computer model (ECOSAR, 2004) provided within EPI Suite™ (2000). This model applies an equation for neutral organics to estimate aquatic toxicity and is therefore considered appropriate to estimate aquatic toxicity for the representative substances.

Data used to characterize the various physicochemical, environmental fate, and environmental and mammalian health endpoints are described below.

A. Physicochemical Data

Calculated and measured MTBE, TAME, and MSBE physicochemical data from the literature are listed in Table 2.

Table 2. Selected physico-chemical properties for three select constituents used to characterize the C3-5 Butene-Isobutylene Rich- stream.

ENDPOINT	MTBE	TAME	MSBE
Melting Point (ºC)	-108.6 (Lide *et al.*, 1998-1999)	-81.2 (U.S. EPA, 2000)	-100 (U.S. EPA, 2000)
Boiling Point (ºC at 1012 hPa)	55.2 (Lide *et al.*, 1998-1999)	86.3 (Lide *et al.*, 1998-1999)	65 (U.S. EPA, 2000)
Density (g/cm^3 at 20°C)	0.740 (Lide *et al.*, 1998-1999)	0.770 (Lide *et al.*, 1998-1999)	0.742 (Aldrich Handbook, 2003-2004)
Vapor Pressure (Pa at 25°C)	33,330 (Daubert & Danner, 1995)	12,000 (Huttunen *et al.*, 1997)	27,730 (Daubert & Danner, 1989)
Water Solubility (mg/l at 25°C)	51,000 (Bennett & Philip, 1928)	5,468 (U.S. EPA, 2000)	16,400 (Wakita, *et. al*., 1986)
Log K_{ow} (at 25°C)	0.94 (Hansch *et al.*, 1995)	1.55 (Huttunen *et al.*, 1997)	1.47 (U.S. EPA, 2000)

MTBE - methyl-tert-butyl ether
TAME - tert-amyl methyl ether
MSBE - methyl-sec-butyl ether

Conclusion

Based on data identified for MTBE, TAME, and MSBE, the C3-5 BIR stream will exhibit a melting range between approximately -81 to -109°C, a boiling range between approximately 55 to 87°C, a density ranging from approximately 0.74 to 0.77 g/cm^3 at 20°C, and a vapor pressure between approximately 12,000 to 33,330 Pa at 25°C. The predominant constituents of the C3-5 BIR stream have water solubilities that range from 5,468 to 51,000 mg/l at 25°C and Log K_{ow} values that range from approximately 0.94 to 1.55.

B. Environmental Fate Data

Biodegradation

Biodegradation of an organic substance by bacteria can provide energy and carbon for microbial growth. This process results in a structural change of an organic substance and can lead to the complete degradation of that substance, producing carbon dioxide and water.

The test guideline used to assess the biodegradability of MTBE was OECD 301D, Closed Bottle Biodegradation Test. This test design uses a sealed bottle, which is appropriate considering the test material is relatively volatile. The source of the microbial inoculum used in this study was a domestic wastewater treatment facility and it was not acclimated. MTBE exhibited 0% biodegradation after 28 days (Huels AG, 1991a).

The biodegradability of TAME was also assessed following the OECD 301D, Closed Bottle Biodegradation Test Guideline. The source of the microbial inoculum used in this study was a domestic wastewater treatment facility and it was not acclimated. TAME exhibited 4% biodegradation after 28 days (Bealing, 1995).

No biodegradation data is available for MSBE. QSAR modeling, using the BIOWIN models of EPISuite version 3.20, predicts that MSBE will not biodegrade fast. The modeling results are consistent with the experimental results for MTBE and TAME.

Conclusion

Based on experimental data for MTBE and TAME and modeled results for MSBE, the C3-5 BIR stream is expected to demonstrate an overall low extent of biodegradation. However, in the environment, the fate of the C3-5 BIR stream constituents have the potential to partition primarily to air because the they have relatively high vapor pressures, which suggests that they can volatilize to the air at a rapid rate if released.

Photodegradation – Photolysis

Direct photochemical degradation occurs through the absorbance of solar radiation by a chemical substance in aqueous solution. If the absorbed energy is high enough, then the resultant excited state of the chemical may undergo a transformation. A prerequisite for direct photodegradation is the ability of one or more bonds within a chemical to absorb ultraviolet (UV)/visible light in the 290 to 750 nm range. Light wavelengths longer than 750 nm do not contain sufficient energy to break chemical bonds, and wavelengths below 290 nm are shielded from the earth by the stratospheric

ozone layer (Harris, 1982a).

An approach to assessing the potential for a substance to undergo photochemical degradation is to assume that degradation will occur in proportion to the amount of light wavelengths >290 nm absorbed by constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding electrons in ethers do not give rise to absorption above 160 nm, which is why pure ether solvents can be used in spectroscopic studies. Consequently, the ether fraction of the C3-5 BIR stream is not subject to photolytic processes in the aqueous environment.

Similarly, saturated and unsaturated hydrocarbons like those in the C3-5 BIR stream do not absorb light above 290 nm. Therefore, the hydrocarbon constituents of this stream will not exhibit photolytic degradation.

Conclusion

Based on the potential for photolysis of ethers and hydrocarbons, this process is not expected to significantly contribute to the degradation of constituents of the C3-5 BIR stream.

Photodegradation – Atmospheric Oxidation

Photodegradation can be measured (US EPA, 1999a) or estimated using an atmospheric oxidation potential (AOP) model accepted by the EPA (US EPA, 1999b). Atmospheric oxidation as a result of hydroxyl radical attack is not direct photochemical degradation, but rather indirect degradation.

The constituents of the C3-5 BIR stream have the potential to volatilize to air, based on the vapor pressure of three of the predominant constituents, where they are subject to atmospheric oxidation. In air, C3-5 BIR stream constituents can react with photosensitized oxygen in the form of hydroxyl radicals ($^{\bullet}OH$). The computer program AOPWIN (atmospheric oxidation program for Microsoft Windows) (U.S. EPA, 2000) calculates a chemical half-life for a 12-hour day (the 12-hour day half-life value normalizes degradation to a standard day light period during which hydroxyl radicals needed for degradation are generated), based on an $^{\bullet}OH$ reaction rate constant and a defined $^{\bullet}OH$ concentration.

MTBE has a calculated half-life in air of 56.9 hours or 4.7 days (12-hour day), based on a rate constant of 2.26×10^{-12} cm^3/molecule*sec and an $^{\bullet}OH$ concentration of 1.5×10^6 $^{\bullet}OH$ /cm^3. TAME has a calculated half-life in air of 24.6 hours or 2.1 days (12-hour day), based on a rate constant of 5.22×10^{-12} cm^3/molecule*sec and an $^{\bullet}OH$ concentration of 1.5×10^6 $^{\bullet}OH$ /cm^3. In comparison, MSBE has a calculated half-life in air of 7.6 hours or 0.6 days (12-hour day), based on a rate constant of 1.69×10^{-13} cm^3/molecule*sec and an $^{\bullet}OH$ concentration of 1.5×10^6 $^{\bullet}OH$ /cm^3.

Conclusion

Atmospheric oxidation via hydroxyl radical attack can be a significant route of degradation for constituents in the C3-5 BIR stream and is expected to occur at a moderate rate. Based on calculated values for three chemicals that are representative of the majority of stream constituents, C3-5 BIR stream constituents are expected to have an atmospheric half-life of approximately 5 days or less as a result of indirect photolysis by hydroxyl radical attack.

Stability in Water (Hydrolysis)

Hydrolysis of an organic chemical is the transformation process in which a water molecule or hydroxide ion reacts to form a new carbon-oxygen bond. Chemicals with leaving groups that have a potential to hydrolyze include alkyl halides, amides, carbamates, carboxylic acid esters and lactones, epoxides, phosphate esters, and sulfonic acid esters (Neely, 1985). The lack of a suitable leaving group renders a compound resistant to hydrolysis. Ether and hydrocarbon constituents of the C3-5 BIR stream are resistant to hydrolysis because they lack functional groups that are hydrolytically reactive and Harris (1982b) identifies ether groups as generally resistant to hydrolysis.

Conclusion

Hydrolysis will not contribute to the removal from the environment of constituents in the C3-5 BIR stream**.**

Chemical Distribution In The Environment (Fugacity Modeling)

Fugacity-based multimedia modeling provides basic information on the relative distribution of a chemical between selected environmental compartments (i.e., air, soil, water, sediment, suspended sediment, and biota). Two widely used fugacity models are the EQC (Equilibrium Criterion) Level I and Level III model (Mackay, 1998a; Mackay, 1998b).

The input data required to run a Level I model include basic physicochemical parameters; distribution is calculated as percent of chemical partitioned to 6 compartments (air, soil, water, suspended sediment, sediment, biota) within a unit world. Level I data are basic partitioning data that allow for comparisons between chemicals and indicate the compartment(s) to which a chemical may to partition, based on selected physical parameters. The Level III model uses the same physical parameters as the Level I model, but also requires half-life degradation data for the air, soil, water, and sediment compartments, as well as emission parameters for the air, water, and soil compartments.

Results of the Mackay Level I and Level III environmental distribution models for three representative stream constituents are shown in Tables 3 and 4, respectively.

Table 3. Environmental distribution as calculated by the Mackay (1998a) Level I fugacity model for select constituents used to characterize the C3-5 Butene-Isobutylene Rich stream.

ENVIRONMENTAL COMPARTMENT	MTBE DISTRIBUTION* (%)	TAME DISTRIBUTION** (%)	MSBE DISTRIBUTION† (%)
Air	91.95	97.77	96.70
Water	7.99	2.16	3.22
Soil	0.06	0.07	0.08
Sediment	<0.01	<0.01	<0.01
Suspended Sediment	<0.01	<0.01	<0.01
Biota	<0.01	<0.01	<0.01

* Distribution is based on the following model input parameters for MTBE (methyl-tert-butyl ether):

Molecular Weight	88.15
Temperature	25° C
Log K_{ow}	0.94
Water Solubility	51,000 g/m^3
Vapor Pressure	33,330 Pa
Melting Point	-108.6° C

** Distribution is based on the following model input parameters for TAME (tert-amyl methyl ether):

Molecular Weight	102.18
Temperature	25° C
Log K_{ow}	1.55
Water Solubility	5,468 g/m^3
Vapor Pressure	12,000 Pa
Melting Point	-81.22° C

† Distribution is based on the following model input parameters for MSBE (methyl-sec-butyl ether):

Molecular Weight	88.15
Temperature	25° C
Log K_{ow}	1.47
Water Solubility	16,400 g/m^3
Vapor Pressure	27,730 Pa
Melting Point	-100° C

Table 4. Environmental distribution as calculated by the Mackay (1998b) Level III fugacity model for select constituents used to characterize the C3-5 Butene-Isobutylene Rich stream.

ENVIRONMENTAL COMPARTMENT	MTBE DISTRIBUTION* (%)	TAME DISTRIBUTION* (%)	MSBE DISTRIBUTION† (%)
Air	21.1	26.2	7.3
Water	50.5	55.2	64.8
Soil	28.3	18.6	27.8
Sediment	0.1	0.1	0.2

* Distribution for MTBE (methyl-tert-butyl ether) is based on the following model input parameters, reaction half-life in hours as predicted using EPI SuiteTM (2000), and a model default emission rate of 1000 kg/hr into each of the air, water, and soil compartments:

Molecular Weight	88.15	Reaction half-life (hr):	
Temperature	25° C	Air (gaseous)	56.8
Log K_{ow}	0.94	Water (no susp. part.)	360
Water Solubility	51,000 g/m^3	Bulk Soil	720
Vapor Pressure	33,330 Pa	Bulk Sediment	3,240
Melting Point	-108.6° C		

** Distribution for TAME (tert-amyl methyl ether) is based on the following model input parameters, reaction half-life in hours as predicted using EPI SuiteTM (2000), and a model default emission rate of 1000 kg/hr into each of the air, water, and soil compartments:

Molecular Weight	102.18	Reaction half-life (hr):	
Temperature	25° C	Air (gaseous)	46.7
Log K_{ow}	1.55	Water (no susp. part.)	360
Water Solubility	5,468 g/m^3	Bulk Soil	720
Vapor Pressure	12,000 Pa	Bulk Sediment	3,240
Melting Point	-81.22° C		

† Distribution for MSBE is based on the following model input parameters, reaction half-life in hours as predicted using EPI SuiteTM (2000), and a model default emission rate of 1000 kg/hr into each of the air, water, and soil compartments:

Molecular Weight	88.15	Reaction half-life (hr):	
Temperature	25° C	Air (gaseous)	7.6
Log K_{ow}	1.47	Water (no susp. part.)	360
Water Solubility	16,400 g/m^3	Bulk Soil	720
Vapor Pressure	27,730 Pa	Bulk Sediment	3,240
Melting Point	-100° C		

Conclusion

Results of the Mackay Level I model suggest that the predominant constituents of the C3-5 BIR stream will partition primarily to the air, >91%. These results are largely explained by their vapor pressures. In comparison, the Level III model suggests that the majority of the C3-5 BIR stream will partition to the water compartment, approximately 51 to 65%, followed by the soil compartment at approximately 19 to 28%, and air compartment at approximately 7 to 26%. These results are explained by the model

parameters, but in particular the default emission rates and degradation half-lives.

C. Aquatic Toxicity Data

Data are available to characterize the potential freshwater fish acute, invertebrate acute, and freshwater alga toxicity of the C3-5 Butene-Isobutylene Rich stream, based on data for three constituents, MTBE, TAME, and MSBE (Tables 5 through 7).

MTBE demonstrated a measured 96-hour fathead minnow (*Pimephales promelas*) LC_{50} toxicity value of 672 mg/L (Geiger, *et al*, 1988) and a measured 48-hour invertebrate (*Daphnia magna*) EC_{50} toxicity value of 651 mg/L (Huels AG, 1991b). The lowest green alga (*Selenastrum capricornutum*) 72-hour EC_{50} toxicity value was for growth rate and measured >800 mg/L (ECB data). The 72-hour NOEC value from this study was 470 mg/L (Huels AG, 1991c).

The measured MTBE data were compared with data calculated (Table 5) by the ECOSAR model (2004). This model is considered appropriate to estimate the aquatic toxicity for this class of chemicals. The calculated data compared favorably with the measured data. The calculated freshwater fish acute, invertebrate acute, and freshwater alga toxicity values ranged between 140 to 231 mg/L.

Table 5. Measured and calculated aquatic toxicity values for MTBE (methyl-tert-butyl ether).

ENDPOINT	MEASURED VALUE (mg/L)	CALCULATED VALUE* (mg/L)
Fish 96-hr LC_{50}	672 (Geiger, *et al*, 1988)	224
Daphnid 48-hr EC_{50}	651 (Huels AG, 1991b)	231
Alga 72-hr ErC_{50}	>800 (ECB data)	na
Alga 96-hr EC_{50}	na	140
Alga 72-hr NOEC	470 (ECB data)	na
Alga 96-hr ChV**	na	10**

na - not available

* Model input parameters for ECOSAR (2004):
Log K_{ow} 0.94
Water Solubility 51,000 g/m^3
Melting Point -108.6° C

** ChV (chronic) value

TAME demonstrated a measured 96-hour trout (*Oncorhynchus mykiss*) LC_{50} toxicity value of 580 mg/L (API, 1995a) and a measured 48-hour invertebrate (*Daphnia magna*) EC_{50} toxicity value of 100 mg/L (API, 1994). The lowest green alga (*Selenastrum capricornutum*) 72-hour EC_{50} toxicity value was for biomass and measured 230 mg/L (Fortum, 2003). The 72-hour NOEC value from this study was 77 mg/L.

The measured TAME data were compared with data calculated (Table 6) by the ECOSAR model (2004). This model is considered appropriate to estimate the aquatic toxicity for this class of chemicals. The calculated data compared favorably with the measured data. The calculated freshwater fish acute, invertebrate acute, and

freshwater alga toxicity values ranged between 127 to 208 mg/L.

Table 6. Measured and calculated aquatic toxicity values for TAME (tert-amyl methyl ether).

ENDPOINT	MEASURED VALUE (mg/L)	CALCULATED VALUE* (mg/L)
Fish 96-hr LC_{50}	580 (API, 1995a)	201
Daphnid 48-hr EC_{50}	100 (API, 1994)	208
Alga 72-hr EbC_{50}	230 (Fortum, 2003)	na
Alga 96-hr EC_{50}	na	127
Alga 72-hr NOEC	77 (Fortum, 2003)	na
Alga 96-hr ChV**	na	10**

na - not available

* Model input parameters for ECOSAR (2004):
Log K_{ow} 1.55
Water Solubility 5,468 g/m^3
Melting Point -81.2° C

** ChV (chronic) value

Measured acute aquatic toxicity data were not available for MSBE (Table 7). Calculated acute and chronic toxicity values are reported in Table 7, and were generated by the ECOSAR model (2004). This model is considered appropriate to estimate the aquatic toxicity for this class of chemicals. The calculated data compared favorably with the measured and calculated data for MTBE and TAME. The calculated freshwater fish acute, invertebrate acute, and freshwater alga toxicity values ranged between 9.5 to 213 mg/L.

Table 7. Measured and calculated aquatic toxicity values for MSBE (methyl-sec-butyl ether).

ENDPOINT	MEASURED VALUE (mg/L)	CALCULATED VALUE* (mg/L)
Fish 96-hr LC_{50}	na	206
Daphnid 48-hr LC_{50}	na	213
Alga 96-hr EC_{50}	na	129
Alga 96-hr ChV**	na	9.5

na - not available

* Model input parameters for ECOSAR (2004):
Log K_{ow} 1.47
Water Solubility 16,400 g/m^3
Melting Point -100° C

** ChV - chronic value

Conclusion

The predominant constituents of the C3-5 Butene-Isobutylene Rich stream include the methoxypentanes (3 constituents), which when combined can comprise up to 97% of the stream, will be responsible for the biological effects exhibited by the stream as a whole. Therefore, the effect range characterized by the data represents the potential aquatic toxicity of the C3-5 BIR stream, which can range from 9.5 to 231 mg/L.

D. Mammalian Toxicity Data

Acute Toxicity

Data are available to characterize the potential acute toxicity of the C3-5 Butene-Isobutylene Rich stream, based on data for three constituents, MTBE, TAME, and MSBE. The oral rat LD_{50} values for MTBE and TAME were approximately 3900 mg/kg (ARCO, 1980), and 2100 mg/kg (Daughtrey and Bird, 1995), respectively. The dermal LD_{50} values for MTBE and TAME were >10000 mg/kg (ARCO, 1980) and >3160 mg/kg (ExxonMobil, 1985a), respectively. The inhalation rat LC_{50} value for MTBE and TAME were 8.5 mg/L (Mastri, *et.al*., 1969) and >5.4 mg/L (Amoco, 1991a). An additional inhalation exposure of mice to MSBE resulted in an LC_{50} of 141,000 mg/m^3 (Marsh & Leake, 1950).

In summary, available acute toxicity data on predominant constituents of the C3-5 Butene-Isobutylene Rich stream demonstrated a low order of acute oral, dermal, and inhalation toxicity. No further testing is proposed.

Genotoxicity

In vitro

MTBE has been extensively tested for genotoxicity in a variety of *in vit*ro test systems. Although all results have not been consistently negative, the conclusion is that the substance is not a genotoxicant (ECB, 2002; ARCO, 1980). TAME, was also negative in a bacterial reverse gene mutation assay (Ames test) in *Salmonella typhimurium* and/or *Escherichia coli* with and without S-9 metabolic activation (Brooks et al., 1982; Daughtrey and Bird, 1995; OECD, 2002). No data was available for MSBE.

TAME was also tested in an *in vitro* Mammalian Chromosomal Aberration Test (American Petroleum Institute, 1997b). In this study, TAME was tested in cultured Chinese hamster ovary (CHO) cells for induction of chromosomal aberrations, both in the presence and absence of Aroclor 1254-induced Sprague-Dawley rat liver S9. The test included concurrent solvent and positive controls and five doses of TAME. The doses tested were 313, 625, 1250, 2500, and 5000 μg/ml. In the absence of S9, a statistically significant increase in aberrant cells was observed at 2500 and 5000 ug/ml, and a dose response was observed. In the presence of S9, a statistically significant increase in aberrant cells was observed at all concentrations, and a dose response was observed. In conclusion, based on these results, TAME was clastogenic under the conditions of this assay.

In vivo

MTBE has also been extensively tested for genotoxicity in a number of *in viv*o test systems. Again, all results have not been consistently negative, however, the conclusion is that the substance is not a genotoxicant (ECB, 2002; McKee *et.al*., 1997).

TAME was evaluated *in vivo* for its ability to induce micronuclei in bone marrow polychromatic erythrocytes (PCEs) in CD-1 mice (Daughtrey and Bird, 1995). TAME was diluted in corn oil and administered as a single intraperitoneal injection at doses of 0.15, 0.375, and 0.75 g/kg. Cyclophosphamide was dissolved in water and used as the positive control at a dose of 40 mg/kg. Animals from the appropriate groups were euthanized by CO_2 at approximately 24, 48 and 72 hours after administration of test article. Animals dosed with cyclophosphamide were taken at 24 hours only. Each group consisted of 10 animals (5/sex/group) per time point. At death, both femurs from each animal were removed and bone marrow was recovered and suspended in fetal bovine serum. Bone marrow slides were prepared and stained with acridine orange prior to microscopic evaluation. One thousand polychromatic erythrocytes from each animal were examined for micronuclei formation. In addition, the ratio of polychromatic erythrocytes (PCEs) to normochromatic erythrocytes (NCEs) was determined by counting 1000 erythrocytes (PCEs and NCEs). No increase in microcucleus frequency was observed at any dose level of TAME or at any of the bone marrow collection times. The positive control produced statistically significant increases in micronucleus frequencies in both males and females. Overt marrow toxicity, as measured by a statistically significant decrease in the percentage of polychromatic erythrocytes, was not observed in any of the groups dosed with TAME. The percentages of polychromatic erythrocytes observed were within the normal range. Thus, these data indicated that TAME did not cause clastogenic effects in mouse bone marrow.

In summary, *in vitro* and *in vivo* genotoxicity testing of MTBE demonstrated no evidence of genotoxicity. TAME was not mutagenic in an *in vitro* Ames assay but was found to be clastogenic in an *in vitro* chromosome aberration study. However, as no evidence of genotoxicity was observed in an *in vivo* mouse micronucleus test, the weight of evidence suggests that TAME is not a mutagen. No data was available on the genotoxicity of MSBE. Based on these data on predominant constituents, no additional testing on the C3-5 Butene-Isobutylene Rich stream is proposed.

Repeated Dose Toxicity

A number of repeated dose toxicity studies have been conducted on MTBE and TAME.

In repeated dose toxicity studies with MTBE, the principal affected organs are the liver and the kidneys, mainly at inhaled concentrations of 3,000 ppm and above or at oral doses of 250 mg/kg or higher (ECB, 2002; Greenough, *et. al.*, 1980; Robinson, *et.al*., 1990). MTBE produced protein droplet nephropathy, probably associated with the male rat specific accumulation of α2u-globulin in tubular cells. MTBE increased liver weight and induced hepatocyte hypertrophy in rats and mice. In female mice, MTBE induced a variety of microsomal P450 activities without hepatotoxicity or an increase in sustained nonfocal hepatocyte DNA synthesis (ECB, 2002).

A 28-day repeated dose inhalation toxicity study was conducted with TAME vapor in Sprague-Dawley rats (Amoco, 1991a; White *et al.*, 1995). In this study, the rats

(14/sex/group) were exposed to TAME vapor at target concentrations of 0, 500, 2000, and 4000 ppm for 6 hours per day, 5 days per week for 4 weeks. Three out of 14 males and 4 out of 14 females in the 4000 ppm group died during the study, three animals during the first week, two during the second week and two during the third week. The 2000 ppm and 4000 ppm groups showed signs of central nervous system depression as well as other signs of toxicity, e.g., lacrimation, dyspnea, rales, diarrhea, piloerection, etc. Significant decreases in body weight gain were observed in the 4000 ppm males resulting in significantly reduced mean body weights during weeks 2 - 4. No other significant effects on body weight were reported. Evaluation of gross pathology revealed that absolute brain weights were significantly decreased in the 4000 ppm males and that absolute liver weights were significantly increased in the 2000 ppm males and 4000 ppm females. Many relative organ weights were increased for the 4000 ppm males due to the reduced body weights of these animals. No treatment-related histopathological findings were noted. TAME produced minimal effects on clinical chemistry and hematology parameters. A No Observed Adverse Effect Level (NOAEL) of 500 ppm was determined in this study.

A 28-day repeated oral dose toxicity study was conducted with TAME in Sprague-Dawley rats (Daughtrey and Bird, 1995). In this study, the rats (5/sex/group) were dosed with 0, 125, 500, and 1000 mg/kg TAME in corn oil by gavage at a dose volume of 2 ml/kg. Vehicle control animals received corn oil only. The dosing regimen was once daily, 7 days a week, for a period of 29 days.

Four animals (two male, two female) in the high-dose group died during the course of the study. Of these four, two deaths were attributed to dosing accidents. The remaining two deaths were presumed to be test material-related, although a precise cause of death could not be identified. All other animals survived to the scheduled termination. Overall, in-life observations were unremarkable. Lung rales and anogenital staining of the fur were observed at a low frequency in the high-dose group. The majority of animals of either sex did not exhibit any unusual symptoms or behaviors. Mean body weights of high-dose males were significantly lower than those of control males at day 7, day 21, and day 28. Mean body weight gain in high-dose females was also lower than in control females, although the difference was not statistically significant. Food consumption in high-dose males and females was also significantly reduced compared to controls during week 1. During week 2, food consumption was significantly reduced only in high dose males. A dose-related increase in adrenal weights was observed that was statistically significant in the mid- and high-dose males. A similar increase in adrenal weights was not observed in female rats dosed with TAME. Relative kidney weights were also increased in mid- and high-dose male rats compared to control.

Hematology and serum chemistry values were generally similar across dose groups. Activated partial thromboplastin time was statistically increased in the high-dose male (but not female) group. However, this small increase was not believed to be biologically meaningful. The mean serum glucose value was also significantly reduced in the high-dose male group. The biological significance of this finding was unknown, however a similar decrease in serum glucose was not observed in high-dose females. No treatment-related tissue lesions were observed during the histopathological examination. Any changes observed were limited to naturally occurring lesions that were present in approximately equal frequency in all groups, including controls. Of

note, the organ weight increases observed in the kidney and adrenals were not accompanied by any histopathological changes. The NOAEL in this study was determined to be 500 mg/kg/day.

In a 13-week repeated dose toxicity study conducted by the American Petroleum Institute (1997a), F344 rats (51/sex - control and high dose; 41/sex - low and mid-dose) and CD-1 mice (46/sex -control and high dose; two groups each; 36/sex -low and mid-dose) were exposed by whole body inhalation to TAME at target concentrations of 0, 240, 1500, and 3500 ppm for 6 hours/day, 5 day/week for 13 weeks (minimum 65 exposures). A new high dose group of mice at 2500 ppm and corresponding control group were established due to high mortality at 3500 ppm. The results for rats and mice are presented separately.

In rats, a number of effects were observed at the highest dose used, 3500 ppm. These effects included a low incidence of mortality (2/102), abnormal clinical signs (lethargy and prostration), acute neurological effects, decreased body weight and body weight gain, effects on hematology (increased platelet counts), effects on clinical chemistry (increases in total protein, albumin and globulin), and a number of effects on organ weights. The effects on the kidneys of the male rats were consistent with the male rat specific α2u-globulin syndrome and were not considered to be relevant to risk assessment in humans. Exposure of rats at 1500 ppm resulted in effects including post exposure clinical signs, acute neurological effects (males only), increased platelet count in males, increases in total protein, albumin and globulin and effects on liver and kidney (only in females) weight. An increase in liver weights of male rats exposed to 250 ppm was also observed. Many of these resolved after the 4 week recovery period. On histopathological examinations, no dose-related changes were observed in the liver. No test material-related changes in motor activity were observed at any doses. The NOAEL for rats was 1500 ppm in this study.

In this study, high mortality was observed in mice exposed to 3500 and 3000 ppm. A number of effects were observed at the highest dose used in the main study, 2500 ppm. These included 27 deaths among 92 mice, post-exposure clinical signs, effects on a number of clinical chemistry parameters, and increased liver weights. Exposure of mice at 1500 ppm resulted in effects including post exposure clinical signs, increased globulin in males at week 6 and effects on liver weights in males. Many of these resolved after the 4 week recovery period. Liver cell proliferation studies showed increases in the labelling index of hepatocytes and centrilobular hepatocellular hypertrophy was observed in the 2500, 1500 and 250 ppm animals. Centrilobular hepatocellular hypertrophy is considered an adaptive response to increased metabolic load. The NOAEL for mice was determined to be 1500 ppm.

In summary, data are available to adequately characterize the repeated dose toxicity of C3-5 Butene-Isobutylene Rich stream. The C3-5 BIR stream is expected to have a low order of repeated dose toxicity. No further testing is proposed.

Reproductive and Developmental Toxicity

Predominant constituents of the C3-5 Butene-Isobutylene Rich stream have been evaluated for reproductive and developmental toxicity.

MTBE has been tested for effects on fertility in one- and two-generation studies in Sprague-Dawley rat via the inhalation route. The NOAEL for F1-animals in the one-generation study was 250 ppm; a lowered pup viability index was seen at a LOAEL of 1,000 ppm (Biles, *et.al*., 1987; OECD, 2002). In the two-generation study, a NOAEL of 400 ppm was determined for both the F1- and F2-animals (Bevan, *et.al,* 1997; ECB, 2002). The only effects seen at the LOAEL were reduced body weight at 3,000 ppm and increased relative liver weight.

Developmental toxicity of MTBE has been tested via the inhalation route in rats, mice and rabbits. There were no adverse effects noted in the Sprague-Dawley rat at 2,500 ppm or the CD-1 mouse at 1,000 ppm (Conaway, *et.al,* 1985; ECB, 2002). Sternebrae malformations observed in CD-1 mice at 250 to 2,500 ppm were not considered treatment related. Reduced body weight and skeletal abnormalities were seen in CD-1 only at 4,000 ppm, a dose level already toxic to dams (Bevan, *et.al*, 1997; ECB, 2002). Likewise, no adverse effects to the developmental of New Zealand White rabbits could be demonstrated, even at 8,000 ppm (Bevan, *et.al*, 1997; ECB, 2002).

A two-generation reproductive toxicity study of inhaled TAME vapor was conducted in Sprague-Dawley rats (Tyl *et al.*, 2003). In this study, weanling F0 rats (30/sex/group) inhaled TAME vapor at 0, 250, 1500, or 3000 ppm 5 day/week and 6 h/day for 10 weeks, with vaginal cytology evaluated for weeks 8-10. The F0 animals then produced F1 offspring, with exposure 7 days a week from mating through to lactation. During the F1 prebreed exposure period, vaginal patency, preputial separation (PPS) and vaginal cytology were evaluated. The F1 animals were mated, with F2 anogenital distance measured on postnatal day zero. At F2 weaning 30 of each gender per group were selected for postwean retention, with no exposures, through vaginal patency and PPS. Body weights, feed consumption and clinical signs were recorded throughout the study. Adult F0 and F1 systemic toxicity was present at 1500 and 3000 ppm. Minor adult male reproductive toxicity was present at 3000 ppm. There were no adult effects on vaginal cyclicity, estrous cycle length, mating, fertility, pregnancy, gestational length or ovarian and uterine weights. There were no treatment-related gross or histopathologic findings in parental male or female systemic or reproductive organs. Offspring toxicity was present at 1500 and 3000 ppm. The NOAEL for adult reproductive toxicity was 1500 ppm for males and 3000 ppm for females. The NOAEL for offspring toxicity was 250 ppm in rats under the conditions of this study.

A developmental toxicity study was conducted by TAME vapor inhalation exposure in two pregnant rodent species (Welsch *et al.*, 2003). Timed-pregnant Sprague-Dawley rats and CD-1 mice, 25 animals per group, inhaled TAME vapors containing 0, 250, 1500, or 3500 ppm for 6 hours a day on gestational days (gd) 6-16 (mice) or 6-19 (rats). The developmental toxicity hazard potential was evaluated following the study design draft guidelines and end points proposed by the United States Environmental Protection Agency.

In the present study, inhalation of TAME by pregnant rats from gestational days 6-19 resulted in manifestations of maternal toxicity at 1500 and 3500 ppm. These effects were expressed by reductions in body weight (at 3500 ppm only), feed consumption and weight gain, and TAME exposure-induced clinical signs of toxicity. There was no evidence of maternal toxicity at 250 ppm. The increased maternal relative liver weight

at 3500 ppm that occurred when maternal body weight was actually reduced may be due to induction of metabolizing enzymes and a concurrent increase in liver mass. There was a clear indication of maternal accommodation to the highest TAME exposure concentration, as evidenced by diminution in incidence and intensity of clinical signs such as ataxia, lethargy and slow respiration over time. Developmental toxicity occurred only at 3500 ppm and was expressed as reduced fetal body weights per litter. There was no evidence of treatment-related teratogenicity at any of the three exposure concentrations and no other developmental effects. Almost all of the fetal malformation and variation findings were those commonly observed in historical control Sprague-Dawley rat fetuses and in published control databases. Therefore, the NOAEL was 250 ppm for maternal toxicity and 1500 ppm for developmental toxicity in rats under the conditions of this study.

In mice, the inhalation of TAME vapors during gd 6-16 resulted in maternal toxicity at 3500 ppm, including maternal mortality (4/25), reductions in body weight, weight gain and treatment-related clinical signs of toxicity. At 1500 ppm, mice exhibited reduced feed consumption (only for gd 6-9) and limited treatment-related clinical signs of toxicity. There was no evidence for maternal toxicity at 250 ppm. The increased maternal absolute and relative liver weights at 1500 and 3500 ppm may have been due to induction of metabolizing enzymes and therefore increase in tissue mass. There was also a clear indication of reduced pharmacological effects with time and maternal accommodation to the top two exposure concentrations. This interpretation was supported by observations of mortality at 3500 ppm early in the exposure period (gd 6-9) only and diminution over time in the incidence of clinical signs of toxicity, such as ataxia, lethargy, gasping and slow respiration. The increased relative liver weight may have been due, at least in part, to the reduced body weights of the dams at termination at 3500 ppm. Developmental toxicity was present at 3500 ppm, expressed specifically as increased incidence of late fetal deaths, reduced fetal body weights per litter and increased incidences of cleft palate (an external malformation) and of enlarged lateral ventricles of the cerebrum (a visceral variation). At 1500 ppm, three fetuses in three litters also exhibited cleft palate (with none observed at 250 or 0 ppm). This increase was not statistically significant, but it is considered biologically relevant and related to maternal TAME exposure. The finding of one additional litter at 1500 ppm with three multiply malformed fetuses (out of nine live fetuses total) may be unrelated to treatment because these malformations were not observed at 3500 ppm and were limited to only one litter at 1500 ppm. The observation of cleft palate in fetuses at 1500 and 3500 ppm appears to be consistent with a proposed mechanism for cleft palate in mice exposed to methyl tertiary butyl ether (MTBE). Maternal exposure to MTBE with anesthetic qualities at high concentrations associated with maternal stress results in elevated endogenous corticosteroid levels, which cause cleft palate to the developing offspring in mice (Bevan *et al.*, 1997). Although those hormone levels were not determined in the present study, the biological mode of action of TAME appears to be similar and comparable to that of MTBE, as judged by clinical observations. At high exposure concentrations in mice, TAME exerts depressant effects on the central nervous system that resemble anesthetic properties and are preceded by a pronounced excitatory stage. Therefore, the brain stimulation and excitation may have induced a rise in endogenous corticosteroid levels in the mouse dams. The occurrence of a significantly increased incidence of fetal cleft palate at the 3500 ppm exposure level, coincident with maternal toxicity, suggests that stress of the dams is a contributing factor. Mice are

sensitive to stress, and cleft palate occurs in offspring if the pregnant dams experience stress such as food and water deprivation, transportation, restraint or low humidity. That corticosteroids cause cleft palate in susceptible mouse strains is well documented. The increased incidence of enlarged lateral ventricles of the fetal cerebrum at 3500 ppm is consistent with developmental delay because the fetuses at this exposure concentration exhibited mean body weights per litter of about 60% of the concurrent control group values. There were no notable developmental effects at 250 ppm. Therefore, the NOAEL for maternal and developmental toxicity in mice was 250 ppm in the present study.

The available data on predominant constituents of the C3-5 Butene-Isobutylene Rich stream prove adequate to support a screening level assessment of the reproductive and developmental toxicity of the C3-5 BIR stream. Furthermore, these data indicate that the C3-5 BIR stream is expected to have a low order of reproductive and developmental toxicity.

Conclusion

Mammalian toxicology data on three constituents of the C3-5 BIR stream, MTBE, TAME, and MSBE, have shown a low order of acute toxicity by the oral, dermal and inhalation routes of exposure. In repeated dose toxicity studies, the principal affected organs are the liver and the kidneys, mainly at inhaled concentrations of 3,000 ppm and above or at oral doses of 250 mg/kg or higher. Repeated exposure to these constituents is not expected to cause significant harm to reproduction or the developing fetus. There is no evidence of causing adverse effects on genetic material. The available data compiled for predominant constituents prove adequate to support a screening level hazard assessment of the C3-5 BIR stream. Therefore, no additional human health toxicity testing is proposed.

Table 8. Mammalian toxicity endpoint summary for MTBE.

TOXICITY ENDPOINT		RESULTS	REFERENCE
Acute	Inhalation	LC50 85 mg/L	Mastri, *et. al*., 1969
	Oral	LD50 = ~3866 mg/kg	ARCO, 1980
	Dermal	LD50 >10000 mg/kg	ARCO, 1980
Irritation	Skin	Moderate irritant	ARCO, 1980
	Eye	Minimal irritant	ARCO, 1980
Sensitization		Not a dermal sensitizer	Litton Bionetics Inc., 1980
Repeated Dose		Inhalation: NOAEL = 500 ppm Oral: NOAEL = 357 ppm	
Reproductive		NOAEL for adult toxicity = 250 ppm (1-Gen) = 400 ppm (2-Gen) NOAEL for offspring toxicity = 250 ppm (1-Gen) = 400 ppm (2-Gen)	Biles, *et al.*, 1987; Bevan, *et.al*, 1997; ECB, 2002
Developmental		NOAEL developmental toxicity = 2500 ppm (rat) 1000 ppm (mouse) 1000 ppm (rabbit) NOAEL developmental toxicity = 2500 ppm (rat) 1000 ppm (mouse) >8000 ppm (rabbit)	Conaway, *et al.*, 1985; Bevan, *et.al*, 1997; ECB, 2002
Neurotoxicity		Acute CNS depression were only observed at high doses immediately after exposure. All effects were mostly reversible within 6 hours.	Gill, 1989; ECB, 2002
Genotoxicity	*In vitro* Ames *Salmonella* assay	Negative	ECB, 2002
	In vitro chromosome aberration	Negative - MTBE was not clastogenic under the conditions of this assay	ECB, 2002; ARCO, 1980
	In vivo micronucleus	Negative - in CD-1 Mice erythrocytes	ECB, 2002; McKee,*et. al.,* 1997

Table 9. Mammalian toxicity endpoint summary for TAME.

TOXICITY ENDPOINT		RESULTS	REFERENCE
Acute	Inhalation	LC50 >5.4 mg/L	Amoco, 1991a
	Oral	LD50 = ~2100 mg/kg	Daughtrey and Bird, 1995
	Dermal	LD50 >3160 mg/kg	ExxonMobil, 1985a
Irritation	Skin	Minimal irritant	Amoco, 1991b
	Eye	Minimal irritant	ExxonMobil, 1985b
Sensitization		Not a dermal sensitizer	American Petroleum Institute, 1995b
Repeated Dose		Rat: NOAEL = 1500 ppm Mouse: NOAEL = 1500 ppm	American Petroleum Institute, 1997a
Reproductive		NOAEL for adult reproductive toxicity = 1500 ppm (males), >3000 ppm (females) NOAEL for offspring toxicity = 250 ppm	Tyl *et al.*, 2003
Developmental		NOAEL for maternal toxicity = 250 ppm (rat, mouse) NOAEL developmental toxicity = 1500 ppm (rat), 250 ppm (mouse)	Welsch, 2003
Neurotoxicity		Acute CNS depression were only observed at high doses immediately after exposure. All effects were completely reversible within 24 hours.	American Petroleum Institute, 1997a
Genotoxicity	*In vitro* Ames *Salmonella* assay	Negative	Daughtrey and Bird, 1995
	In vitro chromosome aberration	Positive - TAME was clastogenic under the conditions of this assay	American Petroleum Institute, 1997b
	In vivo micronucleus	Negative - TAME was not clastogenic to mouse bone marrow	Daughtrey and Bird, 1995

Table 10. Mammalian toxicity endpoint summary for MSBE.

TOXICITY ENDPOINT		RESULTS	REFERENCE
Acute	Inhalation	LC50 = 141,000 mg/m^3	Marsh and Leake, 1950
	Oral		
	Dermal		
Irritation	Skin		
	Eye		
Sensitization			
Repeated Dose			
Reproductive			
Developmental			
Neurotoxicity			
Genotoxicity	*In vitro* Ames *Salmonella* assay		
	In vitro chromosome aberration		
	In vivo micronucleus		

IV. TEST PLAN SUMMARY

A search for existing studies/information identified adequate data to characterize all endpoints under the U.S. EPA HPV Program using data from representative constituents of the predominant fractions in the C3-5 BIR stream. The three constituents were MTBE, TAME, and MSBE. Adequate data for MTBE, TAME, and MSBE are shown in Table 11.

Table 11. MTBE**,** TAME, and MSBE data availability and adequacy for endpoints in the HPV Program.

	Mammalian Toxicity						**Environmental Toxicity**			**Environmental Fate**				**Physical/Chemical Properties**					
	Acute Tox.	Genetic Pt. Mut.	Genetic Chrom.	Repeat Dose	Devel.	Repro.	Acute Fish	Acute Invert.	Alga Tox.	Photo-deg.	Hydrol.	Fug.	Biodeg.	Melt. Pt.	Boil. Pt.	Dens.	Vap. Pres.	Water Sol.	K_{ow}
MTBE	**A**	**A**	**A**	**A**	**A**	**A**	**A/C**	**A/C**	**C**	**T**	**T**	**C**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
TAME	**A**	**A**	**A**	**A**	**A**	**A**	**A/C**	**A/C**	**C**	**T**	**T**	**C**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
MSBE	**A**	**-**	**-**	**-**	**-**	**-**	**C**	**C**	**C**	**T**	**T**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**

A Adequate measured data available
C Adequate computer model data available
T Adequate technical discussion available

V. REFERENCES

Aldrich Handbook (2003-2004). Fine Chemicals and Laboratory Equipment.

American Petroleum Institute (1994). Tert-Amyl Methyl Ether (TAME) - Acute Toxicity to Daphnids (Daphnia magna) Under Flow-through Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report 92-12-4545. Unpublished report.

American Petroleum Institute (1995a). Tert-Amyl Methyl Ether (TAME) - Acute Toxicity to Rainbow Trout (Oncorhynchus mykiss) Under Flow-through Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report 93-3-4682. Unpublished report.

American Petroleum Institute (1995b). Closed-Patch repeated insult dermal sensitization study of tertiary amyl methyl ether (TAME) in guinea pigs (Buehler Method), Project No. 403, Bio/dynamics Inc. East Laboratory, East Millstone, NJ, USA. Unpublished report.

American Petroleum Institute (1997a). A 13-week inhalation toxicity/neurotoxicity study of tert-Amyl Methyl Ether (TAME) in the rat and mouse via whole-body exposures with a 4-week recovery period, Project No. 95-6101, Huntingdon Life Sciences, East Millstone, NJ, USA. Unpublished report.

American Petroleum Institute (1997b). Chromosome aberrations in Chinese hamster ovary (CHO) cells: Tertiary Amyl Methyl Ether (TAME), Project No. G96CJ24.330, Microbiological Associates, Inc., Rockville, MD, USA. Unpublished report.

Amoco (1991a). Acute inhalation toxicity study of tert-Amyl Methyl Ether (TAME) in rats. Project No. L08100 1652, IIT Research Institute Life Sciences Research, Chicago, IL, USA. Unpublished report.

Amoco (1991b). Acute dermal irritancy/corrosivity study of tertiary amyl methyl ether (TAME) in rabbits, Project No. L08100 1649. IIT Research Institute Life Sciences Researches, Chicago, IL, USA. Unpublished report.

ARCO (1980). ARCO Chemical Company. Methyl Tertiary Butyl Ether: Acute Toxicology Studies.

ARCO (1993). ARCO Chemical Company. Methyl Tertiary Butyl Ether: Product Safety Bulletin.

Bealing D (1995). Tertiary amyl methyl ether (TAME): assessment of ready biodegradability by measurement of oxygen uptake. Hazleton Europe. Report No. 1359/3-1018. 28 February 1995.

Bennett G.M., W.G. Philip (1928). J Chem Soc pp. 1930-7.

Bevan C, Neeper-Bradley TL, Tyl RW, Fisher LC, Panson RD, Kneiss JJ & Andrews LS (1997). Two-generation reproductive toxicity study of methyl tertiary-butyl ether (MTBE) in rats. *Journal of Applied Toxicology*, 17 Suppl 1, S13-9.

Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and Andrews L (1997). Developmental toxicity evaluation of methyl tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl Toxicol 17:S21-S29.

Biles RW, Schroeder RE & Holdsworth CE (1987). Methyl tertiary butyl ether inhalation in rats - a single generation reproduction study. *Toxicology and Industrial Health*, **3,** 519-34.

Brooks T, Meyer A and Hutson, D (1982). The genetic toxicology of some hydrocarbon and oxygenated solvents. Mutagenesis 3:227-232.

Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of methyl tertiary butyl ether in rats and mice. *JournaL of Toxicology and Environmental Health*, **16,** 797-809.

Daubert T and Danner R (1989). Physical and thermodynamic properties of pure chemicals: Data compilation. Design Institute for Physical Property Data, American Institute of Chemical Engineers. Hemisphere Publishing Corp., New York, NY, USA.

Daughtrey W and Bird M (1995). Genotoxicity and Twenty-eight day subchronic toxicity studies on Tertiary Amyl Methyl Ether. J Appl Tox 15 (4): 313-319.

ECOSAR v0.99h (2004) in EPI Suite™, U.S. EPA (2000). Estimation Program Interface Suite, v3.12. Syracuse Research Corporation, Syracuse, NY, USA.

ECB (2002). European Union Risk Assessment Report: CAS No. 1634-04-4, Tert-Butyl-Methyl-Ether. European Chemicals Bureau, 3rd Priority List Volume 19.

ExxonMobil Biomedical Sciences (1985a). Acute dermal toxicity study in the rabbit, Project No. 254806. Bio/dynamics Inc. East Laboratory, East Millstone, NJ, USA. Unpublished report.

ExxonMobil Biomedical Sciences (1985b). Occular irritation study in the rabbit, Project No. 254813. Bio/dynamics Inc. East Laboratory, East Millstone, NJ, USA.

Fortum O (2003). 2-Methoxy-methylbutane (TAME): Algal inhibition test. SafePharm Laboratories. Project No. 1755/003. Unpublished report.

Geiger, D.L., D.J. Call, and L.T. Brooke. (1988). Acute Toxicities of Organic Chemicals to Fathead Minnows *(Pimephales promelas).* Vol. 4. Center for Lake

Superior Environmental Studies. University of Wisconsin-Superior, Superior, WI. Pp. 75-76.

Gill M (1989). Methyl Tertiary Butyl Ether Single Exposure Vapor Inhalation Neurotoxicity Study in Rats. Export, Pennsylvania: Bushy Run Research Center.

Greenough RJ, McDonald P, Robinson P, Cowie JR, Maule W, Macnaughtan F & Rushton A (1980). Methyl Tertiary Butyl Ether (Driveron) Three Month Inhalation Toxicity in Rats. pp. 227. Edinburgh: Inveresk Research International.

Hansch C, Leo A and Hoekman, D (1995). Exploring QSAR - Hydrophobic, Electronic, and Steric Constants. American Chemical Society. Washington, DC, USA.

Harris J (1982a). Rate of Aqueous Photolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

Harris J (1982b). Rate of Hydrolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

Huels AG (1991a). Report number GF-211 (unpublished). Publicly available from European Chemical Bureau website.

Huels AG (1991b). Report number DK-476 (unpublished). Publicly available from European Chemical Bureau website.

Huels AG (1991c). Report number AW-221 (unpublished). Publicly available from European Chemical Bureau website.

Huttunen H (1996). Risk assessment of complex petroleum substances: hazard identification of NExTAME and re-formulated gasoline. Licentiate's Thesis, University of Kuopio, April 1996.

Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the environmental hazards of gasoline oxygenate tert-amyl methyl ether (TAME). Chemosphere 35, 1199-1214.

Klimisch H, Andreae M and Tillmann U (1997). A Systematic Approach for Evaluating the Quality of Experimental Toxicological and Ecotoxicological Data. Regulatory Toxicology and Pharmacology. 25:1-5.

Lide D, *et al.* (eds.) (1998-1999). CRC Handbook of Chemistry and Physics. 79th Edition. CRC Press, New York, NY, USA.

Litton Bionetics, Inc. (1980). Guinea Pig Sensitization Study: TBME-99. LBI Project

Number: 22022, September 1980).

Mackay D (1998a). Level I Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

Mackay D (1998b). Level III Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

Marsh DF, Leake CD (1950). The comparative anesthetic activity of the aliphatic ethers. Anesthesiology 11: 455-463.

Mastri C, Keplinger ML & Fancher OE (1969). Acute Toxicity Studies on X-801-25: Industrial Bio-test Laboratories, Inc. (IBT).

McKee RH, Vergnes JS, Galvin JB, Douglas JF, Kneiss JJ & Andrews LS (1997). Assessment of the *in vivo* mutagenic potential of methyl tertiary-butyl ether. *J Appl Toxicol*, 17 Suppl 1**,** S31-6.

Neely W (1985). Hydrolysis. In: W. B. Neely and G. E. Blau, eds. Environmental Exposure from Chemicals. Vol I., pp. 157-173. CRC Press, Boca Raton, FL, USA.

Patty's Industrial Hygiene and Toxicology. 4th Ed. Vol 2A. (1993). John Wiley and Sons, Inc. New York, NY.

Robinson M, Bruner RH & Olson GR (1990). Fourteen- and ninety-day oral toxicity studies of methyl tertiary-butyl ether in Sprague-Dawley rats. *Journal of the Amarican College of Toxicology*, **9,** 525-540.

Russell S (1995). TAME: Determination of physico chemical properties. Hazleton Report 1359/1-1014. September 1995 (Neste Oil Refining Report RR 58/95).

Tyl R, Myers C, Marr M, Fail P, Seely J, Elswick B, James A and Welsch F (2003). Two-generation reproductive toxicity study of inhaled tertiary amyl methyl ether (TAME) vapor in CD rats. J Appl Toxicol 23:397-410.

US EPA, (1999a). Determining the Adequacy of Existing Data. OPPT, EPA., Washington, DC, USA.

US EPA, (1999b). The Use of Structure-Activity Relationships (SAR) in the High Production Volume Chemicals Challenge Program. OPPT, EPA, Washington, DC, USA.

U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM, Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.

Wakita, K., M. Yoshimoto, S. Miyamoto and H. Watanabe. (1986). A method for calculation of the aqueous solubility of organic compounds by using new fragment solubility constants. *Chem. Pharm. Bull.* 34:4663–4681.

Welsch F, Elswick B, James A, Marr M, Myers C and Tyl R (2003). Developmental toxicity evaluation of inhaled tertiary amyl methyl ether in mice and rats. J Appl Toxicol 23:387-395.

White R, Daughtrey W, Wells M (1995). Health effects of inhaled tertiary amyl methyl ether and ethyl tertiary butyl ether. Toxicol Lett 82/83, 719-724.

Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous environment. Environ Sci Technol 11, 359-366.

IUCLID

Data Set

Existing Chemical	:	ID: 994-05-8
CAS No.	:	994-05-8
EINECS Name	:	2-Methoxy-2-Methylbutane2-Methoxy-2-Methylbutane
EC No.	:	213-611-4
TSCA Name	:	tert-Amyl Methyl Ether
Molecular Formula	:	C6H14O

Producer related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	28.07.2006

Substance related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	28.07.2006
Status	:	
Memo	:	U.S. EPA - HPV Challenge Program
Printing date	:	01.10.2007
Revision date	:	
Date of last update	:	09.10.2006
Number of pages	:	47
Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type	**:**	
Substance type	**:**	organic
Physical status	**:**	liquid
Purity	**:**	
Colour	**:**	
Odour	**:**	

28.07.2006

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= -81.2 °C
Sublimation	:	
Method	:	other: calculated
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8) Melting Point is calculated by the MPBPWIN, version 1.41, a subroutine of the computer program EPI SuiteTM, version 3.012, (2000) which is based on the average result of the meth
Method	:	Melting Point is calculated by the MPBPWIN, version 1.41, a subroutine of the computer program EPI SuiteTM, version 3.012, (2000) which is based on the average result of the methods of K. Joback and Gold and Ogle. Joback's Method is described in Joback K (1982). A Unified Approach to Physical Property Estimation Using Multivariate Statistical Techniques. In The Properties of Gases and Liquids. Fourth Edition. (1987). R Reid, J Prausnitz and B Poling, Eds. The Gold and Ogle Method simply uses the formula Tm = 0.5839Tb, where Tm is the melting point in Kelvin and Tb is the boiling point in Kelvin.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether The value was calculated based on chemical structure as modeled by EPI SuiteTM. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

31.07.2006 (22)

2.2 BOILING POINT

Value	:	= 86.3 °C at 1013 hPa
Decomposition	:	
Method	:	other: not specified
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
Reliability	:	(2) valid with restrictions The CRC Handbook of Chemistry and Physics is a peer reviewed publication. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

31.07.2006 (17)

2.3 DENSITY

Type	:	density
Value	:	= .7703 g/cm³ at 20 °C
Method	:	other: not specified
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)

Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
Reliability	:	(2) valid with restrictions The CRC Handbook of Chemistry and Physics is a peer reviewed publication. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

31.07.2006 (17)

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value	:	= 90 hPa at 20 °C
Decomposition	:	
Method	:	other (measured)
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Neste Company method 205 using Grabner apparatus.
Remark	:	Mean of duplicate determinations, SD = 6
Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. These data were used for the vapor pressure endpoint in the European Union Risk Assessment for tert-amyl methyl ether (Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane (TAME) Environmental Risk Assessment. Final Draft.).

31.07.2006 (15) (16)

Value	:	= 120 hPa at 25 °C
Decomposition	:	
Method	:	other (calculated)
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Estimated value, interpolated from measured data (various sources)
Test substance	:	CAS #994-05-8; tert-amyl methyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. These data were used for the vapor pressure endpoint in the European Union Risk Assessment for tert-amyl methyl ether (Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane (TAME) Environmental Risk Assessment. Final Draft.).
Flag	:	Critical study for SIDS endpoint

31.07.2006 (15) (16)

Value	:	= 210 hPa at 37.8 °C
Decomposition	:	
Method	:	other (measured)
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Neste Method 103 using SETVAC apparatus.
Remark	:	Mean of duplicate determinations, SD = 10

Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. These data were used for the vapor pressure endpoint in the European Union Risk Assessment for tert-amyl methyl ether(Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane (TAME) Environmental Risk Assessment. Final Draft.).

31.07.2006 (15)

2.5 PARTITION COEFFICIENT

Partition coefficient	:	octanol-water
Log pow	:	= 1.55 at 20 °C
pH value	:	
Method	:	OECD Guide-line 117 "Partition Coefficient (n-octanol/water), HPLC Method"
Year	:	1989
GLP	:	yes
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Mean of six determinations. SD = 0.021 water : octanol ratios of 1:2, 1:1 and 2:1 were used, and the concentration of TAME determined by gas chromatography after through mixing of the two phases. Volatilisation was controlled by sealed vials and gas tight syringes.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
Reliability	:	(2) valid with restrictions The value cited by the authors is a measured and preferred value. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

31.07.2006 (15) (16) (20)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	= 5468 mg/l at 25 °C
pH value	:	
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	
Stable	:	
Deg. product	:	
Method	:	other: calculated
Year	:	
GLP	:	no data
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Test condition	:	Water Solubility is calculated by the WSKOW, version 1.41, a subroutine of the computer program EPI SuiteTM, version 3.12, which is based on a Kow correlation method described by W. Meylan, P. Howard and R. Boethling in "Improved method for estimating water solubility from octanol/water partition coefficient". Environ. Toxicol. Chem. 15:100-106. 1995. A log Kow of 1.55 was used with the model.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPI

SuiteTM (2000). This robust summary has a reliability rating of 2 because the data are calculated and not measured.

Flag : Critical study for SIDS endpoint

31.07.2006 (22)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

Type	:	air
Light source	:	
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight
Conc. of substance	:	at 25 °C
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	1500000 molecule/cm³
Rate constant	:	= .0000000000052179 cm³/(molecule*sec)
Degradation	:	= 50 % after 24.6 hour(s)
Deg. product	:	
Method	:	other (calculated): Calculated values using AOPWIN version 1.89, a subroutine of the computer program EPI SuiteTM version 3.12
Year	:	
GLP	:	
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Calculated values using AOPWIN version 1.89, a subroutine of the computer program EPI SuiteTM version 3.12 Indirect photodegradation, or atmospheric oxidation potential, is based on the structure-activity relationship methods developed by R. Atkinson under the following conditions: Temperature: 25°C Sensitizer: OH- radical Concentration of Sensitizer: 1.5E6 OH- radicals/cm3
Remark	:	Tertiary-amyl methyl ether has the potential to volatilize to air, based on a relatively high vapor pressure, where it is subject to atmospheric oxidation. In air, tert-amyl methyl ether can react with photosensitized oxygen in the form of hydroxyl radicals (OH-). The computer program AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the 12-hour day half-life value normalizes degradation to a standard day light period during which hydroxyl radicals needed for degradation are generated), based on an OH- reaction rate constant and a defined OH- concentration. Based on a 12-hour day, a rate constant of 5.22 E-12 cm3/molecule*sec, and an OH- concentration of 1.5 E6 OH-/cm3, tertiary-amyl methyl ether has a calculated half-life in air of 2.05 days or 24.6 hours of daylight.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPIWIN. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

04.08.2006 (22)

Deg. product	:	
Method	:	
Year	:	
GLP	:	
Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Method	:	Technical discussion
Remark	:	Direct photochemical degradation occurs through the absorbance of solar radiation by a chemical substance in aqueous solution. If the absorbed energy is high enough, then the resultant excited state of the chemical may undergo a transformation. A prerequisite for direct photodegradation is the

ability of one or more bonds within a chemical to absorb ultraviolet (UV)/visible light in the 290 to 750 nm range. Light wavelengths longer than 750 nm do not contain sufficient energy to break chemical bonds, and wavelengths below 290 nm are shielded from the earth by the stratospheric ozone layer (Harris, 1982).
An approach to assessing the potential for a substance to undergo photochemical degradation is to assume that degradation will occur in proportion to the amount of light wavelengths >290 nm absorbed by constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding electrons in ethers do not give rise to absorption above 160 nm, which is why pure ether solvents can be used in spectroscopic studies. Consequently, tert-amyl methyl ether is not subject to photolytic processes in the aqueous environment.

Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability of 2 because it is a technical discussion and not a study.
Flag : Critical study for SIDS endpoint
01.08.2006 (13) (25)

3.1.2 STABILITY IN WATER

Type : abiotic
t1/2 pH4 : at °C
t1/2 pH7 : at °C
t1/2 pH9 : at °C
Deg. product :
Method : other: Technical discussion
Year :
GLP : no data
Test substance : other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)

Result : Hydrolysis of an organic chemical is the transformation process in which a water molecule or hydroxide ion reacts to form a new carbon-oxygen bond. Chemicals with leaving groups that have a potential to hydrolyze include alkyl halides, amides, carbamates, carboxylic acid esters and lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould, 1959). The lack of a suitable leaving group renders a compound resistant to hydrolysis. Tertiary amyl methyl ether is resistant to hydrolysis because it lacks a functional group that is hydrolytically reactive and Harris (1982) identifies ether groups as generally resistant to hydrolysis. Therefore, hydrolysis will not contribute to the removal of tert-amyl methyl ether from the environment.
Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability of 2 because it is a technical discussion and not a study.
Flag : Critical study for SIDS endpoint
04.08.2006 (12) (14)

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type :
Media : other: air - biota - sediment(s) - soil - water
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: Calculation according Mackay, Level I
Year :

Remark : Physicochemical data used in the calculation:

Parameter	Value w/ Units
Molecular Weight =	102.18
Temperature =	25° C
Log Kow =	1.55
Water Solubility =	5468 g/m3
Vapor Pressure =	12,000 Pa
Melting Point =	-81.22° C

Result : Using the Mackay Level I calculation, the following distribution is predicted for tert-amyl methyl ether:

%Distribution	Compartment
97.77	Air
2.16	Water
0.07	Soil
<0.01	Sediment
<0.01	Suspended Sediment
<0.01	Biota

Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated.
Flag : Critical study for SIDS endpoint
31.07.2006 (18)

Type : fugacity model level III
Media : other
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001)
Year :

Method : Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001). Mass balances are calculated for the four bulk media of air (gas + aerosol), water (solution + suspended sediment + biota), soil, (solids + air + water), and sediment (solids + pore water). Equilibrium exists within, but not between media. Physical-chemical properties are used to quantify a chemical's behavior in an evaluative environment. Three types of chemicals are treated in this model: chemicals that partition into all media

(Type 1), non volatile chemicals (Type 2), and chemicals with zero, or near-zero, solubility (Type 3). The model cannot treat ionizing or speciating substances. The Level III model assumes a simple, evaluative environment with user-defined volumes and densities for the following homogeneous environmental media (or compartments): air, water, soil, sediment, suspended sediment, fish and aerosols.

This model provides a description of a chemical's fate including the important degradation and advection losses and the intermedia transport processes. The distribution of the chemical between media depends on how the chemical enters the system, e.g. to air, to water, or to both. This mode of entry also affects persistence or residence time.

The rates of intermedia transport are controlled by a series of 12 transport velocities. Reaction half-lives are requested for all 7 media. The advective residence time selected for air also applies to aerosols and the residence time for water applies to suspended sediment and fish. The advective residence time of aerosols, suspended sediment and fish cannot be specified independently of the air and water residence times.

Result : Output:

	Mass%	Emissions(kg/hr)
Air	26.2	1000
Water	55.1	1000
Soil	18.6	1000
Sediment	0.1	0

Test condition : Physicochemical data used in the calculation:

Parameter	Value w/ Units
Molecular Weight =	102.18
Temperature =	25° C
Log Kow =	1.55
Water Solubility =	5468 g/m3
Vapor Pressure =	12,000 Pa
Melting Point =	-81.22° C

Reaction Half Lives in hours as predicted using EPI SuiteTM:

Air (gaseous)	46.7
Water (no susp. part.)	360
Bulk Soil	720
Bulk Sediment	3240

Environmental Properties (EQC standard environment)
Dimensions (all defaults)
Densities (all defaults)
Organic carbon & Advection (all defaults)
Transport Velocities (all defaults)

Emission and Inflows (defaults used)
Air 1000 kg/hr
Water 1000 kg/hr
Soil 1000 kg/hr
Sediment 0 kg/hr

Test substance : CAS #994-05-8; tert-amyl methyl ether

Conclusion : The majority of tert-amyl methyl ether (TAME) is calculated to partition into the water phase, with smaller but significant amounts into air and soil, based on the modeling parameters used in this calculation. TAME is considered to be a Type 1 chemical with potential to partition into all environmental compartments.

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are

calculated.

Flag : Critical study for SIDS endpoint

31.07.2006 (19)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Type	:	aerobic
Inoculum	:	activated sludge, domestic, non-adapted
Contact time	:	28 day(s)
Degradation	:	4 (±) % after 28 day(s)
Result	:	other: not readily biodegradable
Deg. product	:	
Method	:	OECD Guide-line 301 D "Ready Biodegradability: Closed Bottle Test"
Year	:	
GLP	:	yes
Test substance	:	other TS: tert-amyl methyl ether; CAS #994-05-8
Result	:	4.0% degradation was observed after 28 days incubation with an unacclimated inoculum. >60% Degradation of the control substance (sodium benzoate) occurred within 10 days, indicating that the test was valid. % Biodegradation of test substance after days: 2 days = 0 % 7 days = 5 % 14 days = 4 % 21 days = 4 % 28 days = 4 % % Biodegradation of positive control, Benzoic acid, sodium salt: 2 days = 52 % 7 days = 77 %
Test condition	:	OECD Guideline 301 D "Ready Biodegradability: Closed Bottle Test", using 1.99 ± 0.03 mg/l of test substance.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether; purity unknown.
Conclusion	:	tert-Amyl methyl ether is not readily biodegradable.
Reliability	:	(1) valid without restriction

01.08.2006 (7)

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

Species	:	other: see remark
Exposure period	:	at 25 °C
Concentration	:	
BCF	:	= 6
Elimination	:	
Method	:	other: calculation
Year	:	
GLP	:	no

Test substance	:	other TS: tert-amyl methyl ether (TAME); (CAS #994-05-8)
Remark	:	A log bioconcentration factor (BCF) of 0.78 is calculated (BCF = 6.0). With respect to a log Kow = 1.92, which was used to calculate the BCF, tert-amyl methyl ether in the aquatic environment is expected to have a low bioaccumulation potential.
Test substance	:	CAS #994-05-8; tert-amyl methyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

04.08.2006 (9)

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	:	flow through
Species	:	Oncorhynchus mykiss (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 580
Limit test	:	
Analytical monitoring	:	yes
Method	:	other: U.S. Environmental Protection Agency, Methods for acute toxicity testing with fish, macro-invertebrates and amphibians, TSCA § 797.1400 (EPA-660/3-75-009)
Year	:	1987
GLP	:	yes
Test substance	:	other TS: tert-amyl methyl ether (TAME); CAS #994-05-8

Method : The test guideline followed was TSCA § 797.1400. Twenty organisms (ten per replicate) were exposed in duplicate test aquaria to each of five concentrations of TAME and a dilution water control for 96-hours. During the test, nominal concentrations of 950, 570, 340, 210, and 120 mg A.I./L were maintained by introducing approximately 6.5 aquarium volumes per day of newly prepared test dilution via a modified constant-flow serial diluter apparatus. Each replicate solution was sampled and analyzed for TAME concentration at 0 hours and after 96 hours of exposure. Based on the results of these analyses, the mean measured exposure concentrations were defined as 640, 560, 310, 150, and 78 mg A.I./L. Biological observations and observations of the physical characteristics of the exposure solutions were made and recorded at test initiation and every 24 hours thereafter until the test was terminated. Throughout the exposure period, treatment level solution were observed to be clear and colorless and contained no visible sign of undissolved test material. Test vessels were not covered during the exposure period.

Remark : Statistics: The LC50 was estimated by nonlinear interpolation and 95% confidence intervals were calculated by bionomial probability.

Result : 96-hour LC50 = 580 mg/L based on mean measured values.
72-hour LC50 = 580 mg/L based on mean measured values.
48-hour LC50 = 600 mg/L based on mean measured values.
24-hour LC50 = 600 mg/L based on mean measured values.
96-hour NOEC = 310 mg/L based on mean measured values.

After 72-hours of exposure, 100% mortality was observed among fish exposed to the highest mean measured concentration tested (640 mg/L). At test termination (96 hours), 30% mortality was observed among fish exposed to the 560 mg/L treatment level. In addition, sublethal effects, as defined by darkened pigmentation and equilibrium loss, were observed among all of the surviving fish exposed to this treatment level. No mortality or sublethal effects were observed among fish exposed to the remaining concentrations tested. The NOEC established during this study was 310 mg/L, based on darkened pigmentation and equilibrium loss. There was no control mortality through the test period.

Analytical results:
Nominal treatment levels of 950, 570, 340, 210, and 120 mg A.I./L measured 640, 560, 310, 150, and 78 mg A.I./L, respectively. Both 0- and 96-hour control samples measured <5.3 mg A.I./L. Mean measured concentrations averaged 79% of the nominal concentrations. Coefficients of variation averaged 12% for all mean measured concentrations.

Water quality parameter results:

Temperature ranged between 11 to 12°C through the 96-hour exposure. The pH was 7.1 in all treatment levels and the control at time 0, and pH was 7.2 in all treatment levels and the control at the 24, 48, 72, and 96-hour samplings. Dissolved oxygen ranged from 9.6 to 9.8 mg/L in all treatment levels and the control at time 0, 9.4 to 9.6 mg/L in all treatment levels and the control at time 24, 9.0 to 9.4 mg/L in all treatment levels and the control at time 48, 9.4 to 9.8 mg/L in all treatment levels and the control at time 72, and 8.9 to 9.1 mg/L in all treatment levels and the control at time 96.

Test substance : CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
Reliability : (1) valid without restriction
Guideline study that followed GLP.
Flag : Critical study for SIDS endpoint
01.08.2006 (3)

Type :
Species : other: Fish
Exposure period : 96 hour(s)
Unit : mg/l
LC50 : = 200.6
Method : other: ECOSAR version 0.99h, US EPA
Year :
GLP :
Test substance : other TS: tert-amyl methyl ether; CAS #994-05-8

Method : ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.
Result : Calculated 96-hr LC50 for fish = 200.6 mg/L
Test condition : Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA, 2000) were entered into the program.
Class: Neutral organics
Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

31.07.2006 (22)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/l
EC50	:	= 100
Analytical monitoring	:	yes
Method	:	other: U.S. Environmental Protection Agency, Methods for acute toxicity testing with fish, macro-invertebrates and amphibians, TSCA § 797.1300 (EPA-660/3-75-009).
Year	:	1975
GLP	:	yes
Test substance	:	other TS: tert-amyl methyl ether (TAME); CAS #994-05-8

Method : The test guideline followed was TSCA § 797.1300. Twenty organisms (ten per replicate) were exposed in duplicate test vessels to five concentrations of TAME and a dilution water control for 48 hours. During the test, nominal concentrations of 690, 410, 250, 150, and 89 mg A.I./L were maintained in the exposure vessels by introducing approximately 6.0 test chamber volumes per day of newly prepared test solution via an intermittent-flow proportional diluter apparatus. Each replicate solution was sampled and analyzed for TAME concentration at 0 hours (test initiation) and after 48 hours (test termination) of the exposure period. Based on the results of these analyses, the mean measured exposure concentrations were defined as 120, 83, 55, 28, and 15 mg/l. Biological observations and observations of the physical characteristics of the exposure solutions were made and recorded at test initiation, 6, 24, and 48 hours. Throughout the exposure period, no visible signs of undissolved test material were observed in either the diluter system or in the exposure solutions.

Remark : Statistics: The EC50 was estimated by nonlinear interpolation and 95% confidence intervals were calculated by bionomial probability.

Result : 6-hour LC50 = >120 mg/L based on mean measured values.
24-hour LC50 = >120 mg/L based on mean measured values.
48-hour LC50 = 100 mg/L based on mean measured values.
48-hour NOEC = 83 mg/L based on mean measured values.

After 24-hours of exposure, 15% immobilization was observed among dahpnia exposed to the highest mean measured concentration tested (120 mg/L). At test termination (48 hours), 90% immobilization was observed among daphnia exposed to the 120 mg/L treatment level. In addition, sublethal effects, as defined by lethargy, were observed among all of the surviving daphnia exposed to this treatment level. No immobilization or sublethal effects were observed among daphnia exposed to the remaining concentrations tested. The NOEC established during this study was 83 mg/L, based on lethargy. 5% immobilization occurred in the control at 48 hours. There was no immobilization in the control prior to this sampling point.

Analytical results:
Nominal treatment levels of 690, 410, 250, 150, and 89 mg A.I./L measured 120, 83, 55, 28, and 15 78 mg A.I./L, respectively. Both 0- and 48-hour control samples measured <0.40 mg A.I./L. Mean measured concentrations averaged 19% of the nominal concentrations. Coefficients of variation averaged 11% for all mean measured concentrations. The relatively low recovery obtained for the tested treatment levels (mean=19%) is believed due to the volatile nature of the test material and the size of the test vessels.

Water quality parameter results:
Temperature ranged between 19 to 20°C through the 48-hour exposure. The pH was 8.2 in all treatment levels and the control at time 0, and pH ranged between 8.0 to 8.1 in all treatment levels and the control at the 24 and 48-hour samplings. Dissolved oxygen ranged from 9.1 to 9.2 mg/L in all treatment levels and the control at time 0, 8.7 to 9.1 mg/L in all treatment levels and the control at time 24, and 8.8 to 9.0 mg/L in all treatment levels and the control at time 48. Total hardness as mg/L of CaCO3 ranged from 170 to 190 in the control and treatment levels at test initiation. Total alkalinity ansmg/L CaCO3 ranged from 110 to 120 in the control and treatment levels at test initiation. Specific conductance was 500 umhos/cm in the control and treatment levels at test initiation.

Test substance : CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
Reliability : (1) valid without restriction
Guideline study that followed GLP.
Flag : Critical study for SIDS endpoint
01.08.2006 (1)

Type :
Species : other: Daphnia
Exposure period : 48 hour(s)
Unit : mg/l
EC50 : = 208.4
Method : other: ECOSAR version 0.99h, US EPA
Year :
GLP :
Test substance : other TS: tert-amyl methyl ether; CAS #994-05-8

Method : ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.
Result : Calculated 48-hr LC50 for Daphnia = 208.4 mg/L
Test condition : Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA, 2000) were entered into the program.
Class: Neutral organics

Test substance	:	CAS #994-05-8; tert-amyl methyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data are calculated and not measured.

31.07.2006 (22)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species	:	Selenastrum capricornutum (Algae)
Endpoint	:	biomass
Exposure period	:	72 hour(s)
Unit	:	mg/l
NOEC	:	= 77
EbC50	:	= 230
ErC50	:	= 780
Limit test	:	
Analytical monitoring	:	yes
Method	:	OECD Guide-line 201 "Algae, Growth Inhibition Test"
Year	:	
GLP	:	yes
Test substance	:	other TS: tert-amyl methyl ether (TAME); CAS #994-05-8

Method :

The test material was known to be volatile and hence testing was conducted in completely filled, stopperred test vessels in order to minimize possible losses due to volatilization. Following the recommendations in published data (Herman et al. 1990. Aquatic toxicology 18: 87-100.; Mayer et al. 2000. Environmental Toxicology and Chemistry 19: 2551-2556), in order to prevent inhibition of growth due to the restriction of gaseous exchange, additional sodium carbonate was added to the culture medium to provide a source of carbon dioxide for algal growth.

The range-finding test was conducted at nominal test concentrations of 11, 1000, 5000, and 8000 mg/l for 72 hours. Based on the results the following test concentrations were assigned to the definitive test: 100, 200, 400, 800 and 1600 mg/l. At initiation of the test, the culture contained a nominal cell density of 3 E3 cells per ml.

Temperature was maintained at 23 to 25 degrees C throughout the test. The pH values of the control cultures increased from pH 7.5 at 0 hours to pH 8.8 to 8.9 at 72 hours. The test material vessels showed an increase in pH over the 72-hour period following a concentration dependent pattern with the lower test material concentrations exhibiting a greater increase in pH. This effect was considered to be due to there being greater numbers of viable cells in the lower test concentrations and hence greater utilization of carbonate and bicarbonate from photosynthesis/respiration. In all cases, however, the pH shift was less than 1.5 pH unit. No immediate adsorption of the test material to algal cells occurred.

Remark : New genus/species name for the organism tested is Pseudokirchneriella subcapitata.

Result :

72-hour EbC50 = 230 mg/L based on mean measured values.
72-hour ErC50 = 780 mg/L based on mean measured values.
72-hour NOEC = 77 mg/L based on mean measured values.

Results are based on the geometric mean of measured test concentrations. Analysis of the test preparations at 0 hours showed the measured concentrations to range from 83 to 100% of nominal values. After 72 hours there was a slight decline in measured concentrations to 69 to 84% of nominal values. Analysis of samples taken from replicate test vessels that had not been opened during the test period gave measured concentrations of 82 to 96% of nominal values. It was therefore considered that the slight

decline in measured test concentrations observed in the test vessels that had been opened on a daily basis in order to enable samples to be removed for the determination of algal cell density was the result of losses due volatility.

Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (1) valid without restriction
Guideline study that followed GLP.
Flag : Critical study for SIDS endpoint
01.08.2006 (11)

Species : other algae: Green Alga
Endpoint :
Exposure period : 96 hour(s)
Unit : mg/l
EC50 : = 126.9
ChV : = 9.8
Method : other: ECOSAR version 0.99h, US EPA
Year :
GLP :
Test substance : other TS: tert-amyl methyl ether (TAME); CAS #994-05-8

Method : ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Result : Calculated 96-hr EC50 for a green alga = 126.9 mg/L
Calculated 96-hr ChV for a green alga = 9.8 mg/L
Test condition : Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA, 2000) were entered into the program.
Class: Neutral organics
Test substance : CAS #994-05-8; tert-amyl methyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.
31.07.2006 (22)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	ca. 2100 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	
Vehicle	:	other: None; administered undiluted
Doses	:	
Method	:	other: not specified
Year	:	1995
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	test type: acute oral toxicity route of administration: oral gavage dose level: variable dose volume: variable
Result	:	LD50 ~ 2.1 g/kg (combined sexes)
Conclusion	:	TAME has a low order of toxicity by the oral route of exposure.
Reliability	:	(2) valid with restrictions

09.10.2006 (8)

5.1.2 ACUTE INHALATION TOXICITY

Type	:	LC50
Value	:	> 5.4 mg/l
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	10
Vehicle	:	other: none
Doses	:	5.4 mg/L
Exposure time	:	4 hour(s)
Method	:	other: Not stated
Year	:	1991
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	Animals were exposed to TAME vapor for 4 hours in a whole body exposure chamber at a concentration of 5.4 mg/L. TAME concentration was measured by infrared absorption. Animals were observed for 14 days post exposure.
Result	:	There were no premature deaths during the course of the study. During the post-mortem evaluation, seven animals showed external hemorrhagic lung foci, with one female having numerous foci (>10). One male had a diffused red area on the lungs. Six animals showed enlarged mandibular lymph nodes. However, the study authors indicated that the observed lung foci were in most cases of a type and number commonly seen in control animals of this strain. LC50 > 5.4 mg/L.
Conclusion	:	TAME has a low order of toxicity by the inhalation route of exposure.
Reliability	:	(1) valid without restriction

09.10.2006 (6)

5.1.3 ACUTE DERMAL TOXICITY

Type	:	LD50
Value	:	> 3160 mg/kg bw
Species	:	rabbit
Strain	:	New Zealand white
Sex	:	male/female
Number of animals	:	6
Vehicle	:	other: none
Doses	:	3160 mg/kg
Method	:	other: Limit test; protocol not stated
Year	:	1985
GLP	:	
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	TAME was applied neat to the skin of each animal at a dose level of 3160 mg/kg. An occlusive patch covered the test material during the 24 hour exposure period. Animals were observed for 14 days post exposure.
Result	:	There were no premature deaths during the study. However, it was irritating to the skin of the rats. Very slight to severe erythema and slight to very slight edema were observed in all animals. Desquamation was seen in all animals on days 10 and 14; eschar was seen in five animals and atonia in three animals. One animal showed blanching on day 3. At necropsy, desquamation was noted in two animals and another was considered to be slightly emaciated.
Conclusion	:	TAME was of low dermal toxicity in rats. LD50 > 3160 mg/kg.
Reliability	:	(1) valid without restriction

09.10.2006 (10)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

5.2.2 EYE IRRITATION

5.3 SENSITIZATION

Type	:	other: Skin sensitization
Species	:	other: guinea pig - Dunkin Hartley
Number of animals	:	
Vehicle	:	other: none
Result	:	not sensitizing
Classification	:	not sensitizing
Method	:	other: TSCA TG 798.4100 (Buehler method)
Year	:	1995
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS: 994-05-8)
Remark	:	Route of administration: Dermal Dose volume: 0.3 ml neat Control group included: Positive and negative controls included Number of animals: Test group--10/sex; Control group--5/sex
Result	:	TAME was non-sensitizing to the skin of guinea pigs

Test condition	:	During the induction phase (days 1, 8 and 15), TAME (approximately 0.3 ml) was applied to the clipped area on the back of the test animals for 6 hours, using an occlusive chamber. Excess material was wiped off at the conclusion of each exposure. The control animals received mineral oil in place of the test chemical under similar conditions. During the challenge phase (day 29), TAME was applied to a clipped area on the back which had not previously been exposed for 6 hours, using an occlusive chamber; a vehicle control (mineral oil) was also used; a further previously untreated group of 5/sex was used as irritation control.
Test substance	:	Tertiary Amyl Methyl Ether (CAS No. 994-05-8) Chemical Name: butane, 2-methoxy-2-methyl- Source/purity not specified.
Conclusion	:	TAME is not a dermal sensitizer
Reliability	:	(1) valid without restriction

01.08.2006 (2)

5.4 REPEATED DOSE TOXICITY

Type	:	Sub-chronic
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	other: Inhalation, whole body
Exposure period	:	6 hours/day
Frequency of treatm.	:	5 days/week for 4 weeks
Post exposure period	:	18 hour fasting period
Doses	:	0, 500, 2000 and 4000 ppm
Control group	:	yes
NOAEL	:	= 500 ppm
Method	:	
Year	:	1995
GLP	:	
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	Number of animals: 14/sex/dose group Sprague-Dawley rats were exposed to 0, 500, 2000 and 4000 ppm TAME for 6 hours per day, 5 days per week for 4 weeks. Animals were observed at least once daily for mortality or obvious signs of toxicity. Body weights were measured at the initiation of the study, weekly during the exposure, and immediately before termination of the animal. All rats were fasted for approximately 18 hours following the final exposure to TAME and anesthetized with sodium pentobarbital. Blood samples were obtained for serum chemistry and hematology parameters. In addition to daily observation for general toxicity, the study included a functional observational battery (FOB) to evaluate neuromuscular function and sensory perception. The FOB was performed 1 week prior to the first exposure and after 1, 5, or 20 exposures. Four TAME-exposed animals were evaluated approximately 1 hour after the end of exposure and 10 animals were examined the following morning in each exposure group. The FOB consisted of an evaluation of the following parameters: tail pinch, rotorod performance, body temperature, righting reflex, auditory response, hindlimb extension, foot splay, grip strength, home-cage observation, hand-held observation, open-field observation, extensor thrust, catalepsy, visual placing, tactile placing, negative geotaxis, vision, eyeblink, and pupil response. Necropsies were performed on 10 of the TAME-exposed rats. The following tissues were weighed and fixed in 10% neutral buffered formalin:

brain, adrenal glands, gonads, heart, kidneys, liver, lungs and spleen. Approximately 31 other tissues were also collected and fixed at necropsy. Only those from the high exposure and control groups were processed for histological examination.

For all quantitative parameters, the data were analyzed using both multivariate and univariate two-factor fixed-effects analyses of variance. Quantal data for functional observational battery (FOB) parameters were analyzed using chi-square. A minimum significance level of $P<0.05$ was used in all comparisons.

Result : Three out of 14 males and 4 out of 14 females exposed to 4000 ppm TAME died on test. The deaths were apparently due to severe central nervous system (CNS) depression as there were no gross or histopathology changes to indicate organ-specific tissue injury.

Clinical observations in both the 2000 and 4000 ppm TAME-exposed groups included sedation, coma, ataxia, coldness to touch, ptosis, hyperirritability, hypoactivity and effects on posture. The incidence and severity of effects were greater in the high dose animals. The FOB assessment confirmed the clinical observations. TAME-exposed animals evaluated 1 hour after exposure, especially the 4000 ppm group, displayed reductions in tail pinch response, righting reflex and negative geotaxis, along with reduced body temperature, impaired rotorod performance and increased hindlimb splay. The signs of CNS depression were absent in animals examined 18 hours after the end of exposure. .

Body weight gain was significantly reduced only in male rats exposed to 4000 ppm TAME. Exposure to 2000 and 4000 ppm TAME caused an increase in relative liver weights in males and females. Many relative organ weights were increased for the 4000 ppm males due to the reduced body weights of these animals.

No treatment-related histopathological findings were noted. Clinical chemistry and hematology findings were minimal with TAME. Increased serum cholesterol was found in both male rats (at 2000 and 4000 ppm) and female rats (at 4000 ppm) exposed to TAME. The 4000 ppm males also had reduced serum triglycerides. A single male rat in the 4000 ppm group had an increase in serum alanine aminotransferase (ALT). This animal also displayed multifocal hepatocellular necrosis that can be associated with elevated ALT. The significance of this finding is unclear as this occurred in only one of the seven animals examined. (Three animals had died on test due to CNS depression.)

Conclusion : The NOAEL for subchronic toxicity was 500 ppm in both males and females.

Reliability : (2) valid with restrictions

09.10.2006 (24)

Type	:	Sub-chronic
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	other: Oral, gavage
Exposure period	:	
Frequency of treatm.	:	7 days/week for 29 days
Post exposure period	:	
Doses	:	0, 125, 500 and 1000 mg/kg/day
Control group	:	yes
NOAEL	:	= 500 mg/kg
Method	:	other
Year	:	1995
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark : Number of animals: 5/sex/dose group
Sprague-Dawley rats were exposed to 0, 125, 500 and 1000 mg/kg/day TAME in corn oil by gavage at a dose volume of 2 ml/kg. Vehicle control animals received corn oil only. The dosing regimen was once daily, 7 days a week for a period of 29 days.

Observations were made daily for overt signs of toxicity. Body weights were recorded prior to the first dosing and weekly thereafter during the test period. Food consumption was measured weekly over the course of the study. At study termination, blood samples were collected from all animals (after an overnight fast) for routine hematology and serum chemistry determinations. A complete necropsy was carried out on all animals, and organ weights were obtained for the kidneys, adrenals, liver, testes and ovaries. The following tissues were preserved in 10% neutral buffered formalin: kidneys, adrenals, liver, heart, spleen, ovaries, testes and any tissues appearing abnormal. All tissues preserved from the control and high-dose group, as well as those from animals that died during the study, were processed, sectioned, stained with hematoxylin and eosin and examined microscopically.

Data from the treated groups were compared to those of the control group using the following tests. Comparisons were limited to within-sex analysis. Bartlett's test of homogeneity of variance was used to determine if the groups had equivalent variance at the 1% level. If the variances were not statistically different, the groups were compared using a standard one-way analysis of variance. If significant differences among the means were indicated, Dunnett's test was used to determine which treatment groups differed from controls. Where groups did not have equivalent variance, the non-parametric Kruskall-Wallis test was used to assess differences in group means. If the means were different, Dunn's summed rank test was used to determine which treatment group differed from control.

Result : Four animals (two males, two females) in the high-dose (1000 mg/kg/day) group died during the course of the study. Of these four, two deaths were attributed to dosing accidents. The remaining two deaths were presumed to be test-material related, although a precise cause of death could not be identified. All other animals survived to the scheduled termination.

For the most part, in-life observations were unremarkable. Lung rales and anogenital staining of the fur were observed at a low frequency in the high-dose group. The majority of animals of either sex did not exhibit any unusual symptoms or behaviors.

Overall increases in body weight were noted for all groups of animals. However, mean body weights of high-dose males were significantly lower than those of control males at day 7, day 21 and day 28. Mean body weight gain in high-dose females was also lower than in control females, although the difference was not statistically significant. Food consumption in high-dose males and females was also significantly reduced compared to controls during week 1. During week 2, food consumption was significantly reduced only in high-dose males.

A dose-related increase in adrenal weights (absolute and relative weights) was observed that was statistically significant in the mid- and high-dose males. A similar increase in adrenal weights was not observed in female rats dosed with TAME. Relative kidney weights were also increased in mid- and high-dose male rats compared to control.

Hematology and serum chemistry values were generally similar across groups. Activated partial thromboplastin time was statistically increased in the high-dose male (but not female) group. However, this small increase was not believed to be biologically meaningful. The mean serum glucose

value was also significantly reduced in the high-dose male group. The biological significance of this finding was unknown, however a similar decrease in serum glucose was not observed in high-dose females.

No treatment-related tissue lesions were observed during the histopathological examination. Any changes observed were limited to naturally occurring lesions that were present in approximately equal frequency in all groups, including controls. It was noteworthy that the organ weight increases observed in the kidney and adrenals were not accompanied by any histopathological changes.

Conclusion : The NOAEL for subchronic toxicity was 500 mg/kg/day in both males and females.

Reliability : (1) valid without restriction

09.10.2006 (8)

Type : Sub-chronic
Species : rat
Sex : male/female
Strain : Fischer 344
Route of admin. : other: Inhalation, whole body
Exposure period : 6 hours/day
Frequency of treatm. : 5 days/week for 13 weeks (minimum 65 exposures)
Post exposure period : 4 week recovery period
Doses : 0, 250, 1500 and 3500 ppm
Control group : yes
NOAEL : = 1500 ppm
Method : other: TSCA TG 798.2450; US EPA TG 40 CFR Part 798 Subpart G
Year : 1997
GLP :
Test substance : other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark : Fischer 344 rats were exposed to 0, 250, 1500 and 3500 ppm TAME for 6 hours per day, generally 5 days per week for 13 weeks (minimum 65 exposures). Groups of 10/sex at 0 ppm and 3500 ppm were allowed a 4 week recovery period. A satellite group of 10/sex/dose was used for acute neurological testing.

Animals were observed twice daily for mortality or obvious signs of toxicity, and given a detailed examination each week. Body weight and food consumption measurements were performed twice pre-test and weekly during the study. Ophthalmology evaluations were performed pre-exposure, at termination and at the end of the recovery period. Neurobehavioral studies were performed pre-test and on weeks 2,3,5,9 and 14. Hematology and serum chemistry evaluations were performed during weeks 5 or 6, week 14 and following recovery. Cell proliferation was assessed in kidney by examination of incorporation of 5-bromo-2'-deoxyuridine after 1, 4 and 13 weeks exposure to TAME. Nephropathy was evaluated by the presence of hyaline droplets, and specific staining for a2µ-globulin in the proximal convoluted tubules. Animals were subject to a full macroscopic examination at autopsy, and selected organs weighed, sampled and preserved for all animals. Selected tissues from the control and high dose rats were processed, stained and examined by light microscopy.
Number of animals: 51/sex for the control and high dose groups; 41/sex for the low and mid dose groups

Result : A number of effects were observed at the highest dose used, 3500 ppm. These included two deaths, post-exposure clinical signs, acute neurological effects, decreased body weight and body weight gain, increased platelet counts, increases in total protein, albumin and globulin, and a number of effects on organ weights. Many of these resolved after the 4 week recovery period. There were effects on the body weight and brain weight of males after this time. The effects on the kidneys of the male rats were

consistent with the male rat specific a2µ-globulin syndrome and were not considered to be relevant to risk assessment in humans.

Exposure of rats at 1500 ppm resulted in effects including post exposure clinical signs, acute neurological effects (males only), increased platelet count in males, increases in total protein, albumin and globulin and effects on liver and kidney (only in females) weight. An increase in liver weights of male rats exposed to 250 ppm was also observed. Many of these resolved after the 4 week recovery period.

No test material related changes in motor activity were observed at any doses. Functional observational battery (FOB) tests were performed on the satellite group 1, 6 and 24 hours after acute exposure. Central nervous system (CNS) depression, indicated by postural changes, drooping or half-closed eyelids, slight stupor or lack of reflex responses, and lack of neuromuscular coordination, indicated by ataxia, impaired locomotion, poor righting reflex, reduced grip strength and increased landing foot splay, were seen in most 3500 ppm animals and a few 1500 ppm males after 1 hour. After 6 hours, one 3500 ppm male was in a low arousal state and a slight decrease in hindlimb grip strength in the 3500 ppm females was observed. After 24 hours, the FOB test results for all groups were comparable to controls.

Following repeated exposures for a second satellite group of 10/sex/dose, an increase in forelimb grip strength was recorded in the 3500 ppm males and 1500 and 3500 ppm females. No other effects on measures of neuromuscular function or CNS depression were observed.

Microscopic examination of the brain, spinal cord (cervical, thoracic, lumbar) and sciatic, sural and tibial nerves showed no evidence of any treatment-related effects.

The increased severity of hypertrophy/hyperplasia of the goblet cells in the respiratory mucosa and in the epithelium lining the nasopharynx was observed in the 3500 ppm group. This effect was considered to be a localized adaptive response to a minimal irritant effects rather than an adverse toxicological response to the test material. Similar responses have been seen in rats exposed to mild irritants such as cigarette smoke, formaldehyde, and ammonia.

Conclusion : The NOAEL for subchronic toxicity was 1500 ppm in both males and females.

Reliability : (1) valid without restriction
09.10.2006 (4)

Type	:	Sub-chronic
Species	:	mouse
Sex	:	male/female
Strain	:	CD-1
Route of admin.	:	inhalation
Exposure period	:	6 hours/day
Frequency of treatm.	:	5 days/week for 13 weeks
Post exposure period	:	4 week recovery period
Doses	:	0, 250, 1500 and 3500 ppm; due to high incidence of mortality at 3500 ppm early in the study, the high dose was eventually set at 2500 ppm (i.e., new high dose and control groups were established)
Control group	:	yes
NOAEL	:	= 1500 ppm
Method	:	other: TSCA TG 798.2450; US EPA TG 40 CFR Part 798 Subpart G
Year	:	1997
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark	:	CD-1 mice were exposed to 0, 250, 1500 and 3500 ppm TAME initially; a new high dose group of mice at 2500 ppm and corresponding control group were established due to high mortality at 3500 ppm. Exposures were for 6 hours per day, generally 5 days per week for 13 weeks (minimum 65 exposures); groups of 10/sex at 0 ppm and the highest dose, 2500 ppm were allowed a 4 week recovery period. Animals were observed twice daily for mortality or obvious signs of toxicity, and given a detailed examination each week. Body weight and food consumption measurements were performed twice pre-test and weekly during the study. Ophthalmology evaluations were performed pre-exposure, at termination and at the end of the recovery period. Hematology and serum chemistry evaluations were performed during weeks 5 or 6, week 14 and following recovery. Cell proliferation was assessed in liver by examination of incorporation of 5-bromo-2'-deoxyuridine after 1, 4 and 13 weeks exposure to TAME. Animals were subject to a full macroscopic examination at autopsy, and selected organs weighed, sampled and preserved for all animals. Selected tissues from the control and high dose rats were processed, stained and examined by light microscopy. Number of animals: 46/sex for the control and high dose groups (two groups each); 36/sex for the low and mid dose groups
Result	:	At 3500 ppm, 13 of 46 males and 10 of 46 females died after the first exposure and 26 of 46 males and 14 of 46 females died within three exposures to TAME. A trial was conducted with groups of 15 mice/sex exposed at 3000 ppm; 8 males and 4 females died within eight exposures. Accordingly the high dose was set at 2500 ppm. A number of effects were observed at the highest dose used in the main study, 2500 ppm. These included 27 deaths among 92 mice, post-exposure clinical signs, effects on a number of clinical chemistry parameters, and increased liver weights. Many of these resolved after the 4 week recovery period. Liver cell proliferation studies showed increases in the labelling index of hepatocytes and centrilobular hepatocellular hypertrophy was observed in both sexes. Exposure of mice at 1500 ppm resulted in effects including post exposure clinical signs, increased globulin in males at week 6 and effects on liver weights in males. Similar findings were made in the liver cell proliferation studies and microscopic examination to those for the 2500 ppm animals. These liver effects were also observed for female mice exposed to 250 ppm. Centrilobular hepatocellular hypertrophy is frequently seen in the liver following exposure to agents that cause hepatic enzyme induction. Therefore, this effect is considered an adaptive response to increased metabolic load.
Conclusion	:	The NOAEL for subchronic toxicity was 1500 ppm in both males and females.
Reliability	:	(1) valid without restriction

09.10.2006 (4)

5.5 GENETIC TOXICITY 'IN VITRO'

Type	:	Bacterial reverse mutation assay
System of testing	:	Salmonella typhimurium
Test concentration	:	Doses ranging from 100 to 10,000 ug per plate
Cycotoxic concentr.	:	>10,000 ug/plate
Metabolic activation	:	with and without
Result	:	negative

Method	:	other: EPA OTS 798.5265, Similar to OECD Guideline 471
Year	:	1995
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	Strains tested: Salmonella typhimurium tester strains TA98, TA100, TA1535, TA1537, TA1538 Test substance doses/concentration levels: The concentration of TAME ranged from 100 to 10,000 ug per plate Metabolic activation: With and without (S9 fraction mix of livers of Aroclor 1254 pretreated rats) Vehicle: Dimethyl sulfoxide (DMSO) Positive Controls: 2-aminoanthracene (5 ug/plate); 9-aminoacridine (100 ug/plate); N-methyl-N-nitro-N-nitrosoguanidine (MNNG) (10 ug/plate) and 2-nitrofluorene (5 ug/plate). Statistical analysis: Mean revertant colony count (means of triplicate plates) were determined for each dose point. Cytotoxicity study: A toxicity screening test conducted prior to the full assay indicated a lack of toxicity at concentrations as high as 10,000 ug per plate.
Result	:	TAME did not induce reverse gene mutation in any strain. The test substance was not genotoxic in this assay with or without metabolic activation. A satisfactory response was obtained with the positive control substances (2-aminoanthracene, 9-aminoacridine, MNNG, 2-nitrofluorene).
Conclusion	:	Under the conditions of this study, the test material was not mutagenic.
Reliability	:	(1) valid without restriction

09.10.2006 (8)

Type	:	other: Mammalian Chromosomal Aberration Test
System of testing	:	Chinese hamster ovary cells (CHO)
Test concentration	:	313, 625, 1250, 2500 and 5000 ug/ml
Cycotoxic concentr.	:	5000 ug/ml
Metabolic activation	:	with and without
Result	:	positive
Method	:	other: OECD Guideline 473
Year	:	1997
GLP	:	no data
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
Remark	:	Metabolic activation: With and without rat liver S9 from animals pretreated with Arochlor 1254 Test type: Chromosome damage CHO cells were treated with 313, 625, 1250 and 5000 ug/ml TAME in the presence and absence of rat liver S9. Cells were treated with TAME for 12 hours in the absence of S9 (-S9) and for 4 hours with a 16 hour recovery period in the presence of S9. Mitomycin C was used as the positive control for experiments conducted in the absence of S9 whereas cyclophosphamide was used as the positive control for experiments conducted in the presence of S9. Ethanol was the negative control in all experiments. Colcemid (0.1 ug/ml) was added 2 hours before harvest to arrest cells in metaphase. TAME was soluble in the treatment medium at all doses tested.

In the absence of S9, a statistically significant increase in aberrant cells was observed at 2500 and 5000 ug/ml, and a dose response was observed. In the presence of S9, a statistically significant increase in aberrant cells was observed at all concentrations and a dose response was observed.

The positive controls caused large, statistically significant increases in the proportion of aberrant cells in all cases, indicating that the test system responded appropriately.

Conclusion : TAME was clastogenic under the conditions of this test.
Reliability : (1) valid without restriction
09.10.2006 (5)

5.6 GENETIC TOXICITY 'IN VIVO'

Type : other: Mammalian Erythrocyte Micronucleus Test
Species : mouse
Sex : male/female
Strain : CD-1
Route of admin. : other: Intraperitoneal injection
Exposure period : Bone marrow (femur) sampled at 24hr, 48hr, 72hr after administration (24hr only for the positive control substance)
Doses : 0.15, 0.375, 0.75 g/kg
Result : negative
Method : other: EPA OTS 798.5395, Similar to OECD Guideline 474
Year : 1995
GLP : yes
Test substance : other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark : Tertiary amyl methyl ether was diluted in corn oil and administered as a single intraperitoneal (i.p.) injection at doses of 0.75, 0.375 and 0.15 g/kg body weight. Cyclophosphamide was dissolved in water and used as the positive control at a dose of 40 mg/kg i.p.

Animals from the appropriate groups were euthanized by CO2 at ca. 24, 48 and 72 hours after administration of test article. Animals dosed with cyclophosphamide were taken at 24 hours only. Each group consisted of 10 animals (five per sex) per time point. At death, both femurs from each animal were removed and bone marrow was recovered and suspended in fetal bovine serum. Following centrifugation to pellet the tissue, the supernatant was drawn off, the pellet resuspended and the suspension spread on slides and dried (two slides were prepared per animal). Prior to microscopic evaluation, the slides were stained using acridine orange.

One thousand polychromatic erythrocytes from each animal were examined for micronuclei formation. Criteria for scoring micronuclei were those of Schmid. In addition, the ratio of polychromatic erythrocytes (PCEs) to normochromatic erythrocytes (NCEs) was determined by counting 1000 erythrocytes (PCEs and NCEs). The data were evaluated statistically using ANOVA.

Result : All mice survived to scheduled termination. No increase in micronucleus frequency was observed at any dose level of TAME or at any of the bone marrow collection times. The positive control (cyclophosphamide) produced statistically significant increases in micronucleus frequencies in both males and females. Overt marow toxicity, as measured by a statistically significant decrease in the percentage of polychromatic erythrocytes, was not observed in any of the groups dosed with TAME. The percentages of polychromatic erythrocytes observed were within the normal range. Thus, these data indicated that TAME did not cause

clastogenic effects in mouse bone marrow.

Conclusion : TAME did not produce clastogenic effects in mouse bone marrow.
Reliability : (1) valid without restriction
09.10.2006 (8)

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

Type : other: Two-generation Reproductive Toxicity Test
Species : rat
Sex : male/female
Strain : Sprague-Dawley
Route of admin. : other: Whole body inhalation
Exposure period : Males: premating, mating, postmating (30 days); Females: premating, mating through gestational day 19, lactation (postnatal day 5 through 28)
Frequency of treatm. : 6 hr/day, 5-7 days/week
Premating exposure period
Male : 5 days/week for 10 weeks
Female : 5 days/week for 10 weeks
Duration of test : 43 weeks
No. of generation studies : 2
Doses : 250, 1500 and 3000 ppm
Control group : other: Yes - air-exposed
Method : other: OPPTS - 1996 draft guidelines
Year : 2003
GLP : yes
Test substance : other TS: Tertiary Amyl Methyl Ether (CAS # 994-05-8)

Remark : The study began with 30 males and 30 females per group to yield at least 20 pregnant females per group at or near term. Exposure began for all F0 animals when they were ca. 7 weeks old. Animals were assigned to groups by means of randomization stratified by body weight, such that the body weights by gender of all groups were homogeneous by statistical analysis at study initiation.

The study was conducted with three treatment groups and an air (vehicle control) group, each comprising 30 rats/gender. The target exposure concentrations were 250, 1500 and 3000 ppm. The F0 animals (parents of the F1 generation) and selected F1 offspring (parents of F2 generation) were exposed to TAME vapor for 6 hr/day, 5 days/week, during the premating exposure periods (for at least 10 weeks) and the postmating holding period (males, for ca. 30 days). During mating (both genders), gestation (dams) and lactation (dams) of F1 and F2 litters, exposures were 6 hr/day, 7 days/week. Pregnant dams were not exposed beginning on gestational day (gd) 20. Dams with litters were not exposed on postnatal day (pnd) 0 (day of parturition) through to pnd 4. Exposures to the dams resumed on pnd 5. Retained postwean F2 offspring were not exposed to TAME vapor.

Observations for mortality were made twice daily and clinical examinations were conducted and recorded daily, prior to and after each exposure period, through the course of the study. The body weights of male rats were recorded initially and weekly through mating. The body weights of female rats were recorded in the same manner until confirmation of mating. Females were weighed and the feed consumption was recorded on gd 0, 7, 14 and 20 and on pnd 0, 4, 7, 14, 21 and 28. For the last three weeks of

the premating exposure period, vaginal smears were taken for all F0 and F1 females. The slides from the premating period were evaluated for estrous cyclicity and normality. Vaginal smears were taken daily during the 14-day mating period or until mating was confirmed. The observation of vaginal sperm or copulation plug was considered evidence of successful mating.

All pups (F1 and F2 litters) were counted, weighed, sexed and examined as soon as possible after birth to determine the number of viable and stillborn members of each litter. Thereafter, all live pups were counted, their gender determined, weighed individually and examined grossly, and litters were evaluated for survival on pnd 4, 7, 14 and 21 and at weaning (pnd 28).

Statistical method:
The unit of comparison was the male, the female, the pregnant female or litter, as appropriate. Quantitative continuous data (e.g. parental and pup body weights, organ weights, F2 anogenital distance, feed consumption, food efficiency, etc.) were compared among the three treatment groups and the one vehicle control group by the use of Bartlett's test for homogeneitiy of variances. If Bartlett's test indicated a lack of homogeneity of variances (i.e. P<0.001), then non-parametric statistical tests were employed for the continuous variables. Non-parametric tests, used for continuous data that did not have homogeneous variances, included the Kruskal-Wallis test to determine whether significant differences were present among the groups, followed by the Mann-Whitney U test for pairwise comparisons to the vehicle control group if the Kruskal-Wallis test was significant. Jonckheere's test for k independent samples was used to identify significant dose-response trends for non-parametric continous data. If Bartlett's test indicated homogeneous variances (i.e. P>0.001), then parametric statistical tests were employed for the continuous variables. A general linear model (GLM) procedures for the analysis of variance (ANOVA) were used to determine the significance of the dose-response relationship and to determine whether significant dosage effects had occurred for selected measures. For all statistical tests, the significance limit of 0.05 was used as the criterion for significance. A test for statistical outliers was performed on parental body weights and feed consumption (in g/day). If examination of pertinent study data did not provide a plausible and biologically sound reason for inclusion of the data flagged as "outlier," the data were excluded from summarization and analysis and were designated as outliers. If feed consumption data (in g/ day) were negative for a given animal and period, they were designated "unrealistic" and excluded from summarization and analysis. If feed consumption data for a given observational interval (e.g. study days 0-7, 7-14, 14-28, 28-35, etc.) during the premating exposure period were designated outliers or unrealistic, then summarized data encompassing this period (e.g. study days 0-70 for the premating exposure period) also did not include this value.

Result : Adult systemic toxicity was present for F0 and F1 parental animals at 1500 and 3000 ppm. At 3000 ppm, there were consistent and persistent reductions in body weights, weight gains and feed consumption (in g/day) in both genders and both generations. Feed consumption (in g/kg/day) and food efficiency were variable. Clinical observations at 3000 ppm were limited to ataxia (during and immediately after exposures) in most to all animals in both genders and both generations. Body weights during gestation in F1 dams and during lactation in F0 and F1 dams were reduced at 3000 ppm. At 1500 ppm, there were no effects on body weights, feed consumption or food efficiency, but ataxia was present in F0 males and females and lactational weight change was reduced in F1 dams.

At necropsy, parental absolute and relative liver weights were increased in both genders and generations at 3000 ppm (in F0 males, absolute and

relative kidney weights also were increased at 250 and 1500 ppm). Relative (but not absolute) spleen weights also were increased at 3000 ppm. Brain weights, absolute or relative, were not consistently affected. There were no treatment-related gross or histopathological findings for any of these organs.

Reproductive toxicity:
Adult reproductive toxicity was minimally present at 3000 ppm in males, expressed as reduced body weights throughout premating and mating and increased relative (but not absolute) testes weights in F0 and F1 males, most likely due to reduced terminal body weights at this concentration, reduced absolute prostate weight in F1 (but not F0) males, reduced epididymal sperm concentration in F1 (but not F0) males and significantly increased percentage of abnormal sperm in F0 (but not in F1) males. At 1500 ppm, the percentage of abnormal sperm was increased relative to the concurrent control value in F0 males, but this value was well within the historical control range for this parameter. There were no effects of treatment on mating or survival indices, absolute testes weight, absolute or relative weights of the epididymides or seminal vesicles with coagulating gland, relative prostate weight, percentage of motile or progressively motile sperm, testicular homogenization-resistant spermatid head counts, daily sperm production or efficiency of daily sperm production. There were also no treatment-related gross or histopathological findings in the reproductive organs in F0 or F1 males.

In F0 and F1 females there were no effects of treatment on vaginal cyclicity, estrous cycle length, mating, fertility, pregnancy, gestational indices or gestational length. Cycle length was reduced at 1500 ppm but not at 3000 ppm in F1 females, and not in F0 females at any concentration. This is most likely due to biological variation. Gestational length was significantly longer than the concurrent control values at 1500 ppm, with no effects at 3000 ppm in F1 females and no effects in F0 females at any concentration. The values were all well within the historical control range for this parameter. There were also no effects on number of implantation sites per litter, on number of total, live or dead pups per litter on pnd 0 or on the percentage of postimplantation loss per litter (prenatal mortality index). There were also no effects on absolute or relative ovary or uterine weight and no treatment-related gross or histopathological findings in these organs.

Offspring toxicity:
Offspring toxicity was present at 1500 and 3000 ppm. Survival indices were unaffected for F1 offspring throughout lactation (pnd 4, 7, 14, 21 and 28) and were unaffected for F2 offspring for pnd 7, 14 and 28. The F2 survival indices were significantly reduced at 3000 ppm for pnd 4 and 21. The F1 pup body weights per litter were significantly reduced during lactation at 1500 and 3000 ppm on pnd 4, 7, 14, 21 and 28 (but not on pnd 0) and at 250 ppm on pnd 14, 21 and 28 (the last only for males). The F2 pup body weights per litter were significantly reduced during lactation at 3000 ppm for pnd 0, 4, 7, 14, 21 and 28 and at 1500 ppm for pnd 14 and 21. There were no effects on the F2 pups at 250 ppm. Delays (not correlated with body weight differences) in the age of preputial separation in males (F1 at 1500 and 3000 ppm, and F2 at 3000 ppm) and vaginal patency in females (F1 at 3000 ppm, and F2 at 250 and 3000 ppm) were observed in both generations. Overall the effects seemed more severe on the F1 generation. Shorter anogenital distances at birth were observed in both sexes of the F2 generation. These appeared to be related to lower birth weights. The pattern exhibited by these results was considered more likely to be due to overall toxicity, rather than endocrine disruption, which would be expected to have more severe effects on one sex than the other.

Conclusion : Exposure to TAME vapor for 6 hr/day, 5-7 days/week for two generations, one litter per generation, at 0, 250, 1500 and 3000 ppm resulted in

systemic effects at 1500 and 3000 ppm, minimum adult reproductive toxicity at 3000 ppm and offspring toxicity at 1500 and 3000 ppm. The NOAEL for adult reproductive toxicity was 1500 ppm for males and 3000 ppm for females. The NOAEL for offspring toxicity was 250 ppm in rats under the conditions of this study.

Reliability : (1) valid without restriction
09.10.2006 (21)

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

Species	:	rat
Sex	:	female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	6 hr/day
Frequency of treatm.	:	Gestation Days 6-19 (14 consecutive days)
Duration of test	:	14 days
Doses	:	0, 250, 1500, or 3500 ppm
Control group	:	other: yes (air-exposed)
NOAEL maternal tox.	:	= 250 ppm
other: NOAEL Pupl	:	= 1500 ppm
Result	:	Maternal NOAEL: 250 ppm; Pup NOAEL: 1500 ppm
Method	:	other: EPA OPPTS - 1996 draft guidelines
Year	:	2003
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark : In this study, 25 evidence-of-mating-positive females per group were exposed to TAME for 6 hr/day on 14 consecutive days (gd 6-19). Clinical observations were taken daily, except during the exposure period. During this period they were made at least twice daily, immediately before and after each daily TAME exposure. Maternal body weights were recorded in the morning on gd 0, 6, 9, 12, 15, 18 and 20. Feed consumption was measured for the intervals gd 0-6, 6-9, 9-12, 12-15, 15-18, and 18-20. At scheduled termination on gd 20, the dams were evaluated for body, liver and gravid uterine weights. Ovarian corpora lutea were counted and the status of uterine implantation sites (i.e. resorptions, dead fetuses, live fetuses) was recorded. All fetuses were dissected from the uterus, counted and weighed; their gender was determined and the fetuses were examined for external abnormalities. Approximately half of the fetuses in each litter were examined for visceral malformations and variations by a fresh tissue dissection method. The heads of the fetuses were removed and fixed in Bouin's solution; serial free-hand sections of the heads were examined for soft--tissue craniofacial malformations and variations. All fetuses in each litter were eviscerated, fixed in alcohol and stained with alizarin red S/alcian blue. Intact fetuses (approximately half per litter; the one not examined viscerally or decapitated) were examined for skeletal malformations and variations.

Statistical method:
Quantitative continuous data (e.g. maternal body weights, fetal body weights, maternal feed consumptions, etc.) were compared among the three treatment groups against the air inhalation control group by Bartlett's test for homogeneity of variances. If Bartlett's test indicated lack of homogeneity of variances (i.e. $P<0.001$), then non-parametric statistical tests were employed for the continuous variables. If Bartlett's test indicated homogeneous variances (i.e. $P>0.001$), then parametric statistical tests were used. Parametric statistical procedures that were applied to selected measures from this developmental toxicity study were as follows. Appropriate general linear model (GLM) procedures were used for the

analysis of variance (ANOVA). Prior to GLM analysis, an arcsine square root transformation was performed on all litter-derived percentage data to allow the use of parametric methods. For these litter-derived percentage data, the ANOVA was weighted according to litter size. The GLM analysis was used to determine the significance of the concentration-response relationship (test for linear trend) and to determine whether significant concentration-related effects had occurred for selected measures (ANOVA). When a significant (P<0.05) main effect for concentration occurred, Dunnett's multiple comparison test was used to compare each TAME-exposed group to the control group for that measure. A one-tailed Test (i.e. Dunnett's test) was used for all pairwise differences from the air-only control group, except that a two-tailed test was used for maternal body and organ weight parameters, maternal feed consumption, fetal body weight and percent of males per litter.
Non-parametric tests were used on continuous data without homogeneous variances and included the Kruskal-Wallis test to determine if significant differences were present among the groups, followed by the Mann-Whitney U test for pairwise differences from the designated control group if the Kruskal-Wallis test was significant. Jonckheere's test for k independent samples was applied to identify significant dose-response trends for non-parametric continuous data. Nominal scale measures were analyzed by the chi-square test for independence for differences among treatment groups and by the Cochran-Armitage test for a linear trend on proportions. When the chi-square test revealed significant (P<0.05) differences among groups, a two-tailed Fisher's exact probability test with appropriate adjustment for multiple comparisons was used for pairwise differences between each TAME-exposed group and the control group. A test for statistical outliers was performed on maternal body weights and feed consumption (in g/day). If examination of pertinent study data did not provide a plausible and biologically sound reason for inclusion of the data flagged as "outlier," the data were excluded from summarization and analysis and were designated as outliers. If feed consumption data (in g/day) were negative for a given dam and period, they were designated unrealistic and excluded from summarization and analysis. If feed consumption data for a given observational interval (e.g. gd 6-9, 9-12, 12-15 or 15-17) were designated outliers or unrealistic, then summarized data encompassing this period (e.g. treatment period) also did not include this value.

Result : Maternal toxicity observations:

Prior to the start of exposures, maternal body weights were equivalent across all groups. Maternal body weight was significantly reduced only at 3500 ppm for gd 12, 15, 18 and 20 (in-life and at termination). Maternal weight change was significantly reduced at 1500 and 3500 ppm for gd 6-9 and at 3500 ppm for gd 6-20 (exposure period). Maternal weight change was significantly reduced at 1500 and 3500 ppm for gd 0-20 (entire gestation period), as was gestational weight change corrected for weight of the gravid uterus. There were no effects on maternal weight change at 250 ppm. Gravid uterine weight exhibited a significant exposure-concentration related downward linear trend (P<0.05) but no statistically significant pairwise comparison differences in any group compared with the concurrent control group. Maternal absolute liver weights were equivalent across all groups. At scheduled necropsy, maternal liver weight relative to body weight was significantly increased at 3500 ppm.

Maternal feed consumption (in g/day) was significantly reduced at 3500 ppm for gd 6-9, 9-12, 12-15, 15-18, 18-20, 6-20 (exposure period) and 0-20 (gestation period). At 1500 ppm, feed consumption was significantly reduced only for gd 9-12. When the data were expressed as g/kg/day, maternal feed consumption at 3500 ppm was reduced for gd 6-9, 9-12 and 6-20. At 1500 ppm, feed consumption (as g/kg/day) was significantly reduced only for gd 6-9. There were no effects of treatment on maternal

feed consumption at 250 ppm.

Clinical observations related to TAME exposure at 3500 ppm included ataxia (after exposure on gd 6-11), dazed appearance (gd 6-12), lethargy (gd 6-13 and 16-19), eyes squinted (gd 6-8 and 10), eyes closed (gd 8 and 11), pica (gd 6-14 and 16), slow respiration (gd 6, 8 and 11), piloerection (gd 6, 7, 9, 15, 16, 17 and 19), rough coat (gd 7, 9 and 10), facial tremors (gd 8 and 11), gasping (gd 8) and clinical weight loss (>5.0 g within a weighing period) on gd 9. At 1500 ppm, dams exhibited lethargy (one each on gd 6 and 7) and piloerection (one on gd 15). At 250 ppm, one dam exhibited pica on gd 6 and two dams exhibited piloerection on gd 19. There was a clear indication of maternal accommodation to the highest TAME exposure concentration, as evidenced by diminution in incidence and intensity of clinical signs such as ataxia, lethargy and slow respiration over time. At scheduled necropsy, no gross anomalies were found in dams.

Embryo/fetal toxicity

There were no significant effects of treatment on gestational parameters, including number of ovarian corpora lutea, total number of uterine implantation sites, pre- or post-implantation loss, number of live fetuses per litter and gender ratio (% male fetuses) per litter. Fetal body weight per litter, when calculated as all fetuses,or males or females separately, was significantly reduced at 3500 ppm.

There were no treatment-related changes in the incidence of individual or pooled external, visceral, skeletal or total malformation or variations by litter or by fetus per litter. One fetus in one litter at 250 ppm exhibited all the external malformations observed in the TAME-exposed groups of this study: unilateral right anophthalmia, ocular orbits close together, agenesis of the nostril and micrognathia. Fetal visceral malformations were almost exclusively limited to hydronephrosis and hydroureter, distributed across 0. 250 and 1500 ppm, and one fetus in one litter at 0 ppm with interventricular septal defect. For fetal skeletal malformations, one fetus at 0 ppm exhibited fused sternebrae, one fetus at 1500 ppm exhibited scrambled sternebrae and agenesis of a rib and one fetus at 3500 ppm exhibited bipartite cartilage and bipartite ossification center in the thoracic centrum. Fetal external variations were distributed across all groups and were limited to hematomas at various locations. Fetal visceral variations were distributed across all groups with no TAME exposure-related pattern; they included predominantly enlarged laterl ventricles of the cerebrum and distended ureters, both common findings in term fetuses. Fetal skeletal variations included misaligned sternebrae and changes in cartilage and bone in the thoracic centra, predominantly extra rib (full or rudimentary) on lumbar vertebra no. 1 across all groups examined. These variations are common fetal findings.

Conclusion : There was no evidence of treatment-related teratogenicity at any of the three exposure concentrations and no other developmental effects. Almost all the fetal malformation and variation findings were those commonly observed in historical control Sprague-Dawley rat fetuses and in published control databases. Therefore, the NOAEL was 250 ppm for maternal toxicity and 1500 ppm for developmental toxicity in rats under the conditions of this study.

Reliability : (1) valid without restriction
09.10.2006 (23)

Species : mouse
Sex : female
Strain : CD-1
Route of admin. : inhalation
Exposure period : 6 hr/day
Frequency of treatm. : Gestation Days 6-16 (11 consecutive days)

Duration of test	:	11 days
Doses	:	0, 250, 1500, or 3500 ppm
Control group	:	other: yes (air-exposed)
NOAEL maternal tox.	:	= 250 ppm
other: NOAEL Pup	:	= 250 - ppm
Result	:	Maternal NOAEL: 250 ppm; Pup NOAEL: 250 ppm
Method	:	other: EPA OPPTS - 1996 draft guidelines
Year	:	2003
GLP	:	yes
Test substance	:	other TS: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

Remark :

In this study, 25 evidence-of-mating-positive females per group were exposed to TAME for 6 hrs per day on 11 consecutive days (gd 6-16). Clinical observations were taken daily, except during the exposure period. During this period they were made at least twice daily, immediately before and after each daily TAME exposure. Maternal body weights were recorded in the morning on gd 0, 6, 9, 12, 15 and 17. Feed consumption was measured for the intervals gd 0-6, 6-9, 9-12, 12-15, and 15-17. At scheduled termination on gd 17, the dams were evaluated for body, liver and gravid uterine weights. Ovarian corpora lutea were counted and the status of uterine implantation sites (i.e. resorptions, dead fetuses, live fetuses) was recorded. All fetuses were dissected from the uterus, counted and weighed; their gender was determined and the fetuses were examined for external abnormalities. Approximately half of the fetuses in each litter were examined for visceral malformations and variations by a fresh tissue dissection method. The heads of the fetuses were removed and fixed in Bouin's solution; serial free-hand sections of the heads were examined for soft--tissue craniofacial malformations and variations. All fetuses in each litter were eviscerated, fixed in alcohol and stained with alizarin red S/alcian blue. Intact fetuses (approximately half per litter; the one not examined viscerally or decapitated) were examined for skeletal malformations and variations.

Statistical method:
Quantitative continuous data (e.g. maternal body weights, fetal body weights, maternal feed consumptions, etc.) were compared among the three treatment groups against the air inhalation control group by Bartlett's test for homogeneity of variances. If Bartlett's test indicated lack of homogeneity of variances (i.e. P<0.001), then non-parametric statistical tests were employed for the continuous variables. If Bartlett's test indicated homogeneous variances (i.e. P>9.001), then parametric statistical tests were used. Parametric statistical procedures that were applied to selected measures from this developmental toxicity study were as follows. Appropriate general linear model (GLM) procedures were used for the analysis of variance (ANOVA). Prior to GLM analysis, an arcsine square root transformation was performed on all liter-derived percentage data to allow the use of parametric methods. For these litter-derived percentage data, the ANOVA was weighted according to litter size. The GLM analysis was used to determine the significance of the concentration-response relationship (test for linear trend) and to determine whether significant concentration-related effects had occurred for selected measures (ANOVA). When a significant (P<0.05) main effect for concentration occurred, Dunnett's multiple comparison test was used to compare each TAME-exposed group to the control group for that measure. A one-tailed Test (i.e. Dunnett's test) was used for all pairwise differences from the air-only control group, except that a two-tailed test was used for maternal body and organ weight parameters, maternal feed consumption, fetal body weight and percent of males per litter.
Non-parametric tests were used on continuous data without homogeneous variances and included the Kruskal-Wallis test to determine if significant differences were present among the groups, followed by the Mann-Whitney U test for pairwise differences from the designated control group if the

Kruskal-Wallis test was significant. Jonckheere's test for k independent samples was applied to identify significant dose-response trends for non-parametric continuous data. Nominal scale measures were analyzed by the chi-square test for independence for differences among treatment groups and by the Cochran-Armitage test for a linear trend on proportions. When the chi-square test revealed significant ($P<0.05$) differences among groups, a two-tailed Fisher's exact probability test with appropriate adjustment for multiple comparisons was used for pairwise differences between each TAME-exposed group and the control group. A test for statistical outliers was performed on maternal body weights and feed consumption (in g/day). If examination of pertinent study data did not provide a plausible and biologically sound reason for inclusion of the data flagged as "outlier," the data were excluded from summarization and analysis and were designated as outliers. If feed consumption data (in g/day) were negative for a given dam and period, they were designated unrealistic and excluded from summarization and analysis. If feed consumption data for a given observational interval (e.g. gd 6-9, 9-12, 12-15 or 15-17) were designated outliers or unrealistic, then summarized data encompassing this period (e.g. treatment period) also did not include this value.

Result : Maternal toxicity observations:

In this study, inhalation of TAME by pregnant mice during gestation days 6-16 resulted in maternal toxicity at 3500 ppm, including maternal mortality (4 of 25), reductions in body weight, weight gain and treatment-related clinical signs of toxicity. The increased maternal absolute and relative liver weights at 1500 and 3500 ppm may have been due to induction of metabolizing enzymes and therefore increase in mass.

Maternal body weight was significantly reduced only at 3500 ppm for gd 15 and 17 (in-life and at termination). Prior to the start of exposures, maternal body weights were equivalent across all groups. Maternal weight change was significantly reduced at 3500 ppm for gd 9-12, 12-15, 15-17, 6-17 (exposure period) and 0-17 (entire gestation period). Maternal gestational weight change, corrected for the weight of the gravid uterus, was unaffected across groups. There were no effects on maternal weight change at 250 or 1500 ppm. Gravid uterine weight was significantly reduced at 3500 ppm. Maternal absolute liver weight was significantly increased at 1500 ppm but not at 3500 ppm, although the value at 3500 ppm was slightly increased. Maternal liver weight relative to weight at termination was significantly increased at 1500 and 3500 ppm. The increased relative liver weight may also have been due, in part, to the reduced body weights of the dams at termination at 3500 ppm.

Clinical observations related to TAME exposure at 3500 ppm included ataxia, hyperactivity, prone positioning, lethargy, gasping, rough coat, slow respiration, head tremors, squinted eyes, and maternal mortality. At 1500 ppm, dam exhibited half-closed eyes and head tremors. At 250 ppm, one dam delivered early on gd 16. In addition to solvent smell on fur, findings for the unscheduled deaths at 3500 ppm included red to dark red nail beds, red foci or red areas on lungs. These findings appeared to be consistent with severe congestion. There was clear indication of reduced pharmacological effects with time and maternal accommodation to the top two exposure concentrations. This interpretation was supported by observations of mortality at 3500 ppm early in the exposure period (gd 6-9) only and diminution over time in the incidence of clinical signs of toxicity, such as ataxia, lethargy, gasping and slow respiration. At scheduled necropsy, there were no gross findings in dams indicative of any lesions caused by the TAME exposure.

Maternal feed consumption (in g/day) was significantly reduced at 3500 ppm for gd 9-12, 12-15, 15-17, and 6-17 (exposure period). Maternal feed

consumption for the gestational period (gd 0-17) was unaffected across the other groups. At 1500 ppm, feed consumption was significantly reduced only for gd 6-9. When the data were expressed as g/kg/day, maternal feed consumption at 3500 ppm reduced only for gd 9-12. At 1500 ppm, feed consumption (as g/kg/day) was unaffected. There were no effects of treatment on maternal feed consumption at 250 ppm.

Embryo/fetal toxicity

There were no significant effects of maternal TAME vapor inhalation on gestational parameters, including number of ovarian corpora lutea, total number of uterine implantation sites, pre- or post-implantation loss, number of live fetuses per litter and gender ratio (% male fetuses) per litter. At 3500 ppm, there were significant increases in the percentage of late fetal deaths per litter and percentage of litters with late fetal deaths. There were significant concentration-related upward trends for percentage of non-live implants per litter and percentage of adversely affected (non-live plus malformed) implants per litter, with no significant pairwise comparisons with the concurrent control group values. Fetal body weight per litter when calculated as all fetuses, or males or females separately, was significantly reduced at 3500 ppm.

A statistically significant TAME-exposure-related increase was observed in the percentage of litters with fetal external malformations at 3500 ppm (31.68%); the value at 1500 ppm was also increased (18.28%) but not statistically significantly relative to the control group value (0.00%). A statistically significant, treatment-related increase was also observed in the percentage of litters with visceral variations at 3500 ppm (89.47%) relative to the control group value (47.83%). Values at 250 ppm (52.38%) and 1500 ppm (50.00%) were unchanged from the control group value. There were statistically significant, treatment-related upward trends ($P<0.001$) for the percentage of fetuses with variations per litter and for the percentage of male fetuses (but not for female fetuses) with variations per litter but no significant pairwise comparisons with the concurrent control group values for these parameters. The incidences of visceral, skeletal and total malformations and of external, skeletal and total variations were unchanged across groups when expressed as fetuses per litter or as litters with affected fetuses. External malformations were limited to cleft palate in three fetuses in three litters at 1500 ppm and 11 fetuses in six litters at 3500 ppm. One litter at 1500 ppm had three fetuses with polydactyly of fore- and hindpaws, one fetus with exencephaly and open left eye and one fetus with micrognathia and polydactyly. Fetal skeletal malformations were also distributed across all groups, with findings limited to the sternum (sternal plate and sternebrae) and ribs (branched, fused and inappropriate attachments of floating ribs to the sternum).

Fetal external variations were limited to hematomas in various locations at 250 and 1500 ppm. Fetal visceral variations were limited mainly to enlarged lateral ventricles of the cerebrum across all groups. One fetus in one litter at 0 ppm and three fetuses in three litters at 1500 ppm had red foci on urinary bladder and one fetus in one litter at 0 ppm had red foci on kidney. The incidence of enlarged lateral ventricles (full) and bilateral ventricles exhibited a clear treatment-related increased incidence only at 3500 ppm, with eight affected fetuses in seven litters at 0 ppm, six affected fetuses in four litters at 250 ppm, seven affected fetuses in seven litters at 1500 ppm and 38 affected fetuses in 16 litters at 3500 ppm. Fetal skeletal variations included extra rib(s) on lumbar vertebra no. 1 in all groups, misaligned sternebrae at 0, 250 and 1500 ppm, reduced ossification in sternebrae in all groups, in lumbar centrum at 1500 ppm and in thoracic centrum and pubis at 3500 ppm and floating extra rib cartilage at 1500 ppm.

Developmental toxicity was present at 3500 ppm, expressed specifically as increased incidence of late fetal deaths, reduced fetal body weights per litter and increased incidences of cleft palate (an external malformation) and of enlarged lateral ventricles of the cerebrum (a visceral variation). At 1500 ppm, three fetuses in three litters also exhibited cleft palate (with none observed at 250 of 9 ppm). This increase was not statistically significant, but it is considered biologically relevant and related to maternal TAME exposure. The finding of one additional litter at 1500 ppm with three multiply malformed fetuses (out of nine live fetuses total) may be unrelated to treatment because these malformations were not observed at 3500 ppm and were limited to only one litter at 1500 ppm. The observation of cleft palate in fetuses at 1500 and 3500 ppm appears to be consistent with a proposed mechanism for cleft palate in mice exposed to methyl tertiary butyl ether (MTBE). Maternal exposure to MTBE with anesthetic qualities at high concentrations associated with maternal stress results in elevated endogenous corticosteroid levels, which cause cleft palate in the developing offspring in mice (Bevan et al., 1997). Although those hormone levels were not determined in the present study, the biological mode of action of TAME appears to be similar and comparable to that of MTBE, as judged by clinical observations. At high exposure concentrations in mice, TAME exerts depressant effects on the central nervous system that resemble anesthetic properties and are preceded by a pronounced excitatory stage. Therefore, the brain stimulation and excitation may have induced a rise in endogenous corticosteroid levels in the mouse dams. The occurrence of a significantly increased incidence of fetal cleft palate at the 3500 ppm exposure level, coincident with maternal toxicity, suggests that stress of the dams is a contributing factor. Mice are sensitive to stress, and cleft palate occurs in offspring if the pregnant dams experience stress such as food and water deprivation, transportation, restraint or low humidity. That corticosteroids cause cleft palate in susceptible mouse strains is well documented.

The increased incidence of enlarged lateral ventricles of the fetal cerebrum at 3500 ppm is consistent with developmental delay because the fetuses at this exposure concentration exhibited mean body weights per litter of ca. 60% of the concurrent control group values. There were no notable developmental effects at 250 ppm. Almost all of the fetal malformations and variation findings observed in the present study are documented in control CD-1 mice fetuses collected at the Research Triangle Institute. In that historical database (47 control mouse litters with 589 fetuses), bilateral enlarged lateral ventricles was the most common fetal visceral variation in control fetuses.

Conclusion : TAME caused only unspecific embryotoxic effects that were apparently related to high exposure concentrations and associated concomitant maternal stress. The NOAEL for maternal and developmental toxicity in mice was 250 ppm in the present study.

Reliability : (1) valid without restriction

09.10.2006 (23)

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) American Petroleum Institute (1994). Tert-Amyl Methyl Ether (TAME) - Acute Toxicity to Daphnids (Daphnia magna) Under Flow-through Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report 92-12-4545.

(2) American Petroleum Institute (1995). Closed-patch repeated insult dermal sensitization study of tertiary amyl methyl ether (TAME) in guinea pigs (Buehler Method). Project No. 403. Bio/dynamics Inc., East Laboratory, East Millstone, NJ, USA.

(3) American Petroleum Institute (1995). Tert-Amyl Methyl Ether (TAME) - Acute Toxicity to Rainbow Trout (Oncorhynchus mykiss) Under Flow-through Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report 93-3-4682.

(4) American Petroleum Institute (1997). A 13-week inhalation toxicity/neurotoxicity study of tert-amyl methyl ether (TAME) in the rat and mouse via whole-body exposures with a 4-week recovery period. Project No. 95-6101. Huntingdon Life Sciences, East Millstone, NJ, USA.

(5) American Petroleum Institute (1997). Chromosome aberrations in Chinese hamster ovary (CHO) cells: Tertiary amyl methyl ether (TAME). Project No. G96CJ24.330. Microbiological Associates, Inc., Rockville, MD, USA.

(6) Amoco (1991). Acute inhalation toxicity study of tert-amyl methyl ether (TAME) in rats. Project No. LO8100 1652. IIT Research Institute Life Sciences Research, Chicago, IL, USA.

(7) Bealing D (1995). Tertiary amyl methyl ether (TAME): assessment of ready biodegradability by measurement of oxygen uptake. Hazleton Europe. Report No. 1359/3-1018. 28 February 1995.

(8) Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day subchronic toxicity studies on tertiary amyl methyl ether. J Applied Toxicology 15(4), 313-319.

(9) ECOSAR v0.99h (2004) in EPI SuiteTM, U.S. EPA (2000). Estimation Program Interface Suite, v3.12. Syracuse Research Corporation, Syracuse, NY, USA.

(10) Exxon (1985). Acute dermal toxicity study in the rabbit. Project No. 254806. Bio/dynamics Inc., East Laboratory, East Millstone, NJ, USA.

(11) Fortum Oyj (2003). 2-Methoxy-methylbutane (TAME): Algal inhibition test. SafePharm Laboratories. Project No. 1755/003.

(12) Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt, Reinhart and Winston, New York, NY, USA.

(13) Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(14) Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(15) Huttunen H (1996). Risk assessment of complex petroleum substances: hazard identification of NExTAME and re-formulated gasoline. Licentiate's Thesis, University of Kuopio, April 1996.

(16) Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the environmental hazards of gasoline oxygenate tert-amyl methyl ether (TAME). Chemosphere 35, 1199-1214.

(17) Lide D, et al. (eds.) (1997-1998). CRC Handbook of Chemistry and Physics. 78th Edition. CRC Press, New York, NY, USA.

(18) Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(19) Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(20) Russell S (1995). TAME: Determination of physico chemical properties. Hazleton Report 1359/1-1014. September 1995 (Neste Oil Refining Report RR 58/95).

(21) Tyl RW, Myers CB, Marr MC, Fail PA, Seely JC, Elswick B, James A and Welsch F (2003). Two-generation reproductive toxicity study of inhaled tertiary amyl methyl ether (TAME) vapor in CD® rats. J Appl Toxicol 23(6), 397-410.

(22) U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM, Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.

(23) Welsch F, Elswick B, James RA, Marr MC, Myers CB and Tyl RW (2003). Developmental toxicity evaluation of inhaled tertiary amyl methyl ether in mice and rats. J Applied Toxicology 23, 387-395.

(24) White RD, Daughtrey, WC, Wells, MS (1995). Health effects of inhaled tertiary amyl methyl ether and ethyl tertiary butyl ether. Toxicol Lett 82/83, 719-724.

(25) Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous environment. Environ Sci Technol 11, 359-366.

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT

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F004 A37-009
EOR
F001 542
F002 3.1.1
F003 33
F004 A37-009
EOR
F001 542
F002 3.1.2
F003 3
F004 A37-009
EOR
F001 542
F002 3.3.1
F003 39
F004 A37-009
EOR
F001 542
F002 3.3.1
F003 40
F004 A37-009
EOR
F001 542
F002 4.1
F003 15
F004 A37-009
EOR
F001 542
F002 4.3

F003 3
F004 A37-009
EOR
F001 542
F002 5.8.2
F003 31
F004 A37-009
EOB
C
B051 DS_COMPONENT_TAB
F001 542
F002 0
F003 1634-04-4
F012 N
F010 01-10-2007
F004 12032693
F005 01-10-2007
F006 12032693
F007 01-10-2007
F008 U.S. EPA - HPV Challenge Program
F009 A35-01
EOR
F001 542
F002 1
F003 1634-04-4
F012 N
F010 04-11-1997
F011 23-10-1995
F004 322029860
F005 05-08-1997
F006 322029860
F007 05-08-1997
F008 Merge ECB data into this datasheet. lav
F009 A35-02
EOB
C
B101 GI_GENERAL_INFORM_TAB
F001 542
F002 65
F003 04-11-1997
F004 IUCADM
F010 A04-04
F011 A19-02
EOR
F001 542
F002 66
F003 04-11-1997
F004 IUCADM
F010 A04-06
F011 A19-02
EOB
C

B102 GI_SYNONYM_TAB
F001 542
F002 53
F003 04-11-1997
F004 HEDSET
F007 methyl-tert.-butyl ether
EOR
F001 542
F002 54
F003 04-11-1997
F004 HEDSET
F007 Methyl tertiary butyl ether
EOR
F001 542
F002 55
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 56
F003 04-11-1997
F004 HEDSET
F007 Methyl-tert. - butylether
EOR
F001 542
F002 58
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 59
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 60
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 61
F003 04-11-1997
F004 HEDSET
F007 methyl-tert.-butyl ether
EOR
F001 542
F002 62
F003 04-11-1997

F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 63
F003 04-11-1997
F004 HEDSET
F007 methyl-tert.-butyl ether
EOR
F001 542
F002 65
F003 04-11-1997
F004 HEDSET
F007 Methyl tertbutyl ether
EOR
F001 542
F002 66
F003 04-11-1997
F004 HEDSET
F007 Methyl 1,1-dimethylethyl ether
EOR
F001 542
F002 67
F003 04-11-1997
F004 HEDSET
F007 Propane, 2-methoxy-2-methyl
EOR
F001 542
F002 68
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 70
F003 04-11-1997
F004 HEDSET
F007 Methyl tertbutyl ether
EOR
F001 542
F002 71
F003 04-11-1997
F004 HEDSET
F007 Methyl 1,1-dimethylethyl ether
EOR
F001 542
F002 72
F003 04-11-1997
F004 HEDSET
F007 Propane, 2-methoxy-2-methyl
EOR
F001 542

F002 73
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 74
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 75
F003 04-11-1997
F004 HEDSET
F007 METHYL-TERT. BUTYL ETHER
EOR
F001 542
F002 76
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 77
F003 04-11-1997
F004 HEDSET
F007 Ter-Butyl-Methyl-Ether
EOR
F001 542
F002 78
F003 04-11-1997
F004 HEDSET
F007 Metil-terz,-butil etere; MTBE
EOR
F001 542
F002 79
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 80
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Buthyl Methyl Ether
EOR
F001 542
F002 81
F003 04-11-1997
F004 HEDSET
F007 methyl-tert.-butyl ether

EOR
F001 542
F002 82
F003 04-11-1997
F004 HEDSET
F007 tert-butyl methyl ether
EOR
F001 542
F002 83
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 84
F003 04-11-1997
F004 HEDSET
F007 1,1-dimethyl ether
EOR
F001 542
F002 85
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 86
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 87
F003 04-11-1997
F004 HEDSET
F007 MTBE, Propane, 2-Methoxy-2-Methyl,
EOR
F001 542
F002 88
F003 04-11-1997
F004 VCI
F007 DRIVERON
EOR
F001 542
F002 89
F003 04-11-1997
F007 Propane, 2-methoxy-2-methyl-
EOR
F001 542
F002 90
F003 04-11-1997
F004 VCI

F007 Methyl-1,1-dimethylethylether
EOR
F001 542
F002 91
F003 04-11-1997
F004 VCI
F007 Methyl-tert.-butylether
EOR
F001 542
F002 92
F003 04-11-1997
F004 OPS$WEISS
F007 MTBE
EOR
F001 542
F002 93
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 94
F003 04-11-1997
F004 HEDSET
F007 methyl-tert.-butyl ether
EOR
F001 542
F002 95
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 96
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 98
F003 04-11-1997
F004 HEDSET
F007 mtbe, mtb, tert-butylmethylether, 2-methoxy-2-methylpropan
EOR
F001 542
F002 99
F003 04-11-1997
F004 HEDSET
F007 MTBE, ter-Butyl Methyl Ether
EOR
F001 542
F002 100

F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 101
F003 04-11-1997
F004 HEDSET
F007 METHYL-TERT. BUTYL ETHER
EOR
F001 542
F002 102
F003 04-11-1997
F004 HEDSET
F007 MTBE
EOR
F001 542
F002 103
F003 04-11-1997
F004 HEDSET
F007 METHYL-TERT. BUTYL ETHER
EOR
F001 542
F002 104
F003 04-11-1997
F004 HEDSET
F007 metyylitertiäärinen butyylieetteri
EOB
C
B105 GI_QUANTITY_TAB
F001 542
F002 90
F003 04-11-1997
F004 IUCADM
F014 500000
F015 1000000
EOB
C
B108 GI_CATEGORY_TAB
F001 542
F002 181
F003 04-11-1997
F004 IUCADM
F007 A20-01
F008 A14-02
EOR
F001 542
F002 182
F003 04-11-1997
F004 IUCADM
F007 A20-01
F008 A14-05

EOR
F001 542
F002 183
F003 04-11-1997
F004 IUCADM
F007 A20-02
F008 A13-01
EOR
F001 542
F002 184
F003 04-11-1997
F004 IUCADM
F007 A20-02
F008 A13-02
EOR
F001 542
F002 185
F003 04-11-1997
F004 IUCADM
F007 A20-02
F008 A13-04
EOR
F001 542
F002 186
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-27
EOR
F001 542
F002 187
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-28
EOR
F001 542
F002 188
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-33
EOR
F001 542
F002 189
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-48
EOR
F001 542
F002 190

F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-55
EOR
F001 542
F002 191
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-55: componente benzine
EOR
F001 542
F002 192
F003 04-11-1997
F004 IUCADM
F007 A20-03
F008 A15-55: gasoline component
EOB
C
B109 GI_EXPO_LIMIT_TAB
F001 542
F002 20
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 21
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 185
F009 A16-03
F010 280
F011 A16-03
EOR
F001 542
F002 22
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 23
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR

F001 542
F002 24
F003 04-11-1997
F004 HEDSET
F007 A17-09: WEEL(Work place exposure limit,ACGIH)/TWA
F008 100
F009 A16-04
EOR
F001 542
F002 25
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
F007 A17-09: WEEL(Work place exposure limit,ACGIH)/TWA
F008 100
F009 A16-04
EOR
F001 542
F002 27
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 28
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 29
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 30
F003 04-11-1997
F004 HEDSET
F007 A17-09: 8 hours TWA
F008 180
F009 A16-03

EOR
F001 542
F002 31
F003 04-11-1997
F004 HEDSET
F007 A17-09: Exxon recommended Occupational Exposure Limits
F008 100
F009 A16-04
F010 50
F011 A16-04
F012 15
F013 A18-02
EOR
F001 542
F002 32
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 33
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 34
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOR
F001 542
F002 35
F003 04-11-1997
F004 HEDSET
F007 A17-09: Sweden
F008 180
F009 A16-03
EOR
F001 542
F002 36
F003 04-11-1997
F004 OPS$UY92
F007 A17-04
EOR
F001 542
F002 37
F003 04-11-1997
F004 HEDSET

EOR
F001 542
F002 38
F003 04-11-1997
F004 HEDSET
F007 A17-09
F008 180
F009 A16-03
EOB
C
B110 GI_SOURCE_OF_EXPOSURE_TAB
F001 542
F002 14
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 15
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 16
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 17
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 18
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 19
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 20
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 21
F003 04-11-1997
F004 HEDSET
EOR
F001 542

F002 22
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 23
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 24
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 25
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
EOB
C
B114 GI_OTHER_TAB
F001 542
F002 12
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 13
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 14
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 15
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 16
F003 04-11-1997
F004 HEDSET
EOR
F001 542

F002 17
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 18
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 19
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 20
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 21
F003 04-11-1997
F004 HEDSET
EOR
F001 542
F002 22
F003 04-11-1997
F004 HEDSET
EOB
C
B201 PC_MELTING_TAB
F001 542
F002 8
F003 16-10-2007
F004 RADAVI
F015 A36-003
F007 A02-03
F008 -108.6
F010 A30-02
F011 A30-02
F012 P01-03
F014 A03-02
EOB
C
B202 PC_BOILING_TAB
F001 542
F002 15
F003 16-10-2007
F004 RADAVI
F016 A36-003
F007 A02-03
F008 55.3

F010 1013
F011 P02-01
F012 A30-02
F013 P03-01
F014 1994
F015 A03-03
EOB
C
B203 PC_DENSITY_TAB
F001 542
F002 15
F003 16-10-2007
F004 RADAVI
F016 A36-003
F007 P05-02
F008 A02-03
F009 .7404
F011 P18-01
F012 20
F013 P04-01
F015 A03-03
EOB
C
B204 PC_VAPOUR_TAB
F001 542
F002 30
F003 16-10-2007
F004 RADAVI
F015 A36-003
F008 334
F010 P02-01
F011 25
F012 P06-03
F013 1976
EOR
F001 542
F002 32
F003 16-10-2007
F004 RADAVI
F015 A36-003
F008 330
F010 P02-01
F011 25
F012 P06-04
F013 1985
F014 A03-02
EOR
F001 542
F002 37
F003 16-10-2007
F004 RADAVI
F015 A36-003

F007 A02-03
F008 268
F010 P02-01
F011 20
F012 P06-01
F013 1994
F014 A03-03
EOB
C
B205 PC_PARTITION_TAB
F001 542
F002 9
F003 16-10-2007
F004 RADAVI
F014 A36-003
F007 A02-03
F008 1.06
F009 1.24
F011 P07-04
F013 A03-02
F020 C15-001
EOR
F001 542
F002 10
F003 04-11-1997
F004 HEDSET
F007 A02-03
F008 1.06
F010 23
F011 P07-02
F012 1981
F013 A03-01
EOB
C
B206 PC_WATER_SOL_TAB
F001 542
F002 12
F003 16-10-2007
F004 RADAVI
F023 A36-003
F007 A02-06
F008 P08-01
F009 51
F011 25
F019 P14-08
F020 P09-03
F021 1928
F022 A03-01
F030 C14-001
EOB
C
B207 PC_FLASH_TAB

F001 542
F002 9
F003 04-11-1997
F004 HEDSET
F007 A02-03
F008 -29
F009 P10-01
F010 P11-02
F012 A03-02
EOR
F001 542
F002 15
F003 04-11-1997
F004 HEDSET
F007 A02-03
F008 -28
F009 P10-01
F010 P11-01
F011 1994
F012 A03-03
EOB
C
B208 PC_AUTO_FLAMM_TAB
F001 542
F002 8
F003 04-11-1997
F004 HEDSET
F007 A02-03
F008 375
F012 P13-03
F014 A03-02
EOR
F001 542
F002 9
F003 04-11-1997
F004 HEDSET
F007 A02-03
F008 460
F012 P13-03
F014 A03-02
EOB
C
B209 PC_FLAMM_TAB
F001 542
F002 3
F003 04-11-1997
F004 HEDSET
F007 P16-05
F008 P15-05: classified provisionally by manufacturer
F010 A03-02
EOR
F001 542

F002 4
F003 04-11-1997
F004 HEDSET
F007 P16-05
F008 P15-03
F009 1994
F010 A03-03
EOB
C
B210 PC_EXPL_TAB
F001 542
F002 2
F003 04-11-1997
F004 HEDSET
F007 P22-06
EOB
C
B211 PC_OXID_TAB
F001 542
F002 2
F003 04-11-1997
F004 HEDSET
F007 P20-03
EOB
C
B212 PC_OTHER_TAB
F001 542
F002 9
F003 04-11-1997
F004 HEDSET
EOB
C
B301 EN_PHOTODEGRADATION_TAB
F001 542
F002 17
F003 16-10-2007
F004 RADAVI
F007 A01-01
F008 F01-01
F009 F02-06
F010 1990
F011 F03-01
F034 F06-03
F035 500000
F036 F07-02
F037 .00000000000284
F038 A02-03
F040 100
F041 5.6
F042 F05-01
F043 A03-02
EOR

F001 542
F002 19
F003 16-10-2007
F004 RADAVI
F046 3
F008 F01-01
F009 F02-06
F011 F03-03
F023 22
F034 F06-03
F035 1000000
F036 F07-02
F044 A02-03
F037 .0000000000025
F038 A02-03
F040 50
F041 3.2
F042 F05-01
F043 A03-02
EOR
F001 542
F002 20
F003 16-10-2007
F004 RADAVI
F007 A01-02
F008 F01-01
F009 F02-06
F011 F03-03
F023 25
F034 F06-03
F035 1000000
F036 F07-02
F044 A02-03
F037 .00000000000283
F038 A02-03
F040 50
F041 2.8
F042 F05-01
F043 A03-02
EOR
F001 542
F002 21
F003 16-10-2007
F004 RADAVI
F007 A01-02
F008 F01-01
F009 F02-06
F011 F03-02
F012 A02-03
F013 370
F014 330
F023 25

F034 F06-03
F035 1000000
F036 F07-02
F044 A02-03
F037 .00000000000309
F038 A02-03
F040 50
F041 2.6
F042 F05-01
F043 A03-02
EOR
F001 542
F002 22
F003 16-10-2007
F004 RADAVI
F007 A01-02
F008 F01-01
F009 F02-06
F011 F03-03
F023 22
F034 F06-03
F035 1000000
F036 F07-02
F044 A02-03
F037 .00000000000324
F038 A02-03
F040 50
F041 2.5
F042 F05-01
F043 A03-02
EOR
F001 542
F002 33
F003 16-10-2007
F004 RADAVI
F045 A36-003
F046 2
F008 F01-01
F009 F02-05: Calculated values using AOPWIN version 1.89, a subroutine of the
* computer program EPI SuiteTM version 3.12
F011 F03-01
F024 A02-03
F034 F06-03
F035 1500000
F036 F07-02
F044 A02-03
F037 .00000000000226
F038 A02-03
F040 50
F041 56.9
F042 F05-02
F043 A03-01

EOR
F001 542
F002 34
F003 16-10-2007
F004 RADAVI
F045 A36-003
F046 1
EOB
C
B302 EN_STABILITY_IN_WATER_TAB
F001 542
F002 3
F003 16-10-2007
F004 RADAVI
F040 A36-003
F008 F08-01
F009 F09-03: Technical Discussion
EOB
C
B304 EN_MONITORING_TAB
F001 542
F002 8
F003 04-11-1997
F004 HEDSET
F007 F19-02
F008 F35-04
EOB
C
B305 EN_TRANSPORT_TAB
F001 542
F002 39
F003 16-10-2007
F004 RADAVI
F011 A36-003
F007 F20-05
F008 F22-01: air - biota - sediment(s) - soil - water
F009 F21-01: Calculation according Mackay, Level I
EOR
F001 542
F002 40
F003 16-10-2007
F004 RADAVI
F011 A36-003
F007 F20-07
F009 F21-01: Level III simulation using the Mackay Multimedia Environmental
* Model (Mackay, 2001)
EOB
C
B306 EN_DISTRIBUTION_TAB
F001 542
F002 22
F003 16-10-2007

F004 RADAVI
F007 F24-05
F008 F23-05
EOB
C
B307 EN_MAIN_DEGRADATION_TAB
F001 542
F002 3
F003 04-11-1997
F004 HEDSET
EOB
C
B308 EN_BIODEGRADATION_TAB
F001 542
F002 4
F003 16-10-2007
F004 RADAVI
F007 A01-01
F008 F25-01
F009 F26-18
F010 1981
F011 F27-0159
F012 2
F013 F28-02
F014 F29-03
F015 A02-03
F017 0
F018 28
F019 F05-01
F046 A03-03
EOR
F001 542
F002 5
F003 16-10-2007
F004 RADAVI
F007 A01-02
F008 F25-01
F009 F26-25: no data
F010 1984
F011 F27-0137
F017 1
F018 21
F019 F05-01
F020 F30-02: biodegraded very slowly
F046 A03-02
EOB
C
B309 EN_BOD_COD_TAB
F001 542
F002 14
F003 04-11-1997
F004 HEDSET

F007 F32-03
F008 1984
EOR
F001 542
F002 15
F003 04-11-1997
F004 HEDSET
F007 F32-03
F008 1987
EOB
C
B310 EN_BIOACCUMULATION_TAB
F001 542
F002 8
F003 04-11-1997
F004 HEDSET
F007 A01-01
F008 E02-0161
F009 F34-06
F010 1984
F016 A02-03
F017 1.5
F020 A03-02
EOB
C
B311 EN_OTHER_TAB
F001 542
F002 8
F003 04-11-1997
F004 HEDSET
EOB
C
B401 EC_FISHTOX_TAB
F001 542
F002 15
F003 16-10-2007
F004 RADAVI
F033 A36-002
F008 E01-02
F009 E02-0119
F010 E03-05
F011 1981
F012 96
F013 E04-02
F014 E05-02
F021 A02-03
F022 672
F031 A03-03
F045 E35-02
F050 C47-001
EOR
F001 542

F002 16
F003 16-10-2007
F004 RADAVI
F008 E01-02
F009 E02-0119
F012 96
F013 E04-02
F014 E05-05
F021 A02-03
F022 706000
EOR
F001 542
F002 17
F003 04-11-1997
F004 HEDSET
F007 A01-01
F008 E01-05
F009 E02-0075
F010 E03-05
F012 48
F013 E04-02
F014 E05-02
F018 A02-03
F019 1000
F024 A02-03
F025 2000
F031 A03-01
F032 A03-01
EOR
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
F009 E02-0161
F010 E03-05
F011 1994
F012 2
F013 E04-01
F014 E05-02
F018 A02-04
F019 1000
F031 A03-02
F032 A03-03
EOR
F001 542
F002 29
F003 16-10-2007
F004 RADAVI
F033 A36-003
F009 E02-0161: Fish
F010 E03-05: ECOSAR version 0.99h, US EPA
F012 96

F013 E04-02
F014 E05-02
F021 A02-03
F022 224
F045 E35-01
EOB
C
B402 EC_DAPHNIATOX_TAB
F001 542
F002 3
F003 02-10-2007
F004 RADAVI
F007 A01-01
F008 E06-0010
F009 E07-04
F010 1989
F011 48
F012 E04-02
F013 E05-02
F017 A02-03
F018 439
F020 A02-03
F021 651.4
F023 A02-04
F024 772.4
F030 A03-03
F031 A03-03
EOR
F001 542
F002 5
F003 16-10-2007
F004 RADAVI
F032 A36-003
F008 E06-0034: Daphnia
F009 E07-04: ECOSAR version 0.99h, US EPA
F011 48
F012 E04-02
F013 E05-02
F020 A02-03
F021 231
F045 E35-01
EOB
C
B403 EC_ALGAETOX_TAB
F001 542
F002 3
F003 16-10-2007
F004 RADAVI
F036 A36-003
F007 A01-01
F008 E08-0055
F009 E09-01

F010 1988
F011 E10-02
F012 72
F013 E04-02
F014 E05-02
F015 A02-03
F016 470
F024 A02-06
F025 650
F027 A02-04
F028 800
F034 A03-01
F035 A03-03
EOR
F001 542
F002 5
F003 16-10-2007
F004 RADAVI
F036 A36-003
F008 E08-0063: Green Alga
F009 E09-04: ECOSAR version 0.99h, US EPA
F012 96
F013 E04-02
F014 E05-02
F027 A02-03
F028 140
F030 ChV
F031 A02-03
F032 10
F050 E35-01
F051 E35-01
F054 C47-001
EOB
C
B404 EC_BACTOX_TAB
F001 542
F002 4
F003 02-10-2007
F004 RADAVI
F007 A01-01
F008 E29-01
F009 E11-0109
F010 E12-01
F011 1991
F012 18
F013 E04-02
F014 E05-02
F018 A02-06
F019 700
F032 A03-01
F033 A03-03
EOR

F001 542
F002 5
F003 02-10-2007
F004 RADAVI
F007 A01-01
F008 E29-01
F009 E11-0109
F010 E12-06
F012 5
F013 E04-02
F014 E05-02
F018 A02-04
F019 1480
F032 A03-01
F033 A03-03
EOB
C
B501 TO_ACUTE_ORAL_TAB
F001 542
F002 20
F003 02-10-2007
F004 RADAVI
F008 T01-03
F009 T02-24
F010 T03-03
F011 1980
F012 A02-03
F013 3865.9
F015 T04-01
EOB
C
B502 TO_ACUTE_INHAL_TAB
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
F008 T05-03
F009 T02-24
F010 T06-03
F011 1980
F013 120.3
F014 142
F015 T07-01
F016 4
F017 T08-01
EOR
F001 542
F002 27
F003 04-11-1997
F004 HEDSET
F008 T05-03
F009 T02-24

F012 A02-03
F013 85
F015 T07-01
F016 4
F017 T08-01
EOR
F001 542
F002 28
F003 04-11-1997
F004 HEDSET
F008 T05-03
F009 T02-24
F012 A02-03
F013 23576
F015 T07-02
F016 4
F017 T08-01
EOB
C
B503 TO_ACUTE_DERMAL_TAB
F001 542
F002 14
F003 04-11-1997
F004 HEDSET
F008 T01-03
F009 T02-23
F010 T09-02
F011 1980
F012 A02-04
F013 10000
F015 T04-01
EOB
C
B505 TO_SKIN_IRRITATION_TAB
F001 542
F002 10
F003 02-10-2007
F004 RADAVI
F008 T02-23
F009 T14-05
F010 1980
F012 T46-05
EOB
C
B506 TO_EYE_IRRITATION_TAB
F001 542
F002 17
F003 04-11-1997
F004 HEDSET
F008 T02-23
F009 T16-02
F010 1979

F012 T46-07
EOR
F001 542
F002 18
F003 04-11-1997
F004 HEDSET
F007 A01-01
F008 T02-23
F009 T16-03
F010 1981
F012 T46-06
F013 A03-01
EOB
C
B507 TO_SENSITIZATION_TAB
F001 542
F002 8
F003 04-11-1997
F004 HEDSET
F008 T18-14
F009 T02-10
F010 T20-03
F011 1980
F012 T47-01
F013 T21-02
EOB
C
B508 TO_REPEATED_DOSE_TAB
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-08
F012 T26-16
F013 1980
F014 13 weeks
F015 6 hr/day, five days/week
F017 250, 500, and 1000 ppm
F018 T27-07
EOR
F001 542
F002 27
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-08
F012 T26-16

F013 1984
F014 9 days
F015 6 hours per day
F017 100, 300, 1000, and 3000 ppm
F018 T27-07
EOR
F001 542
F002 28
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-24
F009 T23-16
F010 T24-03
F011 T25-08
F012 T26-16
F013 1989
F014 13 weeks
F015 6 hours per day, 5 days per week
F016 none
F017 2880, 14400 or 28800 mg/m3 (800, 4000 or 8000 ppm)
F018 T27-07
F019 A02-03
F020 2.88
F022 T28-04
F024 A02-03
F025 14.4
F027 T28-04
F029 A03-03
EOR
F001 542
F002 29
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-24
F009 T23-16
F010 T24-03
F011 T25-08
F012 T26-16
F013 1989
F014 13 days
F015 6 hours per day
F016 none
F017 7200, 14400 or 28800 mg/m3 (2000, 4000 or 8000 ppm)
F018 T27-07
F019 A02-03
F020 7.2
F022 T28-04
F024 A02-03
F025 14.4
F027 T28-04

F029 A03-03
EOR
F001 542
F002 30
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-24
F009 T23-46
F010 T24-02
F011 T25-08
F012 T26-16
F014 2-15 weeks
F015 6 hours per day, 5 days per week
F016 none
F017 180, 360 or 1080 mg/m3 (50, 100 or 300 ppm)
F018 T27-07
F029 A03-03
EOR
F001 542
F002 31
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-24
F009 T23-48: Charles River
F010 T24-03
F011 T25-08
F012 T26-16
F014 2 weeks
F015 6 hours per day, 5 days per week
F016 none
F017 7000 or 10600 mg/m3 (average actual conc. as determined by IR
* spectroscopy)
F018 T27-07
F029 A03-01
EOR
F001 542
F002 32
F003 04-11-1997
F004 HEDSET
F007 A01-03
F008 T02-24
F009 T23-46
F010 T24-03
F011 T25-08
F012 T26-16
F013 1972
F014 30 days
F015 5 or 10 minutes per day (see remark)
F016 none
F017 ca. 180000 or 288000 mg/m3 (ca. 5 or 8 vol.%)

F018 T27-07
F019 A02-06
F020 288
F022 T28-04
F029 A03-01
EOR
F001 542
F002 33
F003 04-11-1997
F004 HEDSET
F007 A01-03
F008 T02-24
F009 T23-46
F010 T24-03
F011 T25-08
F012 T26-16
F013 1972
F014 120 days
F015 10 min/day
F016 none
F017 ca. 180000 mg/m3 (ca. 5 vol.%)
F018 T27-07
F019 A02-06
F020 180
F022 T28-04
F029 A03-01
EOR
F001 542
F002 34
F003 04-11-1997
F004 HEDSET
F007 A01-03
F008 T02-18
F009 T23-10
F010 T24-03
F011 T25-08
F012 T26-16
F013 1989
F014 13 days
F015 6 hours per day
F016 none
F017 7200, 14400 or 28800 mg/m3 (2000, 4000 or 8000 ppm)
F018 T27-07
F019 A02-03
F020 7.2
F022 T28-04
F024 A02-03
F025 14.4
F027 T28-04
F029 A03-03
EOR
F001 542

F002 35
F003 04-11-1997
F004 HEDSET
F007 A01-03
F008 T02-18
F009 T23-44
F010 T24-02
F011 T25-08
F012 T26-16
F013 1972
F014 30 days
F015 5 or 10 min/day (see remark)
F016 none
F017 ca. 180000 and 288000 mg/m3 (ca. 5 and 8 vol.%)
F018 T27-07
F029 A03-01
EOR
F001 542
F002 36
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-17
F009 T23-48: Macacus rhesus
F010 T24-03
F011 T25-08
F012 T26-16
F013 1970
F014 5 days
F015 see remark
F016 none
F017 12400- 341000 mg/m3
F018 T27-01
F019 A02-03
F020 14.7
F022 T28-04
F024 A02-03
F025 30.2
F027 T28-04
F029 A03-01
EOR
F001 542
F002 38
F003 04-11-1997
F004 HEDSET
F007 A01-03
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-03
F012 T26-16
F013 1990

F014 90 days
F015 daily
F016 none
F017 100, 300, 900 or 1200 mg/kg bw d
F018 T27-07
F019 A02-01
F020 100
F022 T28-03
F024 A02-03
F025 100
F027 T28-03
F029 A03-02
EOR
F001 542
F002 39
F003 04-11-1997
F004 HEDSET
F007 A01-02
F008 T02-24
F009 T23-46
F010 T24-02
F011 T25-05
F012 T26-16
F013 1972
F014 15 days
F015 daily
F016 none
F017 185 mg/kg bw d
F018 T27-07
F029 A03-01
EOR
F001 542
F002 40
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-08
F012 T26-16
F013 1980
F014 13 weeks
F015 6 hr/day, five days/week
F017 250, 500, and 1000 ppm
F018 T27-07
EOR
F001 542
F002 41
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-42

F010 T24-03
F011 T25-08
F013 1984
F014 9 days
F015 6 hours per day
F017 100, 300, 1000 and 3000 ppm
F018 T27-07
EOR
F001 542
F002 42
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-08
F013 1980
F014 13 weeks
F015 6 hr/day, five days/week
F017 250, 500 and 1000 ppm
F018 T27-07
EOB
C
B509 TO_GENETIC_IN_VITRO_TAB
F001 542
F002 36
F003 04-11-1997
F004 HEDSET
F008 T30-01
F010 1980
F012 T32-03
F013 T33-02
F015 0.01 to 10.0 ul
EOR
F001 542
F002 38
F003 04-11-1997
F004 HEDSET
F008 T30-15
F010 1980
F011 SCE and Chromosomal Aberration in Chinese hamster ovary cells.
F012 T32-03
F013 T33-02
F015 0.004 to 5.0 ul/l
EOR
F001 542
F002 41
F003 04-11-1997
F004 HEDSET
F008 T30-01
F009 T31-18
F010 1978

F012 T32-03
F013 T33-02
EOR
F001 542
F002 42
F003 04-11-1997
F004 HEDSET
F007 A01-01
F008 T30-01
F009 T31-03
F010 1984
F011 Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537, TA 1538
F012 T32-03
F013 T33-02
F014 A03-03
F015 up to 5000 ug/plate
EOR
F001 542
F002 51
F003 04-11-1997
F004 HEDSET
F008 T30-01
F009 T31-18
F010 1978
F012 T32-03
F013 T33-02
EOR
F001 542
F002 57
F003 04-11-1997
F004 HEDSET
F008 T30-01
F009 T31-18
F010 1978
F012 T32-03
F013 T33-02
EOB
C
B510 TO_GENETIC_IN_VIVO_TAB
F001 542
F002 24
F003 04-11-1997
F004 HEDSET
F008 T34-01
F009 T02-24
F012 1980
F014 T25-03
F015 Acute and Sub-acute (up to five days)
F016 0.04, 0.13, and 0.4 ml/kg
EOR
F001 542
F002 25

F003 04-11-1997
F004 HEDSET
F008 T34-03
F009 T02-03
F012 1989
F016 0.03, 0.15, and 0.3% and solvent control (5%sucrose)
F017 A03-03
EOR
F001 542
F002 26
F003 04-11-1997
F004 HEDSET
F008 T34-01
F009 T02-24
F010 T23-16
F012 1989
F013 T24-03
F014 T25-08
F015 6 hours/day for five days
F016 0, 800, 4000, and 8000 ppm (major)
EOR
F001 542
F002 27
F003 02-10-2007
F004 RADAVI
F008 T34-01
F009 T02-24
F010 T23-42
F012 1980
F013 T24-02
F014 T25-03
F015 once and five consecutive days
F016 0.04, 0.13, and 0.4 ml/kg and controls
EOR
F001 542
F002 32
F003 04-11-1997
F004 HEDSET
F008 T34-01
F009 T02-24
F010 T23-16
F012 1989
F013 T24-03
F014 T25-08
F015 6 hours/day for five days
F016 0, 800, 4000 and 8000 ppm (major)
EOB
C
B511 TO_CARCINOGENICITY_TAB
F001 542
F002 14
F003 04-11-1997

F004 HEDSET
F008 T02-18
F009 T23-10
F010 T24-03
F011 T38-09
F012 T39-05
F013 1992
F014 18 months
F015 six hours per day/five days per week
F017 400, 3000, 8000 ppm
F018 T27-07
F019 A03-03
EOR
F001 542
F002 15
F003 04-11-1997
F004 HEDSET
F008 T02-24
F009 T23-16
F010 T24-03
F011 T38-09
F012 T39-05
F013 1992
F014 24 months
F015 six hours per day, 5 days per week
F017 400, 3000, and 8000 ppm.
F018 T27-07
F019 A03-03
EOB
C
B512 TO_REPRODUCTION_TAB
F001 542
F002 9
F003 04-11-1997
F004 HEDSET
F008 T41-02
F009 T02-24
F010 T23-42
F011 T24-03
F012 T25-08
F013 T40-05
F014 1984
F015 6 hours/day; 5 days/week during premating, daily thereafter
F016 exposed six hours/day; 5 days/week
F017 exposed six hours/day; 5 days/week
F018 Males (15/group) had 12 week pre- and post-mating exposures. Females
* (30/group) had 3 week premating period, and exposures during mating
* period, days 0-20 of gestation and days 5-21 of lactation after two
* litters.
F019 250, 1000, and 2500 ppm (15 males/group) (30 females/group)
F020 T27-07
EOR

F001 542
F002 11
F003 04-11-1997
F004 HEDSET
F007 A01-01
F008 T41-01
F009 T02-24
F010 T23-47
F011 T24-03
F012 T25-13
F036 Female: during mating and gestation period Male:During mating period.
F013 T40-05: no data
F014 1987
F015 6 hr/day, 5 days/week.
F016 12 weeks
F017 3 weeks
F019 300,1300,3400 ppm
F020 T27-07
F035 A03-02
EOB
C
B513 TO_DEVELOPMENTAL_TAB
F001 542
F002 31
F003 16-10-2007
F004 RADAVI
F030 A36-002
F008 T02-24
F009 T23-48
F010 T24-01
F011 T25-08
F012 T44-03
F013 1982
F014 10 days
F015 6 hrs./day
F016 gestation days 6-15
F017 250, 1000, 2500 ppm
F018 T27-07
EOR
F001 542
F002 32
F003 16-10-2007
F004 RADAVI
F030 A36-002
F008 T02-23
F009 T23-31
F010 T24-01
F011 T25-08
F012 T44-03
F013 1989
F014 gestation day 29
F015 Gestation days 6 - 18

F016 6 hours per day
F017 1000, 4000, and 8000 ppm
F018 T27-07
F029 A03-03
EOR
F001 542
F002 33
F003 16-10-2007
F004 RADAVI
F030 A36-002
F008 T02-18
F009 T23-10
F010 T24-01
F011 T25-08
F012 T44-03
F013 1989
F014 gestation day 18
F015 gestation days 6 - 15
F016 six hours per day
F017 1000, 4000, and 8000 ppm
F018 T27-07
F029 A03-03
EOR
F001 542
F002 35
F003 16-10-2007
F004 RADAVI
F030 A36-002
F008 T02-18
F009 T23-10
F010 T24-01
F011 T25-08
F012 T44-03
F013 1984
F014 gestation day 18
F015 gestation days 6-15
F016 six hours per day
F017 250, 1000, and 2500 ppm.
F018 T27-07
EOB
C
B514 TO_OTHER_TAB
F001 542
F002 40
F003 04-11-1997
F004 HEDSET
F007 T45-09
EOR
F001 542
F002 41
F003 04-11-1997
F004 HEDSET

F007 T45-11
EOR
F001 542
F002 42
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOR
F001 542
F002 43
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOR
F001 542
F002 44
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOR
F001 542
F002 45
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOR
F001 542
F002 46
F003 16-10-2007
F004 RADAVI
F008 A36-002
F007 T45-10
EOR
F001 542
F002 48
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOR
F001 542
F002 51
F003 04-11-1997
F004 HEDSET
F007 T45-11
EOB
C
B601 TEXT_TAB
F002 542
F010 1.1.1
F004 65
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266912
EOR
F002 542
F010 1.1.1
F004 66
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266913
EOR
F002 542
F010 1.10
F004 14
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266914
EOR
F002 542
F010 1.10
F004 14
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266930
EOR
F002 542
F010 1.10
F004 15
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.

F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266915
EOR
F002 542
F010 1.10
F004 15
F005 SO
F006 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266931
EOR
F002 542
F010 1.10
F004 16
F005 RE
F006 CONCAWE report nº. 2/87 "the health experience of workers in
** the petroleum manufacturing and distribution industry"
F007 CONCAWE report nº. 2/87 "the health experience of workers in
** the petroleum manufacturing and distribution industry"
F008 HEDSET
F009 04-11-1997
F012 1
F020 266916
EOR
F002 542
F010 1.10
F004 16
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266917
EOR
F002 542
F010 1.10
F004 16
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266932
EOR
F002 542
F010 1.10
F004 17
F005 RE
F006 CONCAWE report nº. 2/87 "the health experience of workers in
** the petroleum manufacturing and distribution industry"
F007 CONCAWE report nº. 2/87 "the health experience of workers in
** the petroleum manufacturing and distribution industry"
F008 HEDSET
F009 04-11-1997
F012 1
F020 266918
EOR
F002 542
F010 1.10
F004 17
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266919
EOR
F002 542
F010 1.10
F004 17
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266933
EOR
F002 542
F010 1.10
F004 18

F005 RM
F006 Nell'uso come carburante l'esposizione è possibile nelle
** fasi di distribuzione e dei rifornimento dei veicoli
F007 Nell'uso come carburante l'esposizione è possibile nelle
** fasi di distribuzione e dei rifornimento dei veicoli
F008 HEDSET
F009 04-11-1997
F012 1
F020 266920
EOR
F002 542
F010 1.10
F004 18
F005 RM
F006 Utilizzato in sistemi chiusi: esposizione possibile durante
** il campionamento.
F007 Utilizzato in sistemi chiusi: esposizione possibile durante
** il campionamento.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266921
EOR
F002 542
F010 1.10
F004 18
F005 SO
F006 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266934
EOR
F002 542
F010 1.10
F004 19
F005 RM
F006 Utilizzato in sistemi chiusi: l'esposizione può verificarsi
** nelle fasi di campionamento del prodotto.
F007 Utilizzato in sistemi chiusi: l'esposizione può verificarsi
** nelle fasi di campionamento del prodotto.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266922
EOR
F002 542
F010 1.10

F004 19
F005 SO
F006 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266935
EOR
F002 542
F010 1.10
F004 20
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266923
EOR
F002 542
F010 1.10
F004 20
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266936
EOR
F002 542
F010 1.10
F004 21
F005 RM
F006 MTBE is produced in a closed system which is only opened for
** maintenance. Exposure of MTBE occurs therefor only at the
** end-user level.
F007 MTBE is produced in a closed system which is only opened for
** maintenance. Exposure of MTBE occurs therefor only at the
** end-user level.
F008 HEDSET
F009 04-11-1997
F012 1

F020 266924
EOR
F002 542
F010 1.10
F004 21
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266937
EOR
F002 542
F010 1.10
F004 22
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266925
EOR
F002 542
F010 1.10
F004 22
F005 SO
F006 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266938
EOR
F002 542
F010 1.10
F004 23
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET

F009 04-11-1997
F012 1
F020 266926
EOR
F002 542
F010 1.10
F004 23
F005 SO
F006 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266939
EOR
F002 542
F010 1.10
F004 24
F005 RM
F006 Expositionsgefahr bei Herstellung, Lagerung, Umschlag,
** Transport.
F007 Expositionsgefahr bei Herstellung, Lagerung, Umschlag,
** Transport.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266927
EOR
F002 542
F010 1.10
F004 24
F005 SO
F006 DEA Mineraloel AG Hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DEA Mineraloel AG Hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266940
EOR
F002 542
F010 1.10
F004 25
F005 RM
F006 exposition bei transport lagerung und umschlag
F007 exposition bei transport lagerung und umschlag
F008 HEDSET

F009 04-11-1997
F012 1
F020 266928
EOR
F002 542
F010 1.10
F004 25
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266941
EOR
F002 542
F010 1.10
F004 26
F005 RM
F006 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F007 Due to the type of use of MTBE, exposure occurs mainly at
** the end-user level.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266929
EOR
F002 542
F010 1.10
F004 26
F005 SO
F006 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266942
EOR
F002 542
F010 1.11
F004 12
F005 RM
F006 TRANSPORT INFORMATION
**
** UN Number: 2398

** Class: 3
** Packing Group: II
** Proper Shipping Name: Methyl tertiary butyl ether
**
** Sea (IMO)
** Class: 3.1
** Packing Group: II
** Symbol: Flammable liquid
** Marine Pollutant (Y/N): No
**
** Rail/Road (RID/ADR)
** Class: 3
** It
F007 TRANSPORT INFORMATION
**
** UN Number: 2398
** Class: 3
** Packing Group: II
** Proper Shipping Name: Methyl tertiary butyl ether
**
** Sea (IMO)
** Class: 3.1
** Packing Group: II
** Symbol: Flammable liquid
** Marine Pollutant (Y/N): No
**
** Rail/Road (RID/ADR)
** Class: 3
** Item: 3(b)
** Symbol: Flammable liquid
** Kemler Plate: 33/2398
**
** Air (IATA/ICAO)
** Class: 3
** Packing Group: II
** Symbol: Flammable liquid
F008 HEDSET
F009 04-11-1997
F012 1
F020 266943
EOR
F002 542
F010 1.11
F004 12
F005 SO
F006 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI

F009 01-10-2007
F020 266961
EOR
F002 542
F010 1.11
F004 13
F005 RM
F006 Transport by barge (sometimes railroad tankwagon and
** roadtanker.
F007 Transport by barge (sometimes railroad tankwagon and
** roadtanker.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266944
EOR
F002 542
F010 1.11
F004 13
F005 SO
F006 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266962
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 Brenntag AG
** Hauptverwaltung
** Humboldtring 15
** 45422 Mulheim an der Rurh
** Germany
**
** Oberrheinische Mineralolwerke GmbH
** Dea Schosenstrasse
** 76187 Karlsruhe
** Germany
**
** Lindsey Oil Refinery Ldt
** Killingholme, Grimsby
** South Humberside DN40 3LW
** United K
F007 Brenntag AG
** Hauptverwaltung
** Humboldtring 15

** 45422 Mulheim an der Rurh
** Germany
**
** Oberrheinische Mineralolwerke GmbH
** Dea Schosenstrasse
** 76187 Karlsruhe
** Germany
**
** Lindsey Oil Refinery Ldt
** Killingholme, Grimsby
** South Humberside DN40 3LW
** United Kingdom
F008 HEDSET
F009 04-11-1997
F012 1
F020 266945
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 EXXON Chemical Limited
** 4600 Parkway
** Fareham, Hampshire PO15 7AP
** United Kingdom
**
** HUELS AG
** Paul Baumann Strasse 1
** D-45764 Marl
** Germany
**
** Shell international Company Ltd.
** Shell Center
** SE1 7NA London
** United Kingdom
F007 EXXON Chemical Limited
** 4600 Parkway
** Fareham, Hampshire PO15 7AP
** United Kingdom
**
** HUELS AG
** Paul Baumann Strasse 1
** D-45764 Marl
** Germany
**
** Shell international Company Ltd.
** Shell Center
** SE1 7NA London
** United Kingdom
F008 HEDSET
F009 04-11-1997
F012 1

F020 266946
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 Kuwait Petroleum Italia
** Viale dell'Oceano Indiano 13
** 00144- Rome
** Italy
**
** DEA Mineraloel AG
** Uberseering 40
** D-22297 Hamburg
** Netherlands
**
** Mobil Marketing und Raffinerie GmbH
** Raffinerie Worth
** 76744 Worth
** Germany
F007 Kuwait Petroleum Italia
** Viale dell'Oceano Indiano 13
** 00144- Rome
** Italy
**
** DEA Mineraloel AG
** Uberseering 40
** D-22297 Hamburg
** Netherlands
**
** Mobil Marketing und Raffinerie GmbH
** Raffinerie Worth
** 76744 Worth
** Germany
F008 HEDSET
F009 04-11-1997
F012 1
F020 266947
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 Leuna Raffineriegellschaft mbH
** Am Haupttor, Bau 18
** 06236 Leuna
** Germany
F007 Leuna Raffineriegellschaft mbH
** Am Haupttor, Bau 18
** 06236 Leuna
** Germany
F008 HEDSET

F009 04-11-1997
F012 1
F020 266948
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 Shell Nederland BV
** Vondelingenweg 601
** 3196 KK Rotterdam
** Netherlands
**
** Deutsche Shell AG
** Dept QSU-QS
** Uberseering 35
** 22297 Hamburg
** Netherlands
**
** NESTE OY
** Corporate Environment & Safety
** Keilaniemi
** PO Box 20
** SF-02151 Espoo
** Finland
F007 Shell Nederland BV
** Vondelingenweg 601
** 3196 KK Rotterdam
** Netherlands
**
** Deutsche Shell AG
** Dept QSU-QS
** Uberseering 35
** 22297 Hamburg
** Netherlands
**
** NESTE OY
** Corporate Environment & Safety
** Keilaniemi
** PO Box 20
** SF-02151 Espoo
** Finland
F008 HEDSET
F009 04-11-1997
F012 1
F020 266949
EOR
F002 542
F010 1.11
F004 14
F005 RM
F006 The HEDSET is submitted on behalf of the following

** companies:
**
** AGIPPETROLI S.p.A.
** Via Laurentina 449
** 00142 Roma
** Italy
**
** ARCO CHIMIE FRANCE SNC.
** BP 201
** 13775 Fos sur Mer Cedex
** France
**
** DSM Hydrocarbons BV
** Poststraat 1
** 6135 KR Sittard
** Netherlan
F007 The HEDSET is submitted on behalf of the following
** companies:
**
** AGIPPETROLI S.p.A.
** Via Laurentina 449
** 00142 Roma
** Italy
**
** ARCO CHIMIE FRANCE SNC.
** BP 201
** 13775 Fos sur Mer Cedex
** France
**
** DSM Hydrocarbons BV
** Poststraat 1
** 6135 KR Sittard
** Netherlands
F008 HEDSET
F009 04-11-1997
F012 1
F020 266950
EOR
F002 542
F010 1.11
F004 14
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266963
EOR

F002 542
F010 1.11
F004 15
F005 RM
F006 Methods of carriage : sea
** Quantity : 4780 ton
** ADNR-class : 3(111a)/6301/1a
** ADNR-category : K1s
** ADR/RID number : 1203
** ADR/RID-class : 3.3b)
** UN number : 1203
** Danger identification number : 33
F007 Methods of carriage : sea
** Quantity : 4780 ton
** ADNR-class : 3(111a)/6301/1a
** ADNR-category : K1s
** ADR/RID number : 1203
** ADR/RID-class : 3.3b)
** UN number : 1203
** Danger identification number : 33
F008 HEDSET
F009 04-11-1997
F012 1
F020 266951
EOR
F002 542
F010 1.11
F004 15
F005 SO
F006 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266964
EOR
F002 542
F010 1.11
F004 16
F005 RM
F006 FROM CHAPTER 1.6.1 ONWARDS, PLEASE REFER TO THE FULL HEDSET
** SUBMITTED BY THE COMPANY MENTIONED ON SECTION 1.03.
F007 FROM CHAPTER 1.6.1 ONWARDS, PLEASE REFER TO THE FULL HEDSET
** SUBMITTED BY THE COMPANY MENTIONED ON SECTION 1.03.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266952
EOR

F002 542
F010 1.11
F004 16
F005 SO
F006 ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266965
EOR
F002 542
F010 1.11
F004 17
F005 RM
F006 DISPOSAL CONSIDERATIONS: Take up with sand or other
** noncombustible adsorbent material and place into containers
** for later disposal. Surplus : controlled incineration.
**
** HANDLING: Wear appropiate boots and gloves. Use antistatic
** footwear
F007 DISPOSAL CONSIDERATIONS: Take up with sand or other
** noncombustible adsorbent material and place into containers
** for later disposal. Surplus : controlled incineration.
**
** HANDLING: Wear appropiate boots and gloves. Use antistatic
** footwear; self contained breathing apparatus, in case of
** vapours. Eliminate all sources of ignition from areas where
** the material is stored, handled or used. Good local exhaust
** ventilation in confined areas.
**
** STORAGE: Protect against physical damage and fire. Outdoor
** or detached storage is prefered. For indoor storage, use
** areas prepared for flammable liquid storage. Containers
** product resistant, properly identified, placed inappropiated
** areas.
**
** TRANSPORT:
** UN No: 2398
** Hazard identification No: 33
** ADR(TPC)/RID(TPF): Class 3,item 3b
** IATA: Class 3
** IMDG: Class 3.2
F008 HEDSET
F009 04-11-1997
F012 1
F020 266953
EOR
F002 542

F010 1.11
F004 17
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266966
EOR
F002 542
F010 1.11
F004 18
F005 RM
F006 DISPOSAL CONSIDERATIONS: Take up with sand or other
** noncombustible adsorbent material and place into containers
**   for later disposal. Surplus : controlled incineration.
**
** HANDLING: Wear appropiate boots and gloves. Use antistatic
** footwe
F007 DISPOSAL CONSIDERATIONS: Take up with sand or other
** noncombustible adsorbent material and place into containers
**   for later disposal. Surplus : controlled incineration.
**
** HANDLING: Wear appropiate boots and gloves. Use antistatic
** footwear; self contained breathing apparatus, in case of
** vapours. Eliminate all sources of ignition from areas where
**   the material is stored, handled or used. Good local exhaust
**   ventilation in confined areas.
**
** STORAGE: Protect against physical damage and fire. Outdoor
**   or detached storage is prefered. For indoor storage, use
** areas prepared for flammable liquid storage. Containers
** product resistant, properly identified, placed inappropiated
**   areas.
**
** TRANSPORT:
** UN No: 2398
** Hazard identification No: 33
** ADR(TPC)/RID(TPF): Class 3,item 3b
** IATA: Class 3
** IMDG: Class 3.2
F008 HEDSET
F009 04-11-1997
F012 1
F020 266954
EOR
F002 542
F010 1.11

F004 18
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266967
EOR
F002 542
F010 1.11
F004 19
F005 RM
F006 Prescrizioni di sicurezza per il trasporto:
**
** ADR/RID: 3.17° b)
** UN   : 1230
F007 Prescrizioni di sicurezza per il trasporto:
**
** ADR/RID: 3.17° b)
** UN   : 1230
F008 HEDSET
F009 04-11-1997
F012 1
F020 266955
EOR
F002 542
F010 1.11
F004 19
F005 RM
F006 Questo File HEDSET viene presentato dalla Societ... AGIP
** PETROLI come caposettore di un gruppo industriale di cui
** fanno parte le societ... ECOFUEL SpA e PRAOIL Srl.
**
** ECOFUEL SpA
** Viale Brenta 15
** 20139 MILANO MI
** fax +39-2-52021943
**
** PRAOIL S
F007 Questo File HEDSET viene presentato dalla Societ... AGIP
** PETROLI come caposettore di un gruppo industriale di cui
** fanno parte le societ... ECOFUEL SpA e PRAOIL Srl.
**
** ECOFUEL SpA
** Viale Brenta 15
** 20139 MILANO MI
** fax +39-2-52021943
**

** PRAOIL Srl
** Strada 2 Palazzo F 7
** 20090 ASSAGO-MILANOFIORI MI
** fax +39-2-52026986
F008 HEDSET
F009 04-11-1997
F012 1
F020 266956
EOR
F002 542
F010 1.11
F004 19
F005 SO
F006 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266968
EOR
F002 542
F010 1.11
F004 20
F005 RM
F006 Transportation classification:
** By Land:railroad/road (ARD/RID)
** ADR/RID Class: 3,3 eb ; Danger number:33 ; Danger label:3
** Substance ID number : 2398
F007 Transportation classification:
** By Land:railroad/road (ARD/RID)
** ADR/RID Class: 3,3 eb ; Danger number:33 ; Danger label:3
** Substance ID number : 2398
** By Inland waterways (ADN/R)
** ADN/R Class : III a,1.a
** By Sea (IMDG)
** UN number : 2398 ; IMO Class: 3.1 ; EMS number : 3.07 ; Risk
** label : 3 ; IMDG code : 3136 ; MFAG number : 330 ; Packaging
** group : II
F008 HEDSET
F009 04-11-1997
F012 1
F020 266957
EOR
F002 542
F010 1.11
F004 20
F005 RM
F006 Waste disposal: MTBE can be disposed of by controlled
** incineration, use as a fuel component or recovered by

** distillation.
F007 Waste disposal: MTBE can be disposed of by controlled
** incineration, use as a fuel component or recovered by
** distillation.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266958
EOR
F002 542
F010 1.11
F004 20
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266969
EOR
F002 542
F010 1.11
F004 21
F005 RM
F006 Entsorgung: Rückgewinnung durch Destillation
** Transportvorschriften: Kl.3; Ziff.3b); Kemmlerzahl 33;
** UN-Nr.2398.
F007 Entsorgung: Rückgewinnung durch Destillation
** Transportvorschriften: Kl.3; Ziff.3b); Kemmlerzahl 33;
** UN-Nr.2398.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266959
EOR
F002 542
F010 1.11
F004 21
F005 SO
F006 DEA Mineraloel AG Hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DEA Mineraloel AG Hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266970
EOR

F002 542
F010 1.11
F004 22
F005 RM
F006 als sehr leicht entzündliche flüssigkeit handhaben
** zur entsorgung fachmann heranziehen.
F007 als sehr leicht entzündliche flüssigkeit handhaben
** zur entsorgung fachmann heranziehen.
F008 HEDSET
F009 04-11-1997
F012 1
F020 266960
EOR
F002 542
F010 1.11
F004 22
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266971
EOR
F002 542
F010 1.2
F004 53
F005 SO
F006 NEREFCO, Netherlands Refining Company (BP/Texaco Joint
** Venture) B.V. Rozenburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 NEREFCO, Netherlands Refining Company (BP/Texaco Joint
** Venture) B.V. Rozenburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266972
EOR
F002 542
F010 1.2
F004 54
F005 SO
F006 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266973
EOR
F002 542
F010 1.2
F004 55
F005 SO
F006 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266974
EOR
F002 542
F010 1.2
F004 56
F005 SO
F006 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266975
EOR
F002 542
F010 1.2
F004 58
F005 SO
F006 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266977
EOR
F002 542
F010 1.2
F004 59
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266978
EOR
F002 542
F010 1.2
F004 60
F005 SO
F006 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266979
EOR
F002 542
F010 1.2
F004 61
F005 SO
F006 BP Lavera SNC, Raffinerie de Lavera Lavera
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 BP Lavera SNC, Raffinerie de Lavera Lavera
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266980
EOR
F002 542
F010 1.2
F004 62
F005 SO
F006 ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266981
EOR
F002 542

F010 1.2
F004 63
F005 SO
F006 BP Oil Espana, S.A. Madrid
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 BP Oil Espana, S.A. Madrid
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266982
EOR
F002 542
F010 1.2
F004 65
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266984
EOR
F002 542
F010 1.2
F004 66
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266985
EOR
F002 542
F010 1.2
F004 67
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI

F009 01-10-2007
F020 266986
EOR
F002 542
F010 1.2
F004 68
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266987
EOR
F002 542
F010 1.2
F004 70
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266989
EOR
F002 542
F010 1.2
F004 71
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266990
EOR
F002 542
F010 1.2
F004 72
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles

F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266991
EOR
F002 542
F010 1.2
F004 73
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266992
EOR
F002 542
F010 1.2
F004 74
F005 SO
F006 Neste MTBE S.A. Linda-a-Velha
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Neste MTBE S.A. Linda-a-Velha
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266993
EOR
F002 542
F010 1.2
F004 75
F005 SO
F006 Neste MTBE S.A. Linda-a-Velha
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Neste MTBE S.A. Linda-a-Velha
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266994
EOR
F002 542
F010 1.2
F004 76

F005 SO
F006 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266995
EOR
F002 542
F010 1.2
F004 77
F005 SO
F006 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266996
EOR
F002 542
F010 1.2
F004 78
F005 SO
F006 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266997
EOR
F002 542
F010 1.2
F004 79
F005 SO
F006 Kuwait Petroleum Italia Roma
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Kuwait Petroleum Italia Roma
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266998

EOR
F002 542
F010 1.2
F004 80
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 266999
EOR
F002 542
F010 1.2
F004 81
F005 SO
F006 BP Austria Aktiengesellschaft Wien
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 BP Austria Aktiengesellschaft Wien
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267000
EOR
F002 542
F010 1.2
F004 82
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267001
EOR
F002 542
F010 1.2
F004 83
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267002
EOR
F002 542
F010 1.2
F004 84
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267003
EOR
F002 542
F010 1.2
F004 85
F005 SO
F006 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267004
EOR
F002 542
F010 1.2
F004 86
F005 SO
F006 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267005
EOR
F002 542
F010 1.2
F004 87
F005 SO
F006 OK Raffinaderi AB Gøteborg

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 OK Raffinaderi AB Gøteborg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267006
EOR
F002 542
F010 1.2
F004 88
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267007
EOR
F002 542
F010 1.2
F004 89
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267008
EOR
F002 542
F010 1.2
F004 90
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267009
EOR
F002 542

F010 1.2
F004 91
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267010
EOR
F002 542
F010 1.2
F004 92
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267011
EOR
F002 542
F010 1.2
F004 93
F005 SO
F006 Brenntag AG Muehlheim a. d. Ruhr
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Brenntag AG Muehlheim a. d. Ruhr
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267012
EOR
F002 542
F010 1.2
F004 94
F005 SO
F006 RVI - Raffineriegesellschaft Vohburg-Ingolstadt mbH
** Ingolstadt
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 RVI - Raffineriegesellschaft Vohburg-Ingolstadt mbH
** Ingolstadt
** ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267013
EOR
F002 542
F010 1.2
F004 95
F005 SO
F006 Mobil Marketing und Raffinerie GmbH, Raffinerie W"rth W"rth
** am Rhein
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Mobil Marketing und Raffinerie GmbH, Raffinerie W"rth W"rth
** am Rhein
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267014
EOR
F002 542
F010 1.2
F004 96
F005 SO
F006 Leuna Raffineriegesellschaft mbH Leuna
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Leuna Raffineriegesellschaft mbH Leuna
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267015
EOR
F002 542
F010 1.2
F004 98
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267017
EOR
F002 542
F010 1.2
F004 99

F005 SO
F006 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267018
EOR
F002 542
F010 1.2
F004 100
F005 SO
F006 NESTE MTBE Business Unit ESPOO
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 NESTE MTBE Business Unit ESPOO
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267019
EOR
F002 542
F010 1.2
F004 101
F005 SO
F006 NESTE MTBE Business Unit ESPOO
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 NESTE MTBE Business Unit ESPOO
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267020
EOR
F002 542
F010 1.2
F004 102
F005 SO
F006 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267021

EOR
F002 542
F010 1.2
F004 103
F005 SO
F006 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267022
EOR
F002 542
F010 1.2
F004 104
F005 SO
F006 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Neste Oy Espoo
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267023
EOR
F002 542
F010 1.5
F004 90
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267024
EOR
F002 542
F010 1.7
F004 181
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267025

EOR
F002 542
F010 1.7
F004 182
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267026
EOR
F002 542
F010 1.7
F004 183
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267027
EOR
F002 542
F010 1.7
F004 184
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267028
EOR
F002 542
F010 1.7
F004 185
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267029
EOR
F002 542
F010 1.7
F004 186

F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267030
EOR
F002 542
F010 1.7
F004 187
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267031
EOR
F002 542
F010 1.7
F004 188
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267032
EOR
F002 542
F010 1.7
F004 189
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267033
EOR
F002 542
F010 1.7
F004 190
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267034
EOR
F002 542
F010 1.7
F004 191
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267035
EOR
F002 542
F010 1.7
F004 192
F005 SO
F006 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267036
EOR
F002 542
F010 1.8.1
F004 20
F005 RM
F006 None established
F007 None established
F008 HEDSET
F009 04-11-1997
F012 1
F020 267037
EOR
F002 542
F010 1.8.1
F004 20
F005 SO
F006 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007

F020 267060
EOR
F002 542
F010 1.8.1
F004 21
F005 RM
F006 Sweden
** 185 mg/m3 8 kr.
F007 Sweden
** 185 mg/m3 8 kr.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267038
EOR
F002 542
F010 1.8.1
F004 21
F005 SO
F006 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 DSM Hydrocarbons B.V. Sittard
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267061
EOR
F002 542
F010 1.8.1
F004 22
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267039
EOR
F002 542
F010 1.8.1
F004 22
F005 RM
F006 Type of limit: 8 hours TWA.
F007 Type of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267040
EOR
F002 542

F010 1.8.1
F004 22
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267062
EOR
F002 542
F010 1.8.1
F004 23
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267041
EOR
F002 542
F010 1.8.1
F004 23
F005 RM
F006 Type of limit: 8 hours TWA.
F007 Type of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267042
EOR
F002 542
F010 1.8.1
F004 23
F005 SO
F006 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267063
EOR
F002 542
F010 1.8.1
F004 24

F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267064
EOR
F002 542
F010 1.8.1
F004 25
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267043
EOR
F002 542
F010 1.8.1
F004 25
F005 RM
F006 Type of limit: 8 hours TWA.
F007 Type of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267044
EOR
F002 542
F010 1.8.1
F004 25
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267065
EOR
F002 542
F010 1.8.1
F004 26
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267066
EOR
F002 542
F010 1.8.1
F004 27
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267045
EOR
F002 542
F010 1.8.1
F004 27
F005 RM
F006 Type of limit: 8 hours TWA.
F007 Type of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267046
EOR
F002 542
F010 1.8.1
F004 27
F005 SO
F006 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PETRONOR Las Arenas. Guecho (VIZCAYA)
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267067
EOR
F002 542
F010 1.8.1
F004 28
F005 RM
F006 Il limite indicato è stabilito dalla Svezia ed è da
** intendersi come TWA su 8 ore.
F007 Il limite indicato è stabilito dalla Svezia ed è da

** intendersi come TWA su 8 ore.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267047
EOR
F002 542
F010 1.8.1
F004 28
F005 SO
F006 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Agip Petroli SpA ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267068
EOR
F002 542
F010 1.8.1
F004 29
F005 SO
F006 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 PRAOIL S.R.L. ASSAGO MI
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267069
EOR
F002 542
F010 1.8.1
F004 30
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267070
EOR
F002 542
F010 1.8.1
F004 31
F005 RE

F006 EXXON Occupational Exposure Limits for Chemical
** Contaminants, 1993-1994, Exxon Biomedical Sciences Inc.,NY,
** USA
F007 EXXON Occupational Exposure Limits for Chemical
** Contaminants, 1993-1994, Exxon Biomedical Sciences Inc.,NY,
** USA
F008 HEDSET
F009 04-11-1997
F012 1
F020 267048
EOR
F002 542
F010 1.8.1
F004 31
F005 RM
F006 Exxon Occupational Exposure Limits (OEL) are Time Weight
** Averaged (TWA) concentrations for an 8-hour workweek.
F007 Exxon Occupational Exposure Limits (OEL) are Time Weight
** Averaged (TWA) concentrations for an 8-hour workweek.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267049
EOR
F002 542
F010 1.8.1
F004 31
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267071
EOR
F002 542
F010 1.8.1
F004 32
F005 RM
F006 Workplace exposure literature:
**
** MTBE exposure additional to sources as reported by our
** Environmental Protection Agency. (1986). SAF studies,
** surveys and reports on employees exposure to butadiene,
** methanol, tertiary-butyl alcohol, and other
F007 Workplace exposure literature:
**
** MTBE exposure additional to sources as reported by our
** Environmental Protection Agency. (1986). SAF studies,

** surveys and reports on employees exposure to butadiene,
** methanol, tertiary-butyl alcohol, and other hydrocarbons.
** TSCA Section 4 Submission.
**
** Hartle, R. (1993). exposure to methyl tert-butyl ether and
** benzene among service station attendants and operators.
** Environ. Health Perspect., 101, S 6:23-26.
**
** NIOSH. (1978). Information Profiles on Potential
** Occupational Hazards: Methyl-tert-Butyl-Ether. Report No.
** PB87-174603.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267050
EOR
F002 542
F010 1.8.1
F004 32
F005 SO
F006 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 EXXON CHEMICAL, Limited Fareham, Hampshire
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267072
EOR
F002 542
F010 1.8.1
F004 33
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267051
EOR
F002 542
F010 1.8.1
F004 33
F005 RM
F006 Tye of limit: 8 hours TWA.
F007 Tye of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267052
EOR

F002 542
F010 1.8.1
F004 33
F005 SO
F006 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267073
EOR
F002 542
F010 1.8.1
F004 34
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267053
EOR
F002 542
F010 1.8.1
F004 34
F005 RM
F006 Tye of limit: 8 hours TWA.
F007 Tye of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267054
EOR
F002 542
F010 1.8.1
F004 34
F005 SO
F006 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil A/S Copenhagen
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267074
EOR
F002 542
F010 1.8.1

F004 35
F005 SO
F006 OK Raffinaderi AB Gøteborg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 OK Raffinaderi AB Gøteborg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267075
EOR
F002 542
F010 1.8.1
F004 36
F005 CT
F006 Germany
F007 Germany
F008 EUCLID
F009 04-11-1997
F012 1
F020 267055
EOR
F002 542
F010 1.8.1
F004 36
F005 RM
F006 MAK-Wert not established
F007 MAK-Wert not established
F008 EUCLID
F009 04-11-1997
F012 1
F020 267056
EOR
F002 542
F010 1.8.1
F004 36
F005 SO
F006 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Huels AG Marl
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267076
EOR
F002 542
F010 1.8.1
F004 37
F005 RM

F006 nicht festgelegt
F007 nicht festgelegt
F008 HEDSET
F009 04-11-1997
F012 1
F020 267057
EOR
F002 542
F010 1.8.1
F004 37
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267077
EOR
F002 542
F010 1.8.1
F004 38
F005 CT
F006 Sweden
F007 Sweden
F008 HEDSET
F009 04-11-1997
F012 1
F020 267058
EOR
F002 542
F010 1.8.1
F004 38
F005 RM
F006 Tye of limit: 8 hours TWA.
F007 Tye of limit: 8 hours TWA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267059
EOR
F002 542
F010 1.8.1
F004 38
F005 SO
F006 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil Ireland Limited Dublin 2
** ECB - Existing Chemicals Ispra (VA)

** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267078
EOR
F002 542
F010 2.1
F004 8
F005 RE
F006 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
F007 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
F020 269047
EOR
F002 542
F010 2.1
F004 8
F005 RE
F006 Huels AG Safety DAta Sheet, 04/10/1993.
F007 Huels AG Safety DAta Sheet, 04/10/1993.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267090
EOR
F002 542
F010 2.1
F004 8
F005 RE
F006 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F007 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F020 269046
EOR
F002 542
F010 2.1
F004 8
F005 RL
F006 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 269049
EOR
F002 542
F010 2.10
F004 2
F005 RM
F006 ueg 1.6 vol% oeg 8.4 vol%
F007 ueg 1.6 vol% oeg 8.4 vol%

F008 HEDSET
F009 04-11-1997
F012 1
F020 267102
EOR
F002 542
F010 2.10
F004 2
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267103
EOR
F002 542
F010 2.11
F004 2
F005 RM
F006 offenes feuer
F007 offenes feuer
F008 HEDSET
F009 04-11-1997
F012 1
F020 267104
EOR
F002 542
F010 2.11
F004 2
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267105
EOR
F002 542
F010 2.14
F004 9
F005 RE
F006 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F007 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.

F008 HEDSET
F009 04-11-1997
F012 1
F020 267110
EOR
F002 542
F010 2.14
F004 9
F005 RM
F006 FLAMABILITI LIMITS (% vol. in air): Lower 1.5, Upper: 8.5
** STABILITY: Flammable and combustible.
** CONDITIONS TO AVOID: Exposure to heat, sparks, static
** electricity or flames. It is unstable in acid solutions.
** INCOMPATIBILITIES: Strong acids
F007 FLAMABILITI LIMITS (% vol. in air): Lower 1.5, Upper: 8.5
** STABILITY: Flammable and combustible.
** CONDITIONS TO AVOID: Exposure to heat, sparks, static
** electricity or flames. It is unstable in acid solutions.
** INCOMPATIBILITIES: Strong acids and strong oxidants.
** HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CO(in defect of
** oxigen), CO2.
** EXTINGUISHING AGENTS: Carbon dioxide, Dry chemicals, Water
** spray, etc.
** SPECIAL HAZARDS: Vapour is heavier than air and may travel
** long distances to a source of ignition and flash back.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267111
EOR
F002 542
F010 2.2
F004 15
F005 RE
F006 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F007 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F020 269045
EOR
F002 542
F010 2.2
F004 15
F005 RE
F006 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F007 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F020 269050
EOR
F002 542
F010 2.2

F004 15
F005 RL
F006 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 269051
EOR
F002 542
F010 2.3
F004 15
F005 RE
F006 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F007 Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics.
* 79th Edition. CRC Press, New York, NY, USA.
F020 269043
EOR
F002 542
F010 2.3
F004 15
F005 RL
F006 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 269044
EOR
F002 542
F010 2.4
F004 30
F005 RE
F006 Ambrose D, et al. , J Chem Thermodyn (1976).
F007 Ambrose D, et al. , J Chem Thermodyn (1976).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267167
EOR
F002 542
F010 2.4
F004 30
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated not measured.
F020 269057

EOR
F002 542
F010 2.4
F004 30
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267189
EOR
F002 542
F010 2.4
F004 32
F005 RE
F006 Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As
** cited in EnviroFate database, 1994.
F007 Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As
** cited in EnviroFate database, 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267169
EOR
F002 542
F010 2.4
F004 32
F005 RM
F006 This vapor pressure indicates that MTBE is highly volatile.
F007 This vapor pressure indicates that MTBE is highly volatile.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267170
EOR
F002 542
F010 2.4
F004 32
F005 SO
F006 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267191

EOR
F002 542
F010 2.4
F004 37
F005 RE
F006 Daubert T and Danner R (1989). Physical and thermodynamic properties of
* pure chemicals: Data compilation. Design Institute for Physical Property
* Data, American Institute of Chemical Engineers. Hemisphere Publishing
* Corp., New York, NY, USA.
F007 Daubert T and Danner R (1989). Physical and thermodynamic properties of
* pure chemicals: Data compilation. Design Institute for Physical Property
* Data, American Institute of Chemical Engineers. Hemisphere Publishing
* Corp., New York, NY, USA.
F020 269052
EOR
F002 542
F010 2.4
F004 37
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F020 269053
EOR
F002 542
F010 2.5
F004 9
F005 RE
F006 Hanch C, et al., J Org Chem (1968), 33:347.
** Fugiwara Y, et al., Yukagaku (1984), 33:111-114.
** As cited in EnviroFate database, 1994.
F007 Hanch C, et al., J Org Chem (1968), 33:347.
** Fugiwara Y, et al., Yukagaku (1984), 33:111-114.
** As cited in EnviroFate database, 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267200
EOR
F002 542
F010 2.5
F004 9
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.

F020 269054
EOR
F002 542
F010 2.5
F004 10
F005 RE
F006 Huels AG Safety Data Sheet, 04/10/1993.
F007 Huels AG Safety Data Sheet, 04/10/1993.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267201
EOR
F002 542
F010 2.5
F004 10
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267208
EOR
F002 542
F010 2.6.1
F004 12
F005 RE
F006 Bennett, G.M., W.G. Philip (1928). J. Chem. Soc. pp. 1930-7.
F007 Bennett, G.M., W.G. Philip (1928). J. Chem. Soc. pp. 1930-7.
F020 269055
EOR
F002 542
F010 2.6.1
F004 12
F005 RE
F006 Huels AG Safety Data Sheet, 04/10/1993.
F007 Huels AG Safety Data Sheet, 04/10/1993.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267218
EOR
F002 542
F010 2.6.1
F004 12
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed

* publication.
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F020 269056
EOR
F002 542
F010 2.7
F004 9
F005 RE
F006 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F007 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267238
EOR
F002 542
F010 2.7
F004 9
F005 TC
F006 Method: SETA.
F007 Method: SETA.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267239
EOR
F002 542
F010 2.7
F004 15
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267257
EOR
F002 542
F010 2.8
F004 8
F005 RE
F006 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.
F007 ARCO Chemical Company, Methyl Tertiary Butyl Ether Product
** Safety Bulletin (June 1993), p1-2.

F008 HEDSET
F009 04-11-1997
F012 1
F020 267259
EOR
F002 542
F010 2.8
F004 9
F005 RE
F006 Huels AG Safety Data Sheet, 04/10/1993.
F007 Huels AG Safety Data Sheet, 04/10/1993.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267260
EOR
F002 542
F010 2.8
F004 9
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267268
EOR
F002 542
F010 2.8
F004 9
F005 TC
F006 DIN 51794
F007 DIN 51794
F008 HEDSET
F009 04-11-1997
F012 1
F020 267261
EOR
F002 542
F010 2.9
F004 3
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI

F009 01-10-2007
F020 267274
EOR
F002 542
F010 2.9
F004 4
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267275
EOR
F002 542
F010 3.1.1
F004 17
F005 RE
F006 Bennett PJ, Kerr JA, J Atmos Chem (1990), 10:29-38. As cited
** in Hazardous Substances Data Base (HSDB), 1994.
F007 Bennett PJ, Kerr JA, J Atmos Chem (1990), 10:29-38. As cited
** in Hazardous Substances Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267277
EOR
F002 542
F010 3.1.1
F004 17
F005 RM
F006 Indirect photolysis of MTBE by OH radicals (which then
** hydrolyse PG) is rapid in air.
F007 Indirect photolysis of MTBE by OH radicals (which then
** hydrolyse PG) is rapid in air.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267278
EOR
F002 542
F010 3.1.1
F004 17
F005 TC
F006 Measured at 25 deg. C.
F007 Measured at 25 deg. C.
F008 HEDSET
F009 04-11-1997
F012 1

F020 267276
EOR
F002 542
F010 3.1.1
F004 19
F005 RE
F006 Cox RA, Goldstone A, (1982): Comm. Eur, Communities 7624,
** 112-119.
F007 Cox RA, Goldstone A, (1982): Comm. Eur, Communities 7624,
** 112-119.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267281
EOR
F002 542
F010 3.1.1
F004 19
F005 RM
F006 Concentrations between 0.34 and 3.7 ppm were tested.
** The major products of the oxidation were tentatively
** identified as t-butyl formate and acetone, and a mechanism
** for the formation of these products was suggested.
F007 Concentrations between 0.34 and 3.7 ppm were tested.
** The major products of the oxidation were tentatively
** identified as t-butyl formate and acetone, and a mechanism
** for the formation of these products was suggested.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267282
EOR
F002 542
F010 3.1.1
F004 19
F005 TC
F006 Relative rate study
** Light source: fluorescent "Black lamps"
F007 Relative rate study
** Light source: fluorescent "Black lamps"
F008 HEDSET
F009 04-11-1997
F012 1
F020 267283
EOR
F002 542
F010 3.1.1
F004 20
F005 RE
F006 Atkinson R, (1990): Atmos. Environ. 24A, 1-41.
F007 Atkinson R, (1990): Atmos. Environ. 24A, 1-41.
F008 HEDSET

F009 04-11-1997
F012 1
F020 267284
EOR
F002 542
F010 3.1.1
F004 21
F005 RE
F006 Bennett PJ, Kerr JA (1990): J. Atmos. Chem. 10, 29-38.
F007 Bennett PJ, Kerr JA (1990): J. Atmos. Chem. 10, 29-38.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267285
EOR
F002 542
F010 3.1.1
F004 21
F005 TC
F006 Relative rate study
F007 Relative rate study
F008 HEDSET
F009 04-11-1997
F012 1
F020 267286
EOR
F002 542
F010 3.1.1
F004 22
F005 RE
F006 Wallington TJ et al., (1989): Int. J. Chem. Kinet. 21,
** 993-1001.
F007 Wallington TJ et al., (1989): Int. J. Chem. Kinet. 21,
** 993-1001.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267287
EOR
F002 542
F010 3.1.1
F004 22
F005 TC
F006 Relative rate study
F007 Relative rate study
F008 HEDSET
F009 04-11-1997
F012 1
F020 267288
EOR
F002 542
F010 3.1.1

F004 33
F005 ME
F006 Calculated values using AOPWIN version 1.89, a subroutine of the computer
* program EPI SuiteTM version 3.12
**
** Indirect photodegradation, or atmospheric oxidation potential, is based
* on the structure-activity relationship methods developed by
F007 Calculated values using AOPWIN version 1.89, a subroutine of the computer
* program EPI SuiteTM version 3.12
**
** Indirect photodegradation, or atmospheric oxidation potential, is based
* on the structure-activity relationship methods developed by R. Atkinson
* under the following conditions:
** Temperature: 25°C
** Sensitizer: OH- radical
** Concentration of Sensitizer: 1.5E6 OH- radicals/cm3
F020 269058
EOR
F002 542
F010 3.1.1
F004 33
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 269061
EOR
F002 542
F010 3.1.1
F004 33
F005 RL
F006 The value was calculated based on chemical structure as modeled by
* EPIWIN. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by
* EPIWIN. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F020 269060
EOR
F002 542
F010 3.1.1
F004 33
F005 RM
F006 Bethyl-Tertiary-butyl ether has the potential to volatilize to air, based
* on a relatively high vapor pressure, where it is subject to atmospheric
* oxidation. In air, methyl-tert-butyl ether can react with photosensitized
* oxygen in the form o
F007 Bethyl-Tertiary-butyl ether has the potential to volatilize to air, based
* on a relatively high vapor pressure, where it is subject to atmospheric
* oxidation. In air, methyl-tert-butyl ether can react with photosensitized
* oxygen in the form of hydroxyl radicals (OH-). The computer program

* AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI
* SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the
* 12-hour day half-life value normalizes degradation to a standard day
* light period during which hydroxyl radicals needed for degradation are
* generated), based on an OH- reaction rate constant and a defined OH-
* concentration.
**
** Based on a 12-hour day, a rate constant of 2.26 E-12 cm3/molecule*sec,
* and an OH- concentration of 1.5 E6 OH-/cm3, methyl-tertiary-butyl ether
* has a calculated half-life in air of 4.7 days or 56.9 hours of daylight.
F020 269059
EOR
F002 542
F010 3.1.1
F004 34
F005 ME
F006 Technical Discussion
F007 Technical Discussion
F020 269062
EOR
F002 542
F010 3.1.1
F004 34
F005 RE
F006 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
* Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and
* DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
* Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and
* DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 269065
EOR
F002 542
F010 3.1.1
F004 34
F005 RE
F006 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
* environment. Environ Sci Technol 11, 359-366.
F007 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
* environment. Environ Sci Technol 11, 359-366.
F020 269066
EOR
F002 542
F010 3.1.1
F004 34
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F020 269064
EOR

F002 542
F010 3.1.1
F004 34
F005 RM
F006 Direct photochemical degradation occurs through the absorbance of solar
* radiation by a chemical substance in aqueous solution. If the absorbed
* energy is high enough, then the resultant excited state of the chemical
* may undergo a transformat
F007 Direct photochemical degradation occurs through the absorbance of solar
* radiation by a chemical substance in aqueous solution. If the absorbed
* energy is high enough, then the resultant excited state of the chemical
* may undergo a transformation. A prerequisite for direct photodegradation
* is the ability of one or more bonds within a chemical to absorb
* ultraviolet (UV)/visible light in the 290 to 750 nm range. Light
* wavelengths longer than 750 nm do not contain sufficient energy to break
* chemical bonds, and wavelengths below 290 nm are shielded from the earth
* by the stratospheric ozone layer (Harris, 1982).
**
** An approach to assessing the potential for a substance to undergo
* photochemical degradation is to assume that degradation will occur in
* proportion to the amount of light wavelengths >290 nm absorbed by
* constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding
* electrons in ethers do not give rise to absorption above 160 nm, which is
* why pure ether solvents can be used in spectroscopic studies.
* Consequently, methyl-tert-butyl ether is not subject to photolytic
* processes in the aqueous environment.
F020 269063
EOR
F002 542
F010 3.1.2
F004 3
F005 RE
F006 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
* Reinhart and Winston, New York, NY, USA.
F007 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
* Reinhart and Winston, New York, NY, USA.
F020 269070
EOR
F002 542
F010 3.1.2
F004 3
F005 RE
F006 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
* Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
* Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
* Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
* Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 269069
EOR
F002 542
F010 3.1.2

F004 3
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F020 269068
EOR
F002 542
F010 3.1.2
F004 3
F005 RS
F006 Hydrolysis of an organic chemical is the transformation process in which
* a water molecule or hydroxide ion reacts to form a new carbon-oxygen
* bond. Chemicals with leaving groups that have a potential to hydrolyze
* include alkyl halides, amid
F007 Hydrolysis of an organic chemical is the transformation process in which
* a water molecule or hydroxide ion reacts to form a new carbon-oxygen
* bond. Chemicals with leaving groups that have a potential to hydrolyze
* include alkyl halides, amides, carbamates, carboxylic acid esters and
* lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould,
* 1959). The lack of a suitable leaving group renders a compound resistant
* to hydrolysis. Methyl-Tertiary-butyl ether is resistant to hydrolysis
* because it lacks a functional group that is hydrolytically reactive and
* Harris (1982) identifies ether groups as generally resistant to
* hydrolysis. Therefore, hydrolysis will not contribute to the removal of
* Methyl-tert-butyl ether from the environment.
F020 269067
EOR
F002 542
F010 3.2.1
F004 8
F005 RE
F006 Althoff WF, et al., Groundwater (1981), 19:495-504. As cited
** in Hazardous Substances Data Base (HSDB), 1994.
F007 Althoff WF, et al., Groundwater (1981), 19:495-504. As cited
** in Hazardous Substances Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267332
EOR
F002 542
F010 3.2.1
F004 8
F005 RM
F006 Site location: Old Bridge aquifer under industrial plant in
** South Brunswick Township, NJ. Remediation efforts with 7
** extraction wells and a treatment facility reduced
** concentrations by 26 %.
F007 Site location: Old Bridge aquifer under industrial plant in
** South Brunswick Township, NJ. Remediation efforts with 7

** extraction wells and a treatment facility reduced
** concentrations by 26 %.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267333
EOR
F002 542
F010 3.2.1
F004 8
F005 RS
F006 50 ppb
F007 50 ppb
F008 HEDSET
F009 04-11-1997
F012 1
F020 267334
EOR
F002 542
F010 3.2.1
F004 8
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267351
EOR
F002 542
F010 3.3.1
F004 39
F005 RE
F006 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F007 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F020 269074
EOR
F002 542
F010 3.3.1
F004 39
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated.

F020 269073
EOR
F002 542
F010 3.3.1
F004 39
F005 RM
F006 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 0.94
** Water S 51,000 g/m3
** Vapor P 33,330 Pa
** Melting Point = -108.6° C
F007 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 0.94
** Water S 51,000 g/m3
** Vapor P 33,330 Pa
** Melting Point = -108.6° C
F020 269071
EOR
F002 542
F010 3.3.1

** %Dis

F020 269072
EOR
F002 542
F010 3.3.1
F004 40
F005 CL
F006 The majority of methyl-tert-butyl ether (MTBE) is calculated to partition
* into the water phase, with smaller but significant amounts into air and
* soil, based on the modeling parameters used in this calculation. MTBE is
* considered to be a Ty
F007 The majority of methyl-tert-butyl ether (MTBE) is calculated to partition
* into the water phase, with smaller but significant amounts into air and
* soil, based on the modeling parameters used in this calculation. MTBE is
* considered to be a Type 1 chemical with potential to partition into all
* environmental compartments.
F020 269078
EOR
F002 542
F010 3.3.1
F004 40
F005 ME
F006 Level III simulation using the Mackay Multimedia Environmental Model
* (Mackay, 2001). Mass balances are calculated for the four bulk media of
* air (gas + aerosol), water (solution + suspended sediment + biota), soil,
* (solids + air + water), a
F007 Level III simulation using the Mackay Multimedia Environmental Model
* (Mackay, 2001). Mass balances are calculated for the four bulk media of
* air (gas + aerosol), water (solution + suspended sediment + biota), soil,
* (solids + air + water), and sediment (solids + pore water). Equilibrium
* exists within, but not between media. Physical-chemical properties are
* used to quantify a chemical's behavior in an evaluative environment.
* Three types of chemicals are treated in this model: chemicals that
* partition into all media (Type 1), non volatile chemicals (Type 2), and
* chemicals with zero, or near-zero, solubility (Type 3). The model cannot
* treat ionizing or speciating substances. The Level III model assumes a
* simple, evaluative environment with user-defined volumes and densities
* for the following homogeneous environmental media (or compartments): air,
* water, soil, sediment, suspended sediment, fish and aerosols.
**
** This model provides a description of a chemical's fate including the
* important degradation and advection losses and the intermedia transport
* processes. The distribution of the chemical between media depends on how
* the chemical enters the system, e.g. to air, to water, or to both. This
* mode of entry also affects persistence or residence time.
**
** The rates of intermedia transport are controlled by a series of 12
* transport velocities. Reaction half-lives are requested for all 7 media.
* The advective residence time selected for air also applies to aerosols
* and the residence time for water applies to suspended sediment and fish.
* The advective residence time of aerosols, suspended sediment and fish
* cannot be specified independently of the air and water residence times.
F020 269075

EOR
F002 542
F010 3.3.1
F004 40
F005 RE
F006 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F007 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F020 269080
EOR
F002 542
F010 3.3.1
F004 40
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated.
F020 269079
EOR
F002 542
F010 3.3.1
F004 40
F005 RS
F006 Output:

**		Mass%	Emissions(kg/hr)
**	Air	21.1	1000

** Sedime

** Water S 51,000 g/m3
** Vapor P 33,330 Pa
** Melting Point = -108.6° C
**
** Reaction Ha
F007 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 0.94
** Water S 51,000 g/m3
** Vapor P 33,330 Pa
** Melting Point = -108.6° C
**
** Reaction Half Lives in hours as predicted using EPI SuiteTM:
**
** Air (gaseous) 56.8
** Water (360
** Bulk Soil 720
** Bulk Sediment 3240
**
** Environmental Properties (EQC standard environment)
** Dimensions (all defaults)
** Densities (all defaults)
** Organic carbon & Advection (all defaults)
** Transport Velocities (all defaults)
**
** Emission and Inflows (defaults used)
** Air 1000 kg/hr
** Water 1000 kg/hr
** Soil 1000 kg/hr
** Sediment 0 kg/hr
F020 269077
EOR
F002 542
F010 3.3.2
F004 22
F005 RE
F006 Cited in Hazardous Substances Data Base (HSDB), 1994.
F007 Cited in Hazardous Substances Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267441
EOR
F002 542
F010 3.3.2
F004 22
F005 RM
F006 Method: Lyman

F007 Method: Lyman
F008 HEDSET
F009 04-11-1997
F012 1
F020 267442
EOR
F002 542
F010 3.3.2
F004 22
F005 RM
F006 Using a reported Henry's Law Constant of 5.87 E-4
** atm.m3/mole, a t1/2 for volatilisation of MTBE, from a river
** 1 metre deep flowing 1 m/s with a wind velocity of 3 m/s,
** has been estimated to be 4.1 hour at 25 deg. C.
F007 Using a reported Henry's Law Constant of 5.87 E-4
** atm.m3/mole, a t1/2 for volatilisation of MTBE, from a river
** 1 metre deep flowing 1 m/s with a wind velocity of 3 m/s,
** has been estimated to be 4.1 hour at 25 deg. C.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267443
EOR
F002 542
F010 3.4
F004 3
F005 RM
F006 TERRESTRIAL FATE: High mobility in soil. Volatilization.
** AQUATIC FATE: Volatilization.
** ATMOSPHERIC FATE:Indirect Photolysis.
F007 TERRESTRIAL FATE: High mobility in soil. Volatilization.
** AQUATIC FATE: Volatilization.
** ATMOSPHERIC FATE:Indirect Photolysis.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267474
EOR
F002 542
F010 3.4
F004 3
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267476
EOR

F002 542
F010 3.5
F004 4
F005 RE
F006 Huels AG report No. GF-211, 1991 (unpublished).
F007 Huels AG report No. GF-211, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267478
EOR
F002 542
F010 3.5
F004 5
F005 RE
F006 Fujiwara,Y et al; Yukagaku 33: 111-4 (1984).
F007 Fujiwara,Y et al; Yukagaku 33: 111-4 (1984).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267479
EOR
F002 542
F010 3.6
F004 14
F005 RE
F006 Fujiwara Y, et al., Yukagaku (1984), 33:111-114, as cited in
** Hazardous Substances Data Base (HSDB), 1994.
F007 Fujiwara Y, et al., Yukagaku (1984), 33:111-114, as cited in
** Hazardous Substances Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267484
EOR
F002 542
F010 3.6
F004 14
F005 RM
F006 Result suggest that MTBE is slowly degraded in the
** environment.
F007 Result suggest that MTBE is slowly degraded in the
** environment.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267485
EOR
F002 542
F010 3.6
F004 14
F005 RS

F006 BOD% = 1% after 21 days.
F007 BOD% = 1% after 21 days.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267486
EOR
F002 542
F010 3.6
F004 14
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267539
EOR
F002 542
F010 3.6
F004 14
F005 TS
F006 Methyl Ter-butyl Ether.
F007 Methyl Ter-butyl Ether.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267487
EOR
F002 542
F010 3.6
F004 15
F005 RE
F006 Van Luin AB, Teurlinckx LVM, Manage Haz Toxic Wastes, Proc
** Int Congr (1987), p476-485. As cited in Hazardous Substances
** Data Base (HSDB), 1994.
F007 Van Luin AB, Teurlinckx LVM, Manage Haz Toxic Wastes, Proc
** Int Congr (1987), p476-485. As cited in Hazardous Substances
** Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267488
EOR
F002 542
F010 3.6
F004 15
F005 RM
F006 Removal may have been affected by volatilisation or

** adsorption.
F007 Removal may have been affected by volatilisation or
** adsorption.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267489
EOR
F002 542
F010 3.6
F004 15
F005 RS
F006 1) 85, 2) 94, 3) 95 % respectively- Duration not specified.
F007 1) 85, 2) 94, 3) 95 % respectively- Duration not specified.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267490
EOR
F002 542
F010 3.6
F004 15
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267540
EOR
F002 542
F010 3.6
F004 15
F005 TC
F006 1) Activated sludge 2) Activated sludge + activated carbon
** 3) Activated sludge + activated carbon + wet water
** regenerated carbon.
F007 1) Activated sludge 2) Activated sludge + activated carbon
** 3) Activated sludge + activated carbon + wet water
** regenerated carbon.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267491
EOR
F002 542
F010 3.6
F004 15
F005 TS

F006 Methyl Ter-butyl Ether.
F007 Methyl Ter-butyl Ether.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267492
EOR
F002 542
F010 3.7
F004 8
F005 RE
F006 Fujiwara Y, Yukagaku (1984), 33:111-114. As cited in
** EnviroFate database, 1994.
F007 Fujiwara Y, Yukagaku (1984), 33:111-114. As cited in
** EnviroFate database, 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267552
EOR
F002 542
F010 3.7
F004 8
F005 RM
F006 Not expected to bioconcentrate in aquatic species.
F007 Not expected to bioconcentrate in aquatic species.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267553
EOR
F002 542
F010 3.7
F004 8
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267571
EOR
F002 542
F010 3.7
F004 8
F005 TC
F006 Species: Japanese carp.
F007 Species: Japanese carp.
F008 HEDSET

F009 04-11-1997
F012 1
F020 267554
EOR
F002 542
F010 3.8
F004 8
F005 RE
F006 Cited in Hazardous Substances Data Base (HSDB), 1994.
F007 Cited in Hazardous Substances Data Base (HSDB), 1994.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267578
EOR
F002 542
F010 3.8
F004 8
F005 RM
F006 MTBE may be released as a result of its use as an octane
** booster for unleaded gasoline and its use in the manufacture
** of isobutene. If released to soil, it will be subject to
** volatilisation and is not expected to hydrolyse. If released
** to w
F007 MTBE may be released as a result of its use as an octane
** booster for unleaded gasoline and its use in the manufacture
** of isobutene. If released to soil, it will be subject to
** volatilisation and is not expected to hydrolyse. If released
** to water, MTBE is not expected to significantly adsorb into
** sediment or suspended particulate matter, bioconcentrate in
** aquatic organisms, hydrolyse, directly photolyse or
** photooxidize. It will be subject to rapid volatilisation
** from surface water. It may be resistant to biodegradation in
** environmental media based upon screening test data. If
** released to atmosphere, it is expected to exist almost
** entirely in the vapor phase.
** The most probable route of general population exposure is
** via inhalation of contaminated air. Exposures through dermal
** contact may occur in occupational settings.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267579
EOR
F002 542
F010 4.1
F004 15
F005 RE
F006 Geiger, et al. (1988)
** Acute Toxicities of Organic Chemicals to Fathead Minnows.
** Volume IV. Center for Lake Superior Environmental
** Studies,University of Wisconsin-Superior.

F007 Geiger, et al. (1988)
** Acute Toxicities of Organic Chemicals to Fathead Minnows.
** Volume IV. Center for Lake Superior Environmental
** Studies,University of Wisconsin-Superior.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267598
EOR
F002 542
F010 4.1
F004 15
F005 RM
F006 Four test concentrations and control analyzed by GLC.
F007 Four test concentrations and control analyzed by GLC.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267599
EOR
F002 542
F010 4.1
F004 15
F005 TC
F006 Fish were kepted in 7.0L tanks under flow-through conditions. Additions
* per day were 8.84 tank volumes.
**
** Test Temp = 24.7 deg C
** Dissolved Oxygen = 7.3 mg/l
** Hardness = 47.7 mg CaCO3/l
** Alkalinity = 41.3 mg CaCO3/l
** pH = 7.5
**
** Mean Fish weight =
F007 Fish were kepted in 7.0L tanks under flow-through conditions. Additions
* per day were 8.84 tank volumes.
**
** Test Temp = 24.7 deg C
** Dissolved Oxygen = 7.3 mg/l
** Hardness = 47.7 mg CaCO3/l
** Alkalinity = 41.3 mg CaCO3/l
** pH = 7.5
**
** Mean Fish weight = 0.193g
**
** 4 treatments and a control were prepared for the test. Two replicates per
* treatment.
**
** Effect data was not recorded.
F020 269081
EOR
F002 542

F010 4.1
F004 16
F005 RE
F006 Bishop, W.E., et al. Aquatic Toxicology and Hazard
** Assessment: 6th Symp., ASTM STP 802, Philadelphia, PA:
** 90-97, as cited in AQUIRE, the Aquatic Information Retrieval
** Database.
F007 Bishop, W.E., et al. Aquatic Toxicology and Hazard
** Assessment: 6th Symp., ASTM STP 802, Philadelphia, PA:
** 90-97, as cited in AQUIRE, the Aquatic Information Retrieval
** Database.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267600
EOR
F002 542
F010 4.1
F004 17
F005 RE
F006 Unpublished report from Huels AG
F007 Unpublished report from Huels AG
F008 HEDSET
F009 04-11-1997
F012 1
F020 267601
EOR
F002 542
F010 4.1
F004 17
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267621
EOR
F002 542
F010 4.1
F004 17
F005 TC
F006 DIN 38412 PART 15
F007 DIN 38412 PART 15
F008 HEDSET
F009 04-11-1997
F012 1
F020 267602
EOR

F002 542
F010 4.1
F004 26
F005 RM
F006 spezies: goldorfen
F007 spezies: goldorfen
F008 HEDSET
F009 04-11-1997
F012 1
F020 267615
EOR
F002 542
F010 4.1
F004 26
F005 SO
F006 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 MABANAFT GmbH hamburg
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267630
EOR
F002 542
F010 4.1
F004 29
F005 ME
F006 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity h
F007 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity has been previously measured. Most SAR
* calculations in the ECOSAR Class Program are based upon the octanol/water
* partition coefficient (Kow). SARs have been used by the U.S.
* Environmental Protection Agency since 1981 to predict the aquatic
* toxicity of new industrial chemicals in the absence of test data. SARs
* are developed for chemical classes based on measured test data that have
* been submitted by industry or they are developed by other sources for
* chemicals with similar structures, e.g., phenols. Using the measured
* aquatic toxicity values and estimated Kow values, regression equations
* can be developed for a class of chemicals. Toxicity values for new
* chemicals may then be calculated by inserting the estimated Kow into the
* regression equation and correcting the resultant value for the molecular
* weight of the compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral

* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
* The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269093
EOR
F002 542
F010 4.1
F004 29
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 269092
EOR
F002 542
F010 4.1
F004 29
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269095
EOR
F002 542
F010 4.1
F004 29
F005 TC
F006
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F007
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F020 269094
EOR
F002 542
F010 4.2
F004 3
F005 RE

F006 Huels AG report No. DK-476, 1991 (unpublished).
F007 Huels AG report No. DK-476, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267633
EOR
F002 542
F010 4.2
F004 3
F005 RM
F006 Method: Acute toxicity for Daphnia, EC Directive 79/831/EEC,
** March 1989.
F007 Method: Acute toxicity for Daphnia, EC Directive 79/831/EEC,
** March 1989.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267634
EOR
F002 542
F010 4.2
F004 3
F005 TC
F006 Because of the volatility of the compound, the study was
** performed in a closed system.
F007 Because of the volatility of the compound, the study was
** performed in a closed system.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267635
EOR
F002 542
F010 4.2
F004 5
F005 ME
F006 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
* presented in this program are used to predict the aquatic toxicity of
* chemicals based on their similarity of structure to chemicals for which
* the aquatic toxicity has
F007 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
* presented in this program are used to predict the aquatic toxicity of
* chemicals based on their similarity of structure to chemicals for which
* the aquatic toxicity has been previously measured. Most SAR calculations
* in the ECOSAR Class Program are based upon the octanol/water partition
* coefficient (Kow). SARs have been used by the U.S. Environmental
* Protection Agency since 1981 to predict the aquatic toxicity of new
* industrial chemicals in the absence of test data. SARs are developed for
* chemical classes based on measured test data that have been submitted by
* industry or they are developed by other sources for chemicals with
* similar structures, e.g., phenols. Using the measured aquatic toxicity

* values and estimated Kow values, regression equations can be developed
* for a class of chemicals. Toxicity values for new chemicals may then be
* calculated by inserting the estimated Kow into the regression equation
* and correcting the resultant value for the molecular weight of the
* compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral
* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
* The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269087
EOR
F002 542
F010 4.2
F004 5
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 269091
EOR
F002 542
F010 4.2
F004 5
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269090
EOR
F002 542
F010 4.2
F004 5
F005 RS
F006
** Calculated 48-hr LC50 for Daphnia = 231 mg/L
F007
** Calculated 48-hr LC50 for Daphnia = 231 mg/L
F020 269088
EOR
F002 542
F010 4.2

F004 5
F005 TC
F006
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F007
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F020 269089
EOR
F002 542
F010 4.3
F004 3
F005 RE
F006 Huels AG report No. AW-221, 1991 (unpublished).
F007 Huels AG report No. AW-221, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267638
EOR
F002 542
F010 4.3
F004 3
F005 RE
F006 Method: actually 88/302/EEC.
F007 Method: actually 88/302/EEC.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267639
EOR
F002 542
F010 4.3
F004 3
F005 TC
F006 Because of the volatility of the compound, the study was
** performed in a closed system.
F007 Because of the volatility of the compound, the study was
** performed in a closed system.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267640
EOR
F002 542
F010 4.3
F004 5

F005 ME
F006 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
* presented in this program are used to predict the aquatic toxicity of
* chemicals based on their similarity of structure to chemicals for which
* the aquatic toxicity has
F007 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
* presented in this program are used to predict the aquatic toxicity of
* chemicals based on their similarity of structure to chemicals for which
* the aquatic toxicity has been previously measured. Most SAR calculations
* in the ECOSAR Class Program are based upon the octanol/water partition
* coefficient (Kow). SARs have been used by the U.S. Environmental
* Protection Agency since 1981 to predict the aquatic toxicity of new
* industrial chemicals in the absence of test data. SARs are developed for
* chemical classes based on measured test data that have been submitted by
* industry or they are developed by other sources for chemicals with
* similar structures, e.g., phenols. Using the measured aquatic toxicity
* values and estimated Kow values, regression equations can be developed
* for a class of chemicals. Toxicity values for new chemicals may then be
* calculated by inserting the estimated Kow into the regression equation
* and correcting the resultant value for the molecular weight of the
* compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral
* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
* The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269082
EOR
F002 542
F010 4.3
F004 5
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 269086
EOR
F002 542
F010 4.3
F004 5
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.

F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269085
EOR
F002 542
F010 4.3
F004 5
F005 RS
F006 Calculated 96-hr EC50 for a green alga = 140 mg/L
** Calculated 96-hr ChV for a green alga = 10 mg/L
F007 Calculated 96-hr EC50 for a green alga = 140 mg/L
** Calculated 96-hr ChV for a green alga = 10 mg/L
F020 269083
EOR
F002 542
F010 4.3
F004 5
F005 TC
F006
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F007
** Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and
* melting point, -108.6°C were entered into the program.
**
** Class: Neutral organics
F020 269084
EOR
F002 542
F010 4.4
F004 4
F005 RE
F006 Huels AG report No. BK-91/4, 1991 (unpublished).
F007 Huels AG report No. BK-91/4, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267644
EOR
F002 542
F010 4.4
F004 5
F005 RE
F006 Huels AG report No. SK-91/11, 1991 (unpublished).
F007 Huels AG report No. SK-91/11, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267646
EOR

F002 542
F010 4.4
F004 5
F005 RM
F006 Method: Tests for inhibition of oxygen consumption by
** Pseudomonas putida (Huels method), 5-6 hours.
F007 Method: Tests for inhibition of oxygen consumption by
** Pseudomonas putida (Huels method), 5-6 hours.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267647
EOR
F002 542
F010 5.1.1
F004 20
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267667
EOR
F002 542
F010 5.1.1
F004 20
F005 RM
F006 Six groups of 10 rats (5/sex) received 1900 - 6810 mg/kg
** p.o. and were observed for 14 days. CNS depression reported
** at all levels.
F007 Six groups of 10 rats (5/sex) received 1900 - 6810 mg/kg
** p.o. and were observed for 14 days. CNS depression reported
** at all levels.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267668
EOR
F002 542
F010 5.1.2
F004 26
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1

F020 267710
EOR
F002 542
F010 5.1.2
F004 26
F005 RM
F006 ARCO MTBE (96.2%) LC50 = 142.03 mg/l.
** Commercial MTBE (99.1) LC50 = 120.3 mg/l.
** Groups of ten male SD rats received either 70.74 to 201.12
** mg/l (ARCO MTBE) or 68.11 to 230.57 mg/l (Commercial MTBE)
** nominally for a four-hour exposure and wer
F007 ARCO MTBE (96.2%) LC50 = 142.03 mg/l.
** Commercial MTBE (99.1) LC50 = 120.3 mg/l.
** Groups of ten male SD rats received either 70.74 to 201.12
** mg/l (ARCO MTBE) or 68.11 to 230.57 mg/l (Commercial MTBE)
** nominally for a four-hour exposure and were observed for 14
** days.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267711
EOR
F002 542
F010 5.1.2
F004 26
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267740
EOR
F002 542
F010 5.1.2
F004 27
F005 RE
F006 Patty's Industrial Hygiene and Toxicology. 3rd Ed. Vol. 2A,
** 2B, 2C. (1981-1982) pg. 2503., as cited in Hazardous
** Substance Data Bank.
F007 Patty's Industrial Hygiene and Toxicology. 3rd Ed. Vol. 2A,
** 2B, 2C. (1981-1982) pg. 2503., as cited in Hazardous
** Substance Data Bank.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267712
EOR
F002 542

F010 5.1.2
F004 27
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267741
EOR
F002 542
F010 5.1.2
F004 28
F005 RE
F006 National Technical Information Service [PB87-174603], as
** cited in the Registry of Toxic Effects of Chemical
** Substances.
F007 National Technical Information Service [PB87-174603], as
** cited in the Registry of Toxic Effects of Chemical
** Substances.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267713
EOR
F002 542
F010 5.1.2
F004 28
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267742
EOR
F002 542
F010 5.1.3
F004 14
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997

F012 1
F020 267765
EOR
F002 542
F010 5.1.3
F004 14
F005 RM
F006 No deaths, but irritation at application sites.
F007 No deaths, but irritation at application sites.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267766
EOR
F002 542
F010 5.1.3
F004 14
F005 RM
F006 Ten New Zealand white rabbits received 10 gm/kg (5
** abraded/5intact) for a 24-hr exposure period and observed
** for 14 days. No deaths but irritation at application sites
** was reported.
F007 Ten New Zealand white rabbits received 10 gm/kg (5
** abraded/5intact) for a 24-hr exposure period and observed
** for 14 days. No deaths but irritation at application sites
** was reported.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267767
EOR
F002 542
F010 5.1.3
F004 14
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267789
EOR
F002 542
F010 5.11
F004 40
F005 RE
F006 In-Vitro Metabolism study of TBME in the mouse lymphoma
** mutation test; Litton Bionetics, Inc. (Project 21079);
** October 1979.

F007 In-Vitro Metabolism study of TBME in the mouse lymphoma
** mutation test; Litton Bionetics, Inc. (Project 21079);
** October 1979.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267806
EOR
F002 542
F010 5.11
F004 40
F005 RM
F006 Type: Metabolism, In-Vitro.
** A preliminary in-vitro metabolic study of TBME was perfomred
** in the mouse lymphoma mutation assay. Good evidence was
** obtained for the production of tertiary butyl alcohol from
** TBME, but conclusive evidence for
F007 Type: Metabolism, In-Vitro.
** A preliminary in-vitro metabolic study of TBME was perfomred
** in the mouse lymphoma mutation assay. Good evidence was
** obtained for the production of tertiary butyl alcohol from
** TBME, but conclusive evidence for the concomitant production
** of either methanol or formaldehyde was not obtained.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267807
EOR
F002 542
F010 5.11
F004 40
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267883
EOR
F002 542
F010 5.11
F004 41
F005 RE
F006 Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project No.: 800891, March 30, 1984.
F007 Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project No.: 800891, March 30, 1984.

F008 HEDSET
F009 04-11-1997
F012 1
F020 267808
EOR
F002 542
F010 5.11
F004 41
F005 RM
F006 Groups of CD rats (3/sex/group) received a single i.p.
** injection of C-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic
** acid in liver and feces.
F007 Groups of CD rats (3/sex/group) received a single i.p.
** injection of C-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic
** acid in liver and feces.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267809
EOR
F002 542
F010 5.11
F004 41
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267884
EOR
F002 542
F010 5.11
F004 42
F005 RE
F006 "Pharmokinetics of Methyl tert-Butyl Ether (MTBE) and
** tert-Butyl Alcohol (TBA) in Male and Female Fischer-344 Rats
** After Administration of MTBE by the Intravenous, Oral and
** Dermal Routes." BioSearch Laboratories Ltd. (Report No.
** 38842). J
F007 "Pharmokinetics of Methyl tert-Butyl Ether (MTBE) and
** tert-Butyl Alcohol (TBA) in Male and Female Fischer-344 Rats
** After Administration of MTBE by the Intravenous, Oral and
** Dermal Routes." BioSearch Laboratories Ltd. (Report No.
** 38842). June 30, 1990.
F008 HEDSET
F009 04-11-1997

F012 1
F020 267811
EOR
F002 542
F010 5.11
F004 42
F005 RM
F006 The pharmokinetics of MTBE and TBA were determined in male
** and female Fischer 344 rats after i.v., oral, and dermal
** single administrations of MTBE (40 or 400 mg/kg). MTBE
** cleared by exhalation, faster by i.v. than orally, and
** showed simila
F007 The pharmokinetics of MTBE and TBA were determined in male
** and female Fischer 344 rats after i.v., oral, and dermal
** single administrations of MTBE (40 or 400 mg/kg). MTBE
** cleared by exhalation, faster by i.v. than orally, and
** showed similar kinetics by all routes, forming TBA from
** MTBE. Dermal absorption of MTBE was limited.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267810
EOR
F002 542
F010 5.11
F004 42
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267885
EOR
F002 542
F010 5.11
F004 43
F005 RE
F006 "Mass Balance of Radioactivity and Metabilism of Methyl
** tert-Butyl Ether (MTBE) in Male and Female Fischer 344 Rats
** After Intravenous, Oral and Dermal Administration of
** "C-MTBE". Bio-Research Laboratories, Ltd. (Report No.
** 38843) June 30,
F007 "Mass Balance of Radioactivity and Metabilism of Methyl
** tert-Butyl Ether (MTBE) in Male and Female Fischer 344 Rats
** After Intravenous, Oral and Dermal Administration of
** "C-MTBE". Bio-Research Laboratories, Ltd. (Report No.
** 38843) June 30, 1990.
F008 HEDSET

F009 04-11-1997
F012 1
F020 267812
EOR
F002 542
F010 5.11
F004 43
F005 RM
F006 The mass balance and biotransformation of C-14 MTBE was
** determined in male and female Fischer 344 rats after, i.v.,
** oral, and dermal single applications (4mg/ml or 40 mg/ml).
** C-14 MTBE cleared rapidly through lungs and kidneys with
** limited
F007 The mass balance and biotransformation of C-14 MTBE was
** determined in male and female Fischer 344 rats after, i.v.,
** oral, and dermal single applications (4mg/ml or 40 mg/ml).
** C-14 MTBE cleared rapidly through lungs and kidneys with
** limited metabolism. Elimination was slowest after dermal
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267813
EOR
F002 542
F010 5.11
F004 43
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267886
EOR
F002 542
F010 5.11
F004 44
F005 RE
F006 Pharmacokinetics of Methyl tert-Butyl Ether (MTBE) and
** tert-Butyl Alcohol (TBA) in Male and Female Fischer 344 Rats
** After Single and Repeated Inhalation Nose-Only Exposures to
** MTBE. BioResearch Laboratories, Ltd. (Report No. 38844)
** June 3
F007 Pharmacokinetics of Methyl tert-Butyl Ether (MTBE) and
** tert-Butyl Alcohol (TBA) in Male and Female Fischer 344 Rats
** After Single and Repeated Inhalation Nose-Only Exposures to
** MTBE. BioResearch Laboratories, Ltd. (Report No. 38844)
** June 30, 1990.

F008 HEDSET
F009 04-11-1997
F012 1
F020 267814
EOR
F002 542
F010 5.11
F004 44
F005 RM
F006 The pharmacokinetics of MTBE and TBA were determined in male
** and female Fischer-344 rats after single 6 hour exposures
** (400 and 8000 ppm) or 15 daily 6 hour exposures (400 ppm) to
** MTBE by inhalation. Plasma concentration of MTBE and TBA
** we
F007 The pharmacokinetics of MTBE and TBA were determined in male
** and female Fischer-344 rats after single 6 hour exposures
** (400 and 8000 ppm) or 15 daily 6 hour exposures (400 ppm) to
** MTBE by inhalation. Plasma concentration of MTBE and TBA
** were rapidly achieved with slight gender differences.
** Elimination kinetics were similar with saturation of MTBE
** metabolizing enzymes suggested at 8000 ppm.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267815
EOR
F002 542
F010 5.11
F004 44
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267887
EOR
F002 542
F010 5.11
F004 45
F005 RE
F006 Disposition of Radioactivity and Metabolism of Methyl
** t-Butyl Ether (MTBE) in Male and Female Fischer-344 Rats
** after Nose-Only Inhalation Exposures to C-14 MTBE.
** Bio-Research Laboratories, Ltd. (Report No. 38845) June 30,
** 1990.
F007 Disposition of Radioactivity and Metabolism of Methyl
** t-Butyl Ether (MTBE) in Male and Female Fischer-344 Rats
** after Nose-Only Inhalation Exposures to C-14 MTBE.

** Bio-Research Laboratories, Ltd. (Report No. 38845) June 30,
** 1990.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267816
EOR
F002 542
F010 5.11
F004 45
F005 RM
F006 The disposition of MTBE was determined in male and female
** Fischer-344 rats after single 6 hour (400 and 8000 ppm) or
** 15 daily 6 hours (400 ppm) inhalation exposures to MTBE.
** Rapid eliminations in the urine after the low dose and no
** expired
F007 The disposition of MTBE was determined in male and female
** Fischer-344 rats after single 6 hour (400 and 8000 ppm) or
** 15 daily 6 hours (400 ppm) inhalation exposures to MTBE.
** Rapid eliminations in the urine after the low dose and no
** expired air at the high dose with no apparent accumulation
** were observed. Metabolites were TBA followed by
** 2-methyl-1,2-propanediol and alpha-hydroxyisobutyric acid.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267817
EOR
F002 542
F010 5.11
F004 45
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267888
EOR
F002 542
F010 5.11
F004 46
F005 RE
F006 Gill M (1989). Methyl Tertiary Butyl Ether Single Exposure Vapor
* Inhalation Neurotoxicity Study in Rats. Export, Pennsylvania: Bushy Run
* Research Center
F007 Gill M (1989). Methyl Tertiary Butyl Ether Single Exposure Vapor
* Inhalation Neurotoxicity Study in Rats. Export, Pennsylvania: Bushy Run
* Research Center

F020 269100
EOR
F002 542
F010 5.11
F004 46
F005 RE
F006 Methyl Tertiary Butyl Ether Single Exposure Vapor Inhalation
** Neurotoxicity Study in Rats. Bushy Run Research Center
** (Project No: 52-533) Draft -- no date.
F007 Methyl Tertiary Butyl Ether Single Exposure Vapor Inhalation
** Neurotoxicity Study in Rats. Bushy Run Research Center
** (Project No: 52-533) Draft -- no date.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267818
EOR
F002 542
F010 5.11
F004 46
F005 RM
F006 A single six hour inhalation exposure of Fischer-344 rats to
** MTBE resulted in changes in the functional observation
** battery at 4000 and 8000 ppm, with clear motor activity
** changes at 8000 ppm, indicative of transient CNS sedation.
** (DRAFT R
F007 A single six hour inhalation exposure of Fischer-344 rats to
** MTBE resulted in changes in the functional observation
** battery at 4000 and 8000 ppm, with clear motor activity
** changes at 8000 ppm, indicative of transient CNS sedation.
** (DRAFT REPORT).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267819
EOR
F002 542
F010 5.11
F004 48
F005 RE
F006 Metabolic Fate of methyl t-butyl ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project Nº: 800891, March 30, 1984.
F007 Metabolic Fate of methyl t-butyl ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project Nº: 800891, March 30, 1984.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267822
EOR
F002 542

F010 5.11
F004 48
F005 RM
F006 Groups of CD rats (3/sex/group) received a single i.p.
** injection of c-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic
** acid in liver and feces.
F007 Groups of CD rats (3/sex/group) received a single i.p.
** injection of c-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic
** acid in liver and feces.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267823
EOR
F002 542
F010 5.11
F004 48
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267891
EOR
F002 542
F010 5.11
F004 51
F005 RE
F006 Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project No.: 800891, March 30,1984
F007 Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an
** Acute Intraperitoneal Injection. Bio/Dynamics, Inc.,
** Bio/Dynamics Project No.: 800891, March 30,1984
F008 HEDSET
F009 04-11-1997
F012 1
F020 267828
EOR
F002 542
F010 5.11
F004 51
F005 RM
F006 Groups of CD rats (3/sex/group) received a single i.p.
** injection of C-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic

** acid in liver and feces.
F007 Groups of CD rats (3/sex/group) received a single i.p.
** injection of C-14 MTBE. During the 48-hour period, >90% of
** dose was expired MTBE, 7% was expired CO2 and 3% was formic
** acid in liver and feces.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267829
EOR
F002 542
F010 5.11
F004 51
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267894
EOR
F002 542
F010 5.2.1
F004 10
F005 RE
F006 Huels report No. 0375, 1985 (unpublished).
F007 Huels report No. 0375, 1985 (unpublished).
F020 268461
EOR
F002 542
F010 5.2.1
F004 10
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies.
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267922
EOR
F002 542
F010 5.2.1
F004 10
F005 RM
F006 Six rabbits received 24 hour applications on intact and
** abraided sites.
** ARCO MTBE (96.2%) was non irritating and commercial MTBE

** (99.1%),was moderately irritating to skin.
F007 Six rabbits received 24 hour applications on intact and
** abraided sites.
** ARCO MTBE (96.2%) was non irritating and commercial MTBE
** (99.1%),was moderately irritating to skin.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267923
EOR
F002 542
F010 5.2.2
F004 17
F005 RE
F006 Acute Eye Irritation Study in Rabbits: tert-Butyl Methyl
** Ether (95% Pure). Hazleton Laboratories (Project Number:
** 2024-132). January 24, 1979.
F007 Acute Eye Irritation Study in Rabbits: tert-Butyl Methyl
** Ether (95% Pure). Hazleton Laboratories (Project Number:
** 2024-132). January 24, 1979.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267949
EOR
F002 542
F010 5.2.2
F004 17
F005 RM
F006 Nine rabbits received 0.1 ml in one eye (6 unwashed, 3
** washed treated eyes) and were scored 24, 48, 72 hrs., and 7
** days (Draize Method).
** Irritation completely reversed in seven days.
F007 Nine rabbits received 0.1 ml in one eye (6 unwashed, 3
** washed treated eyes) and were scored 24, 48, 72 hrs., and 7
** days (Draize Method).
** Irritation completely reversed in seven days.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267950
EOR
F002 542
F010 5.2.2
F004 17
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles

F008 RADAVI
F009 01-10-2007
F020 267975
EOR
F002 542
F010 5.2.2
F004 18
F005 RE
F006 Huels report No. 0376, 1985 (unpublished).
F007 Huels report No. 0376, 1985 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267951
EOR
F002 542
F010 5.2.2
F004 18
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 267976
EOR
F002 542
F010 5.3
F004 8
F005 RE
F006 Guinea Pig Sensitization Study: TBME-99. Litton Bionetics,
** Inc., (LBI Project Number: 22011, September 1980).
F007 Guinea Pig Sensitization Study: TBME-99. Litton Bionetics,
** Inc., (LBI Project Number: 22011, September 1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 267989
EOR
F002 542
F010 5.3
F004 8
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997

F012 1
F020 267990
EOR
F002 542
F010 5.3
F004 8
F005 RM
F006 Ten male guinea pigs per group received ten intradermal
** induction doses (MTBE or DNCB control) before a two week
** rest and a challenge injection, i.e., Landsteiner Technique.
F007 Ten male guinea pigs per group received ten intradermal
** induction doses (MTBE or DNCB control) before a two week
** rest and a challenge injection, i.e., Landsteiner Technique.
F008 HEDSET
F009 04-11-1997
F012 1
F020 267991
EOR
F002 542
F010 5.3
F004 8
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268008
EOR
F002 542
F010 5.4
F004 26
F005 RE
F006 Greenough et al (Inveresk Research International, 1980)
** Methyl Tertiary Butyl Ether (Driveron) Three Month
** Inhalation Toxicity in Rats (IRI Project No. 413038)
F007 Greenough et al (Inveresk Research International, 1980)
** Methyl Tertiary Butyl Ether (Driveron) Three Month
** Inhalation Toxicity in Rats (IRI Project No. 413038)
F008 HEDSET
F009 04-11-1997
F012 1
F020 268015
EOR
F002 542
F010 5.4
F004 26
F005 RM
F006 Groups of ten rats per sex were tested. Dose-related

** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from a
** slight reduction in lung weights in females exposed to 1000
** ppm, there
F007 Groups of ten rats per sex were tested. Dose-related
** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from a
** slight reduction in lung weights in females exposed to 1000
** ppm, there was no evidence of gross or histopathological
** effects.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268016
EOR
F002 542
F010 5.4
F004 26
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268087
EOR
F002 542
F010 5.4
F004 27
F005 RE
F006 A Nine Day Inhalation Toxicity Study of Methyl tert-Butyl
** Ether in the Rat. Bio/Dynamics, Inc., Project Number:
** 80-7452. March 30, 1984.
F007 A Nine Day Inhalation Toxicity Study of Methyl tert-Butyl
** Ether in the Rat. Bio/Dynamics, Inc., Project Number:
** 80-7452. March 30, 1984.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268017
EOR
F002 542
F010 5.4
F004 27
F005 RS
F006 Effects seen included: elevated serum phosphorous,
** microscopic pathology of nasal mucousa and trachea (1000 and
** 3000 ppm), and increased liver weights (3000 ppm).
F007 Effects seen included: elevated serum phosphorous,

** microscopic pathology of nasal mucousa and trachea (1000 and
** 3000 ppm), and increased liver weights (3000 ppm).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268018
EOR
F002 542
F010 5.4
F004 27
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268088
EOR
F002 542
F010 5.4
F004 28
F005 RE
F006 Dodd DE, Kintigh WJ, (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.
F007 Dodd DE, Kintigh WJ, (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268019
EOR
F002 542
F010 5.4
F004 28
F005 RM
F006 25 animals /sex/ dose- and control group; whole body
** exposure.
F007 25 animals /sex/ dose- and control group; whole body
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268020
EOR
F002 542
F010 5.4
F004 28
F005 RM
F006 Method according to Bushy Run Research Center Protocol.

F007 Method according to Bushy Run Research Center Protocol.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268021
EOR
F002 542
F010 5.4
F004 28
F005 RS
F006 At necropsy, there were no treatment-related gross lesions.
** Statistically significant and concentration-related
** increases in the absolute and relative mean (to body weight
** or brain weight), weights of liver, kidneys, and adrenal
** gland were
F007 At necropsy, there were no treatment-related gross lesions.
** Statistically significant and concentration-related
** increases in the absolute and relative mean (to body weight
** or brain weight), weights of liver, kidneys, and adrenal
** gland were observed in the male and female rats of the 4000
** and 8000 ppm groups, as well as in the male rats of the 800
** ppm group. However, there was no treatment-related
** microscopic changes in these organs, in the tissues of the
** nervous system, and in other visceral organs, except for a
** higher incidence of lymphoid hyperplasia in the lymph nodes
** of the male rats of the 8000 ppm group. The 8000 ppm male
** rats also had increases in the degree of hemosiderosis
** within the spleen and in the size of hyaline droplets within
** the renal proximal tubules.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268022
EOR
F002 542
F010 5.4
F004 28
F005 RS
F006 No mortalities were found. Body weight gain was
** significantly reduced in the 8000 pppm group. The only
** noteworthy clinical finding was ataxia which occured in the
** rats of the 8000 ppm group immediately following the daily
** exposure for the f
F007 No mortalities were found. Body weight gain was
** significantly reduced in the 8000 pppm group. The only
** noteworthy clinical finding was ataxia which occured in the
** rats of the 8000 ppm group immediately following the daily
** exposure for the first 4 weeks of the study. A minor
** decrease in motor activity was observed in the male rats of
** the 8000 ppm group (week 8). At different time points during
** the study, neurotoxicity tests were performed: MTBE did not
** seem to be a neurotoxicant under test conditions. At the end

** of the exposure regimen, mild hematologic changes (e.g.
** decreased erythrocyte counts and increased reticulocyte
** counts) were observed in MTBE-exposed rats. Mild alterations
** in serum chemistry parameters for MTBE-exposed rats
** (primarily males) included increased calcium and protein
** values, decreased activities of aspartate and alanine
** aminotransferases, and decreased glucose concentrations.
** Corticosterone levels were increased in the serum of the
** rats of the 8000 ppm group.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268023
EOR
F002 542
F010 5.4
F004 28
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268089
EOR
F002 542
F010 5.4
F004 29
F005 RE
F006 Dodd DE, Kintigh WJ, (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.
F007 Dodd DE, Kintigh WJ, (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268024
EOR
F002 542
F010 5.4
F004 29
F005 RM
F006 5 animals/ sex/ dose- and control group; whole body
** exposure.
F007 5 animals/ sex/ dose- and control group; whole body
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1

F020 268025
EOR
F002 542
F010 5.4
F004 29
F005 RM
F006 Method according to Bushy Run Research Center Protocol.
F007 Method according to Bushy Run Research Center Protocol.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268026
EOR
F002 542
F010 5.4
F004 29
F005 RS
F006 Body weight gain was significantly reduced in the males of
** the 8000 ppm group.
** Clinical signs of toxicity were ataxia and hypoactivity.
** There were no mortalities. A few mean organ weights were
** different from the controls, e.g. the relative
F007 Body weight gain was significantly reduced in the males of
** the 8000 ppm group.
** Clinical signs of toxicity were ataxia and hypoactivity.
** There were no mortalities. A few mean organ weights were
** different from the controls, e.g. the relative liver weights
** of males and females and the relative kidneys weights of the
** 4000 ppm group; the absolute and relative kidneys weights of
** males and females of the 8000 ppm group were significantly
** increased. There were no treatment-related macroscopic
** lesions.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268027
EOR
F002 542
F010 5.4
F004 29
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268090
EOR
F002 542

F010 5.4
F004 30
F005 RE
F006 Savolainen H et al., (1985): Arch. Toxicol. 57, 285-288.
F007 Savolainen H et al., (1985): Arch. Toxicol. 57, 285-288.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268028
EOR
F002 542
F010 5.4
F004 30
F005 RS
F006 The animals showed a dose-dependant blood- ether
** concentration after 2 weeks of exposure. Blood
** concentrations of tert-butanol also increased
** dose-dependently, indicating metabolic breakdown of the
** ether in vivo. The MTBE blood concentratio
F007 The animals showed a dose-dependant blood- ether
** concentration after 2 weeks of exposure. Blood
** concentrations of tert-butanol also increased
** dose-dependently, indicating metabolic breakdown of the
** ether in vivo. The MTBE blood concentrations decreased after
** 6 weeks of exposure in the 50 ppm group, but remained
** unaffected at higher dose levels, while tert-butanol
** concentrations increased after 6 weeks with all doses and
** began to decrease thereafter. Exposure caused a transient
** increase in UDP-glucuronosytranferase activities in liver
** and kidney microsomes, almost no effects on hepatic
** cytochrome P-450 concentrations and a minor induction of
** kidney microsomal cytochrome P-450 content. Exposure
** produced almost no effect on brain succinate dehydrogenase,
** creatine kinase or acetylcholinesterase activities.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268029
EOR
F002 542
F010 5.4
F004 30
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268091

EOR
F002 542
F010 5.4
F004 31
F005 RE
F006 Sun Oil Company (1970): Industrial Bio-test Laboratories
** Inc. No. N8969, NTIS/OTS 0513076.
F007 Sun Oil Company (1970): Industrial Bio-test Laboratories
** Inc. No. N8969, NTIS/OTS 0513076.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268030
EOR
F002 542
F010 5.4
F004 31
F005 RM
F006 5 animals/ sex/ dose- and control group; whole body
** exposure.
F007 5 animals/ sex/ dose- and control group; whole body
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268031
EOR
F002 542
F010 5.4
F004 31
F005 RS
F006 No mortalities. No adverse effects were noted among any test
** animals. Data for test animals (body weight gain,
** hematological, biochemical and urinary parameters) were
** essentially the same as data for control animals.
F007 No mortalities. No adverse effects were noted among any test
** animals. Data for test animals (body weight gain,
** hematological, biochemical and urinary parameters) were
** essentially the same as data for control animals.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268032
EOR
F002 542
F010 5.4
F004 31
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268092
EOR
F002 542
F010 5.4
F004 32
F005 RE
F006 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F007 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268033
EOR
F002 542
F010 5.4
F004 32
F005 RM
F006 20 animals/ sex/ dose- and control groups; whole body
** exposure.
** 3 exposure groups: ca. 5 vol.%, 10 min/day
** ca. 8 vol.%, 5 min/ day
** ca. 8 vol.%, 10 min/day
F007 20 animals/ sex/ dose- and control groups; whole body
** exposure.
** 3 exposure groups: ca. 5 vol.%, 10 min/day
** ca. 8 vol.%, 5 min/ day
** ca. 8 vol.%, 10 min/day
F008 HEDSET
F009 04-11-1997
F012 1
F020 268034
EOR
F002 542
F010 5.4
F004 32
F005 RS
F006 Body weight gain and food consumption were comparable to the
** controls. Biochemical, hematological and urinary parameters
** were in the range of controls as were liver function and
** organ weights.
F007 Body weight gain and food consumption were comparable to the
** controls. Biochemical, hematological and urinary parameters
** were in the range of controls as were liver function and
** organ weights.
F008 HEDSET
F009 04-11-1997

F012 1
F020 268035
EOR
F002 542
F010 5.4
F004 32
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268093
EOR
F002 542
F010 5.4
F004 32
F005 TS
F006 Purity: 96%
F007 Purity: 96%
F008 HEDSET
F009 04-11-1997
F012 1
F020 268036
EOR
F002 542
F010 5.4
F004 33
F005 RE
F006 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F007 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268037
EOR
F002 542
F010 5.4
F004 33
F005 RM
F006 25 animals/ sex/ dose- and control group; whole body
** exposure.
F007 25 animals/ sex/ dose- and control group; whole body
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1

F020 268038
EOR
F002 542
F010 5.4
F004 33
F005 RS
F006 Body weight gain and food consumption, biochemical and
** hematological parameters were in the range of control
** values. There were no significant differences in liver
** function or organ weights between treated and control
** animals.
F007 Body weight gain and food consumption, biochemical and
** hematological parameters were in the range of control
** values. There were no significant differences in liver
** function or organ weights between treated and control
** animals.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268039
EOR
F002 542
F010 5.4
F004 33
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268094
EOR
F002 542
F010 5.4
F004 33
F005 TS
F006 Purity: 99%
F007 Purity: 99%
F008 HEDSET
F009 04-11-1997
F012 1
F020 268040
EOR
F002 542
F010 5.4
F004 34
F005 RE
F006 Dodd DE, Kintigh WJ (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.

F007 Dodd DE, Kintigh WJ (1989): Union Carbide Corp., Bushy Run
** Research Center Project No. 52-507, NTIS/OTS 0528043.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268041
EOR
F002 542
F010 5.4
F004 34
F005 RM
F006 5 animals/ sex/ dose- and control group; whole body
** exposure.
F007 5 animals/ sex/ dose- and control group; whole body
** exposure.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268042
EOR
F002 542
F010 5.4
F004 34
F005 RS
F006 No mortalities observed. Body weight gain of treated and
** control animals was not significantly different. Signs of
** toxicity included ataxia, hypoactivity, and periocular
** irritation. Both absolute and relative liver weights were
** increased in
F007 No mortalities observed. Body weight gain of treated and
** control animals was not significantly different. Signs of
** toxicity included ataxia, hypoactivity, and periocular
** irritation. Both absolute and relative liver weights were
** increased in females of all 3 treatment groups and in males
** of the 8000 ppm group (only relative liver weights). No
** treatment-related macroscopic lesions were observed in
** animals sacrified at the end of the exposure period.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268043
EOR
F002 542
F010 5.4
F004 34
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles

F008 RADAVI
F009 01-10-2007
F020 268095
EOR
F002 542
F010 5.4
F004 34
F005 TS
F006 Purity: 99%
F007 Purity: 99%
F008 HEDSET
F009 04-11-1997
F012 1
F020 268044
EOR
F002 542
F010 5.4
F004 35
F005 RE
F006 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F007 Snamprogetti (1972): MTBE toxicological data book III,
** NTIS/OTS 0514422.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268045
EOR
F002 542
F010 5.4
F004 35
F005 RM
F006 30 animals/ sex/ dose- and control group; whole body
** exposure.
** 3 exposure groups: - ca. 5 vol.%, 10 min/day
** - ca. 8 vol.%, 5 min/day
** - ca. 8 vol.%, 10 min/day
F007 30 animals/ sex/ dose- and control group; whole body
** exposure.
** 3 exposure groups: - ca. 5 vol.%, 10 min/day
** - ca. 8 vol.%, 5 min/day
** - ca. 8 vol.%, 10 min/day
F008 HEDSET
F009 04-11-1997
F012 1
F020 268046
EOR
F002 542
F010 5.4
F004 35
F005 RS
F006 Treated animals survived without any signs of toxicity.

** Phenobarbitol induced sleeping time, spontaneous motility
** (activity cage test), motoractivity and coordination of
** treated animals were not different from controls (evaluation
** at 8-10 h
F007 Treated animals survived without any signs of toxicity.
** Phenobarbitol induced sleeping time, spontaneous motility
** (activity cage test), motoractivity and coordination of
** treated animals were not different from controls (evaluation
** at 8-10 hours after exposure on study days 15 and 30 as well
** as prior to the study initiation).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268047
EOR
F002 542
F010 5.4
F004 35
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268096
EOR
F002 542
F010 5.4
F004 35
F005 TS
F006 Purity: 96 %
F007 Purity: 96 %
F008 HEDSET
F009 04-11-1997
F012 1
F020 268048
EOR
F002 542
F010 5.4
F004 36
F005 RE
F006 Sun Oil Company (1970): Industrial Bio-test Laboratories
** Inc. No. N8971, NTIS/OTS 0513067.
F007 Sun Oil Company (1970): Industrial Bio-test Laboratories
** Inc. No. N8971, NTIS/OTS 0513067.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268049

EOR
F002 542
F010 5.4
F004 36
F005 RM
F006 2 animals (1 male, 1 female) were exposed to increasing MTBE
** concentrations (5 days, 80 min, 6 hr/day).
F007 2 animals (1 male, 1 female) were exposed to increasing MTBE
** concentrations (5 days, 80 min, 6 hr/day).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268050
EOR
F002 542
F010 5.4
F004 36
F005 RS
F006 12400 and 17400 mg/m3 for 6 hr: no symptoms
** from 30200 mg/m3: ataxia
** from 68400 mg/m3: emesis, prostration, unconsciousness
** from 110000 mg/m3: tremor, bradypnoe
** from 341000 mg/m3: apnoe after 85 min
F007 12400 and 17400 mg/m3 for 6 hr: no symptoms
** from 30200 mg/m3: ataxia
** from 68400 mg/m3: emesis, prostration, unconsciousness
** from 110000 mg/m3: tremor, bradypnoe
** from 341000 mg/m3: apnoe after 85 min
F008 HEDSET
F009 04-11-1997
F012 1
F020 268051
EOR
F002 542
F010 5.4
F004 36
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268097
EOR
F002 542
F010 5.4
F004 38
F005 RE
F006 Robinson M et al. (1990): J. Am. Coll. Toxicol. 9, 525-540.

F007 Robinson M et al. (1990): J. Am. Coll. Toxicol. 9, 525-540.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268058
EOR
F002 542
F010 5.4
F004 38
F005 RM
F006 10 animals/ sex/ dose- and control group
F007 10 animals/ sex/ dose- and control group
F008 HEDSET
F009 04-11-1997
F012 1
F020 268059
EOR
F002 542
F010 5.4
F004 38
F005 RS
F006 At 300 mg/kg and above, relative kidney weights of females
** were significantly increased. In males, absolute and
** relative kidney weights were increased at 900 mg/kg and
** above, and relative lung weight was increased at 1200 mg/kg.
** In male rat
F007 At 300 mg/kg and above, relative kidney weights of females
** were significantly increased. In males, absolute and
** relative kidney weights were increased at 900 mg/kg and
** above, and relative lung weight was increased at 1200 mg/kg.
** In male rats, chronic nephropathy was common in both control
** and the high-dose rats; however, tubular degenerative
** changes that characterize nephropathy were graded more
** severe in treated rats. All the males of the 1200 mg/kg
** group exhibited slightly increased numbers of cytoplasmic
** hyaline droplets in proximal tubular epithelial cells. These
** changes are compatible with alpha-2u-nephropathy and were
** considered to have little toxicologic significance for
** humans.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268060
EOR
F002 542
F010 5.4
F004 38
F005 RS
F006 Dose-dependently reduced body weight gain (significantly
** only in the 1200 mg/kg group). Diarrhea in all treated
** animals. A daily dose of 1200 mg/kg induced narcosis.
** Mortality: By the end of the study, 11 animals (7 females, 4

** males) had di
F007 Dose-dependently reduced body weight gain (significantly
** only in the 1200 mg/kg group). Diarrhea in all treated
** animals. A daily dose of 1200 mg/kg induced narcosis.
** Mortality: By the end of the study, 11 animals (7 females, 4
** males) had died. Early deaths among females included 4
** animals of the 1200 mg/kg dose group and 2 rats at the 900
** mg/kg level. A female receiving 300 mg/kg also died on the
** test. Of the males, 1 early death occurred in the 1200
** mg/kg, 2 in the 900 mg/kg and 1 in the 100 mg/kg treatment
** group. No control animals died.
** There were slight differences in hematologic parameters of
** the 1200 mg/kg females, and 300 and 1200 mg/kg males when
** compared to the controls. Mean blood-urea nitrogen
** concentrations were reduced in males and females of all
** treatment groups. In males, the creatinine level was
** significantly reduced in all dosed animals.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268061
EOR
F002 542
F010 5.4
F004 38
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268099
EOR
F002 542
F010 5.4
F004 38
F005 TS
F006 No impurities > 0.05 %
F007 No impurities > 0.05 %
F008 HEDSET
F009 04-11-1997
F012 1
F020 268062
EOR
F002 542
F010 5.4
F004 39
F005 RE
F006 Snamprogetti (1972): MTBE toxicological data book I/1,

** NTIS/OTS 0514422.
F007 Snamprogetti (1972): MTBE toxicological data book I/1,
** NTIS/OTS 0514422.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268063
EOR
F002 542
F010 5.4
F004 39
F005 RM
F006 10 animals/ dose- and control group
F007 10 animals/ dose- and control group
F008 HEDSET
F009 04-11-1997
F012 1
F020 268064
EOR
F002 542
F010 5.4
F004 39
F005 RS
F006 No death observed. Body weight gain was depressed; urinary
** parameters and organ weights at the end of the study were in
** the range of control values. No treatment-related
** macroscopic findings.
F007 No death observed. Body weight gain was depressed; urinary
** parameters and organ weights at the end of the study were in
** the range of control values. No treatment-related
** macroscopic findings.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268065
EOR
F002 542
F010 5.4
F004 39
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268100
EOR
F002 542
F010 5.4

F004 40
F005 RE
F006 Greenough et al (Inveresk Research International, 1980)
** Methyl Tertiary Butyl Ether (Driveron) Three Month
** Inhalation Toxicity in Rats (IRI Project Nº 413038).
F007 Greenough et al (Inveresk Research International, 1980)
** Methyl Tertiary Butyl Ether (Driveron) Three Month
** Inhalation Toxicity in Rats (IRI Project Nº 413038).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268066
EOR
F002 542
F010 5.4
F004 40
F005 RM
F006 Groups of ten rats per sex were tested. Dose-related
** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from
** slighy reduction in lung weights in females exposed to 1000
** ppm, there was
F007 Groups of ten rats per sex were tested. Dose-related
** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from
** slighy reduction in lung weights in females exposed to 1000
** ppm, there was no evidence of gross or histopathological
** effects.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268067
EOR
F002 542
F010 5.4
F004 40
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268101
EOR
F002 542
F010 5.4
F004 41
F005 RE
F006 A nine day inhalation toxicity study of methyl tert-butyl

** ether in the rat. Bio/Dynamics, Inc., Project number:
** 80-7452. March 30, 1984.
F007 A nine day inhalation toxicity study of methyl tert-butyl
** ether in the rat. Bio/Dynamics, Inc., Project number:
** 80-7452. March 30, 1984.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268068
EOR
F002 542
F010 5.4
F004 41
F005 RM
F006 Effects seen included: elevated serum phosphorous,
** microscopic pathology of nasal mucousa and trachea (1000 and
** 3000 ppm), and increased liver weights (3000 ppm).
F007 Effects seen included: elevated serum phosphorous,
** microscopic pathology of nasal mucousa and trachea (1000 and
** 3000 ppm), and increased liver weights (3000 ppm).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268069
EOR
F002 542
F010 5.4
F004 41
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268102
EOR
F002 542
F010 5.4
F004 42
F005 RE
F006 Greenough et al (inveresk Research International, 1980)
** Methyl tertiary Butyl Ether (Driveron) Three Montyh
** Inalation Toxicity in Rats (IRI project No. 413038)
F007 Greenough et al (inveresk Research International, 1980)
** Methyl tertiary Butyl Ether (Driveron) Three Montyh
** Inalation Toxicity in Rats (IRI project No. 413038)
F008 HEDSET
F009 04-11-1997
F012 1

F020 268070
EOR
F002 542
F010 5.4
F004 42
F005 RM
F006 Groups of ten rats per sex were tested. Dose-related
** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from
** slight reduction in lung weights in females exposed to 1000
** ppm, there
F007 Groups of ten rats per sex were tested. Dose-related
** anaesthesia reported. No treatment related effects on
** hematology, clinical chemistry, and urinalysis. Apart from
** slight reduction in lung weights in females exposed to 1000
** ppm, there was no evidence of gross or histopathological
** effects.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268071
EOR
F002 542
F010 5.4
F004 42
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268103
EOR
F002 542
F010 5.5
F004 36
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268112
EOR
F002 542
F010 5.5
F004 36

F005 RM
F006 5 strains of Salmonella typhimuria and D4 Saccharomyces
** cerevisiae tested.
F007 5 strains of Salmonella typhimuria and D4 Saccharomyces
** cerevisiae tested.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268113
EOR
F002 542
F010 5.5
F004 36
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268184
EOR
F002 542
F010 5.5
F004 38
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268116
EOR
F002 542
F010 5.5
F004 38
F005 RM
F006 Results with and without metabolic activation of MTBE did
** not induce an increase in SCEs (Ambiguous at high
** concentration). MTBE was not clastogenic.
F007 Results with and without metabolic activation of MTBE did
** not induce an increase in SCEs (Ambiguous at high
** concentration). MTBE was not clastogenic.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268117
EOR

F002 542
F010 5.5
F004 38
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268186
EOR
F002 542
F010 5.5
F004 41
F005 RE
F006 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/Microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, Inc., Project Number: 20838); June 1978.
F007 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/Microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, Inc., Project Number: 20838); June 1978.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268123
EOR
F002 542
F010 5.5
F004 41
F005 RM
F006 Ames test using Salmonella and Saccharomyces indicator
** organisms.
F007 Ames test using Salmonella and Saccharomyces indicator
** organisms.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268124
EOR
F002 542
F010 5.5
F004 41
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles

F008 RADAVI
F009 01-10-2007
F020 268189
EOR
F002 542
F010 5.5
F004 42
F005 RE
F006 Huels AG report No. AM-91/13, 1991 (unpublished).
F007 Huels AG report No. AM-91/13, 1991 (unpublished).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268125
EOR
F002 542
F010 5.5
F004 42
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268190
EOR
F002 542
F010 5.5
F004 51
F005 RE
F006 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, inc., Project Number: 20838); June 1978
F007 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, inc., Project Number: 20838); June 1978
F008 HEDSET
F009 04-11-1997
F012 1
F020 268143
EOR
F002 542
F010 5.5
F004 51
F005 RM
F006 Ames test using Salmonella and Saccharomyces indicator
** organisms.
F007 Ames test using Salmonella and Saccharomyces indicator
** organisms.

F008 HEDSET
F009 04-11-1997
F012 1
F020 268144
EOR
F002 542
F010 5.5
F004 51
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268199
EOR
F002 542
F010 5.5
F004 57
F005 RE
F006 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/Microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, Inc., Project Number: 20838); June 1978.
F007 Mutagenicity Evaluation of TBME-95 in the Ames
** Salmonella/Microsome Plate Test. Litton Bionetics, Inc.,
** (Litton Bionetics, Inc., Project Number: 20838); June 1978.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268156
EOR
F002 542
F010 5.5
F004 57
F005 RM
F006 Ames test using Salmonella and Saccharomyces indicator
** organisms.
F007 Ames test using Salmonella and Saccharomyces indicator
** organisms.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268157
EOR
F002 542
F010 5.5
F004 57
F005 SO
F006 Statoil København K

** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Statoil København K
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268205
EOR
F002 542
F010 5.6
F004 24
F005 RE
F006 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F007 Methyl Tertiary Butyl Ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268219
EOR
F002 542
F010 5.6
F004 24
F005 RM
F006 Bone marrow from groups of eight male rats was evaluated at
** 6, 24, or 48 hrs. after dosing.
** MTBE did not induce any effect on chromosomal material in
** this in vivo assay.
F007 Bone marrow from groups of eight male rats was evaluated at
** 6, 24, or 48 hrs. after dosing.
** MTBE did not induce any effect on chromosomal material in
** this in vivo assay.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268220
EOR
F002 542
F010 5.6
F004 24
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268274

EOR
F002 542
F010 5.6
F004 25
F005 RE
F006 "Mutagenicity Test on Methyl Tertiary Butyl Etehr Drosphilia
** Melanogaster Sex-Linked Recessive Lethal Test"; Hazleton
** Laboratories America, Inc., (Hazleton Study Number:
** 10484-0-461); April 5, 1989.
F007 "Mutagenicity Test on Methyl Tertiary Butyl Etehr Drosphilia
** Melanogaster Sex-Linked Recessive Lethal Test"; Hazleton
** Laboratories America, Inc., (Hazleton Study Number:
** 10484-0-461); April 5, 1989.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268221
EOR
F002 542
F010 5.6
F004 25
F005 RS
F006 Toxicity and fertility tests were conducted for dose
** selection. MTBE was evaluated as non-mutagenic in
** Drosophilia Melanogaster Sex-Linked Recessive Lethal Test.
F007 Toxicity and fertility tests were conducted for dose
** selection. MTBE was evaluated as non-mutagenic in
** Drosophilia Melanogaster Sex-Linked Recessive Lethal Test.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268222
EOR
F002 542
F010 5.6
F004 25
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268275
EOR
F002 542
F010 5.6
F004 26
F005 RE
F006 Methyl Tertiary Butyl Ether Repeated Exposure Vapor

** Inhalation Study in Rats: In-Vivo Cytogentic Evaluation.
** Bushy Run Research Center (Bushy Run Research Center Project
** Number: 51-635); May 10, 1989.
F007 Methyl Tertiary Butyl Ether Repeated Exposure Vapor
** Inhalation Study in Rats: In-Vivo Cytogentic Evaluation.
** Bushy Run Research Center (Bushy Run Research Center Project
** Number: 51-635); May 10, 1989.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268224
EOR
F002 542
F010 5.6
F004 26
F005 RM
F006 8000 ppm was selected as the high exposure level based on
** fifty percent of the lower explosive limit (LEL) for MTBE.¿
F007 8000 ppm was selected as the high exposure level based on
** fifty percent of the lower explosive limit (LEL) for MTBE.¿
F008 HEDSET
F009 04-11-1997
F012 1
F020 268225
EOR
F002 542
F010 5.6
F004 26
F005 RS
F006 MTBE did not produce increased numbers of chromosomal
** aberrations in bone marrow cells and was not considered
** clastogenic in Fischer 344 rats.
F007 MTBE did not produce increased numbers of chromosomal
** aberrations in bone marrow cells and was not considered
** clastogenic in Fischer 344 rats.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268223
EOR
F002 542
F010 5.6
F004 26
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007

F020 268276
EOR
F002 542
F010 5.6
F004 27
F005 RE
F006 Methyl tertiary butyl ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F007 Methyl tertiary butyl ether: Acute Toxicological Studies
** ARCO Chemical Company (1980).
F020 268462
EOR
F002 542
F010 5.6
F004 27
F005 RE
F006 Mutagenicity Evaluation of TBME 99% in the Rat Bone Marrow
** Cytogenetic Analysis. Litton Bionetics, Inc., (Litton
** Bionetics, Inc., Project Number: 21078); August 1979.
F007 Mutagenicity Evaluation of TBME 99% in the Rat Bone Marrow
** Cytogenetic Analysis. Litton Bionetics, Inc., (Litton
** Bionetics, Inc., Project Number: 21078); August 1979.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268226
EOR
F002 542
F010 5.6
F004 27
F005 RM
F006 Methods: TBME 99% was administered orally either once
** (acute) or five consecutive days (subchronic) at 0.04, 0.13,
** or 0.4 ml/kg to male Sprague-Dawley rats.
**
** Bone marrow from groups of eight male rats was evaluated at
** 6, 24, or 48 hrs. aft
F007 Methods: TBME 99% was administered orally either once
** (acute) or five consecutive days (subchronic) at 0.04, 0.13,
** or 0.4 ml/kg to male Sprague-Dawley rats.
**
** Bone marrow from groups of eight male rats was evaluated at
** 6, 24, or 48 hrs. after dosing. MTBE did not induce any effect on
* chromosomal material in this in vivo assay.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268227
EOR
F002 542
F010 5.6
F004 27

F005 RS
F006 TBME 99% was not clastogenetic. The repeat confirmed the
** negative results in the first assay.
F007 TBME 99% was not clastogenetic. The repeat confirmed the
** negative results in the first assay.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268228
EOR
F002 542
F010 5.6
F004 32
F005 RE
F006 Methyl Tertiary Butyl Ether Repeated Exposure Vapor
** Inhalation Study in Rats: In-Vivo Cytogenetic Evaluation.
** Bushy Run Research Center (Bushy Run research Center Project
** Number: 51-635); May 10, 1989
F007 Methyl Tertiary Butyl Ether Repeated Exposure Vapor
** Inhalation Study in Rats: In-Vivo Cytogenetic Evaluation.
** Bushy Run Research Center (Bushy Run research Center Project
** Number: 51-635); May 10, 1989
F008 HEDSET
F009 04-11-1997
F012 1
F020 268237
EOR
F002 542
F010 5.6
F004 32
F005 RM
F006 8000 ppm was selected as the high exposure level based on
** fifty percent of the lower explosive limit (LEL) fpr MTBE.
F007 8000 ppm was selected as the high exposure level based on
** fifty percent of the lower explosive limit (LEL) fpr MTBE.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268238
EOR
F002 542
F010 5.6
F004 32
F005 RS
F006 MTBE did not produce increased numbers of chromosomal
** aberrations in bone marrow cells and was not considered
** clastogenic in Fischer 344 rats.
F007 MTBE did not produce increased numbers of chromosomal
** aberrations in bone marrow cells and was not considered
** clastogenic in Fischer 344 rats.
F008 HEDSET
F009 04-11-1997

F012 1
F020 268239
EOR
F002 542
F010 5.6
F004 32
F005 SO
F006 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 Anonima Petroli Italiana ROMA
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268282
EOR
F002 542
F010 5.7
F004 14
F005 RE
F006 Dodd, DE (1990): Union Carbide Corp., Bushy Run Research
** Center Project No. 87-73-35008, NTIS/OTS 0528035.
F007 Dodd, DE (1990): Union Carbide Corp., Bushy Run Research
** Center Project No. 87-73-35008, NTIS/OTS 0528035.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268299
EOR
F002 542
F010 5.7
F004 14
F005 RE
F006 Methyl Tertiary Butyl Ether: Vapor Inhalation Oncogenicity
** Study in CD-1 Mice. Bushy Run Research Center. (Project ID
** 91N0013). May 1, 1992. (Draft Report).
F007 Methyl Tertiary Butyl Ether: Vapor Inhalation Oncogenicity
** Study in CD-1 Mice. Bushy Run Research Center. (Project ID
** 91N0013). May 1, 1992. (Draft Report).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268300
EOR
F002 542
F010 5.7
F004 14
F005 RM
F006 Protocol followed was US EPA TSCA Health Effects Testing
** Guideline 798.3300 (50 mice/sex/dose).
F007 Protocol followed was US EPA TSCA Health Effects Testing

** Guideline 798.3300 (50 mice/sex/dose).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268297
EOR
F002 542
F010 5.7
F004 14
F005 RS
F006 Monitors for toxic effects included clinical observations,
** body and organ weights, water consumption, hemotologic and
** corticosterone evaluations, urine chemistry and urinalysis
** evaluations and gross microscopic necropsy evaluations.
** Minim
F007 Monitors for toxic effects included clinical observations,
** body and organ weights, water consumption, hemotologic and
** corticosterone evaluations, urine chemistry and urinalysis
** evaluations and gross microscopic necropsy evaluations.
** Minimal signs of toxicity were seen at 3000 and 8000 ppm
** (NOEL for toxicity = 400 ppm). An increased number of liver
** adenomas and carinomas were seen at 8000 ppm (NOEL for
** oncogenicity = 3000 ppm).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268298
EOR
F002 542
F010 5.7
F004 14
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268336
EOR
F002 542
F010 5.7
F004 15
F005 RE
F006 Dodd DE, (1990): Union Carbide Corp., Bushy Run Research
** Center Project No. 87-73-35008, NTIS/OTS 0528035.
F007 Dodd DE, (1990): Union Carbide Corp., Bushy Run Research
** Center Project No. 87-73-35008, NTIS/OTS 0528035.
F008 HEDSET
F009 04-11-1997

F012 1
F020 268301
EOR
F002 542
F010 5.7
F004 15
F005 RE
F006 Methyl Tertiary Butyl Ethr: Vapor Inhalation Oncogenicity
** Study in Fischer 344 Rats. Bushy Run Research Center.
** (Project ID 91N0013B). November 13, 1992.
F007 Methyl Tertiary Butyl Ethr: Vapor Inhalation Oncogenicity
** Study in Fischer 344 Rats. Bushy Run Research Center.
** (Project ID 91N0013B). November 13, 1992.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268302
EOR
F002 542
F010 5.7
F004 15
F005 RM
F006 Protocol followed was US EPA TSCA Health Effects Testing
** Guideline 798.3300 (50 rats/sex/dose).
F007 Protocol followed was US EPA TSCA Health Effects Testing
** Guideline 798.3300 (50 rats/sex/dose).
F008 HEDSET
F009 04-11-1997
F012 1
F020 268303
EOR
F002 542
F010 5.7
F004 15
F005 RS
F006 Monitors for toxic effects included clinical observations,
** body and organ weights, hematologic and corticosterone
** evaluations, and gross microscopic necropsy evaluations.
** Mortality and toxicity was seen at 3000 and 8000 ppm.
** Increased inc
F007 Monitors for toxic effects included clinical observations,
** body and organ weights, hematologic and corticosterone
** evaluations, and gross microscopic necropsy evaluations.
** Mortality and toxicity was seen at 3000 and 8000 ppm.
** Increased incidence of nephropathy in males, even at 400
** ppm, and an increased number of kidney adenomas and
** carcinomas in males at 3000 and 8000 ppm were seen. With
** the exception of this unique male rat lesion, 400 ppm could
** be considered a NOEL. For females, NOEL for toxicity = 400
** ppm, and the NOEL for oncogenicity was greater than 8000
** ppm.
F008 HEDSET

F009 04-11-1997
F012 1
F020 268304
EOR
F002 542
F010 5.7
F004 15
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268337
EOR
F002 542
F010 5.8.1
F004 9
F005 RE
F006 A Single Generation Inhalation Reproduction/Fertility Study
** in Rats with Methyl t-Butyl Ether (MTBE). Bio/Dynamics,
** Inc. (Project Number 80-7453); March 30, 1984.
F007 A Single Generation Inhalation Reproduction/Fertility Study
** in Rats with Methyl t-Butyl Ether (MTBE). Bio/Dynamics,
** Inc. (Project Number 80-7453); March 30, 1984.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268349
EOR
F002 542
F010 5.8.1
F004 9
F005 RS
F006 No parental effects on weight data, in-life physical
** observations, mating or fertility indices, or reproduction
** (gestation length, litter size and survival indices). No
** clear effects on pregnancy rates for two litters. No
** effects on organ
F007 No parental effects on weight data, in-life physical
** observations, mating or fertility indices, or reproduction
** (gestation length, litter size and survival indices). No
** clear effects on pregnancy rates for two litters. No
** effects on organ weights or histopathology. Differences in
** pup body weights and pup survival indices were not
** significant. No effects on gross external and internal
** examinations of pups.
F008 HEDSET
F009 04-11-1997

F012 1
F020 268350
EOR
F002 542
F010 5.8.1
F004 9
F005 SO
F006 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F007 ARCO CHEMIE NEDERLANDS LTD Rotterdam
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268364
EOR
F002 542
F010 5.8.1
F004 11
F005 RE
F006 Biles RW et al; Toxicol Ind Health 3 (4):519-34 (1987)
F007 Biles RW et al; Toxicol Ind Health 3 (4):519-34 (1987)
F008 HEDSET
F009 04-11-1997
F012 1
F020 268353
EOR
F002 542
F010 5.8.1
F004 11
F005 RM
F006 The mating indices and fertility indices were not
** significantly different from controls.
** The only remarkable finding was an increased incidence of
** dilated renal pelves in the low- and high- dose females.
F007 The mating indices and fertility indices were not
** significantly different from controls.
** The only remarkable finding was an increased incidence of
** dilated renal pelves in the low- and high- dose females.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268354
EOR
F002 542
F010 5.8.1
F004 11
F005 SO
F006 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles

F007 REPSOL PETROLEO, S.A. MADRID
** ECB - Existing Chemicals Ispra (VA)
** Exxon Chemical Europe Inc. Bruxelles
F008 RADAVI
F009 01-10-2007
F020 268366
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F002 542
F010 5.8.2
F004 31
F005 RE
F006 An Inhalation Teratology Study in Rats with MTBE, Draft
** Report; (Bio/Dynamics, Inc., Project No. 80-2515; Nov. 30,
** 1982) for API.
F007 An Inhalation Teratology Study in Rats with MTBE, Draft
** Report; (Bio/Dynamics, Inc., Project No. 80-2515; Nov. 30,
** 1982) for API.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268372
EOR
F002 542
F010 5.8.2
F004 31
F005 RE
F006 Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of
* methyl tertiary butyl ether in rats and mice. JournaL of Toxicology and
* Environmental Health, 16, 797-809.
F007 Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of
* methyl tertiary butyl ether in rats and mice. JournaL of Toxicology and
* Environmental Health, 16, 797-809.
F020 269096
EOR
F002 542
F010 5.8.2
F004 31
F005 RM
F006 Strain: CD (Sprague-Dawley derived).
** NOEL, Mat.: 2500 ppm
** NOEL, Terat.: 2500 ppm
** Pregnant female rats were exposed 6 hours a day to MTBE (up
** to 2500 ppm/dose). MTBE was not considered to be maternally
** toxic, embryotoxic, or teratogenic.
F007 Strain: CD (Sprague-Dawley derived).
** NOEL, Mat.: 2500 ppm
** NOEL, Terat.: 2500 ppm
** Pregnant female rats were exposed 6 hours a day to MTBE (up
** to 2500 ppm/dose). MTBE was not considered to be maternally
** toxic, embryotoxic, or teratogenic. (Draft Report Only)
F008 HEDSET
F009 04-11-1997

F012 1
F020 268373
EOR
F002 542
F010 5.8.2
F004 32
F005 RE
F006 Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and
* Andrews L (1997). Developmental toxicity evaluation of methyl
* tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl
* Toxicol 17:S21-S29.
F007 Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and
* Andrews L (1997). Developmental toxicity evaluation of methyl
* tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl
* Toxicol 17:S21-S29.
F020 269099
EOR
F002 542
F010 5.8.2
F004 32
F005 RE
F006 Developmental Toxicity Study of Inhaled Methyl Tertiary
** Butyl Ether in New Zealand White Rabbits. Bushy Run
** Research Center (Project Number: 51-628). May 12, 1989.
F007 Developmental Toxicity Study of Inhaled Methyl Tertiary
** Butyl Ether in New Zealand White Rabbits. Bushy Run
** Research Center (Project Number: 51-628). May 12, 1989.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268374
EOR
F002 542
F010 5.8.2
F004 32
F005 RM
F006 NOEL Maternal: = 1000 ppm
** NOEL Terat.: > 8000 ppm
** EPA Consent Ordered Test.
F007 NOEL Maternal: = 1000 ppm
** NOEL Terat.: > 8000 ppm
** EPA Consent Ordered Test.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268375
EOR
F002 542
F010 5.8.2
F004 33
F005 RE
F006 Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and

* Andrews L (1997). Developmental toxicity evaluation of methyl
* tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl
* Toxicol 17:S21-S29.
F007 Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and
* Andrews L (1997). Developmental toxicity evaluation of methyl
* tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl
* Toxicol 17:S21-S29.
F020 269098
EOR
F002 542
F010 5.8.2
F004 33
F005 RE
F006 Developmental Toxicity Study of Inhaled Methyl tert-Butyl
** Ether in CD-1 Mice. Bushy Run Research Center (Project
** Report Number: 52-526). July 20, 1989.
F007 Developmental Toxicity Study of Inhaled Methyl tert-Butyl
** Ether in CD-1 Mice. Bushy Run Research Center (Project
** Report Number: 52-526). July 20, 1989.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268376
EOR
F002 542
F010 5.8.2
F004 33
F005 RM
F006 NOEL Maternal: = 1000 ppm.
** NOEL Terat.: = 1000 ppm.
** EPA consent Order Test.
F007 NOEL Maternal: = 1000 ppm.
** NOEL Terat.: = 1000 ppm.
** EPA consent Order Test.
F008 HEDSET
F009 04-11-1997
F012 1
F020 268377
EOR
F002 542
F010 5.8.2
F004 35
F005 RE
F006 An Inhalation Teratology Study in Mice with Methyl
** tert-Butyl Ether (MTBE). Bio/Dynamics. (Project No.:
** 80-2516) March 30, 1984.
F007 An Inhalation Teratology Study in Mice with Methyl
** tert-Butyl Ether (MTBE). Bio/Dynamics. (Project No.:
** 80-2516) March 30, 1984.
F008 HEDSET
F009 04-11-1997
F012 1

F020 268380
EOR
F002 542
F010 5.8.2
F004 35
F005 RE
F006 Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of
* methyl tertiary butyl ether in rats and mice. JournaL of Toxicology and
* Environmental Health, 16, 797-809.
F007 Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of
* methyl tertiary butyl ether in rats and mice. JournaL of Toxicology and
* Environmental Health, 16, 797-809.
F020 269097
EOR
F002 542
F010 5.8.2
F004 35
F005 RS
F006 Not considered maternally toxic, embryotoxic, or
** teratogenic.
F007 Not considered maternally toxic, embryotoxic, or
** teratogenic.
F008 HEDSET
F009 04-11-1997
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C International Uniform ChemicaL Information Database
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C Column 6-80: Blockname  / Fieldvalue
C Date      : 01-OCT-2007 12:59:33
C Company   : ExxonMobil Biomedical Sciences Inc.  08801-3059  Annadale, New Je
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V   IUCLID-Export V4.00
C
CS  ISO-Latin 1
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NL  GBR
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F002 Y26-001
EOB
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F003 Y27-002
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F002 Y28-002
F003 Y27-030
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F003 Y27-003
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F003 09-10-2006
F101 U.S. EPA - HPV Challenge Program
F102 A35-02
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B004 COMPANY_TAB
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F003 ExxonMobil Biomedical Sciences Inc.
F004 1545 Route 22 East
F005 Annadale, New Jersey
F006 08801-3059
F008 A31-024
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B052 DS_COMPONENT_JOIN_TAB
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F007 28-07-2006
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F003 2.1
F004 1
F005 1
F006 31-07-2006
F007 31-07-2006
EOR
F001 482
F002 0
F003 2.2
F004 1
F005 1
F006 31-07-2006
F007 31-07-2006
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F001 482
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F007 31-07-2006
EOR
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F006 31-07-2006
F007 31-07-2006
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F007 31-07-2006
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F004 1
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F007 31-07-2006
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F007 31-07-2006
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F005 1
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F007 31-07-2006
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F007 31-07-2006
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F001 482

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F007 31-07-2006
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F003 4.1
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F006 01-08-2006
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F003 5.3

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F001 482
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F006 09-10-2006
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F003 5.6
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F007 31-07-2006
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F007 31-07-2006
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F001 482
F002 0
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F004 2
F005 2
F006 09-10-2006
F007 31-07-2006
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B053 DS_REC_MARK_TAB
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F004 A37-009
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F002 2.2
F003 1
F004 A37-009
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F004 A37-009
EOR
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F004 A37-009
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F004 A37-009
EOR
F001 482
F002 2.6.1

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F001 482
F002 3.1.1
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EOR
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F004 A37-009
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F002 4.3
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F004 A37-009
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B051 DS_COMPONENT_TAB
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F008 U.S. EPA - HPV Challenge Program
F009 A35-02
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B101 GI_GENERAL_INFORM_TAB
F001 482
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F004 CLGETTS
F013 1
F010 A04-04
F011 A19-02
EOB
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B201 PC_MELTING_TAB
F001 482
F002 1
F003 31-07-2006
F004 CLGETTS1
F016 1
F007 A02-03
F008 -81.2
F012 P01-03:  calculated
F014 A03-02
F020 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
**   Melting Point is calculated by the MPBPWIN, version 1.41, a subroutine of
*    the computer program EPI SuiteTM, version 3.012, (2000) which is based on
*    the average result of the meth
EOB
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B202 PC_BOILING_TAB
F001 482
F002 1
F003 31-07-2006
F004 CLGETTS1
F016 A36-003
F017 1
F007 A02-03
F008 86.3
F010 1013
F011 P02-01
F013 P03-03:  not specified
F015 A03-02
F018 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
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B203 PC_DENSITY_TAB
F001 482
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F003 31-07-2006
F004 CLGETTS1
F016 A36-003
F017 1
F007 P05-02
F008 A02-03
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F009 .7703
F011 P18-01
F012 20
F013 P04-03:  not specified
F015 A03-02
F018 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
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B204 PC_VAPOUR_TAB
F001 482
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F004 CLGETTS1
F015 A36-003
F016 1
F007 A02-03
F008 90
F010 P02-01
F011 20
F012 P06-04
F014 A03-02
F018 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
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F001 482
F002 2
F003 31-07-2006
F004 CLGETTS1
F015 A36-003
F016 2
F007 A02-03
F008 120
F010 P02-01
F011 25
F012 P06-03
F014 A03-02
F018 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
EOR
F001 482
F002 3
F003 31-07-2006
F004 CLGETTS1
F015 A36-003
F016 3
F007 A02-03
F008 210
F010 P02-01
F011 37.8
F012 P06-04
F014 A03-02
F018 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
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B205 PC_PARTITION_TAB
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F003 31-07-2006
F004 CLGETTS1
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F007 A02-03
F008 1.55
F010 20
F011 P07-03
F012 1989
F013 A03-03
F016 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
F020 C15-001
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B206 PC_WATER_SOL_TAB
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F004 CLGETTS1
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F007 A02-03
F008 P08-02
F009 5468
F011 25
F020 P09-03:  calculated
F022 A03-02
F025 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
F030 C14-001
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B301 EN_PHOTODEGRADATION_TAB
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F004 CLGETTS1
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F007 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
F008 F01-01
F009 F02-05:  Calculated values using AOPWIN version 1.89, a subroutine of the
*    computer program EPI SuiteTM version 3.12
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F035 1500000
F036 F07-02
F044 A02-03
F037 .0000000000052179
F038 A02-03
F040 50
F041 24.6
F042 F05-02
EOR
F001 482
F002 2
F003 01-08-2006
F004 CLGETTS1
F045 A36-003
F046 2
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F007 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
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B302 EN_STABILITY_IN_WATER_TAB
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F004 CLGETTS1
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F041 1
F007 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
F008 F08-01
F009 F09-03:  Technical discussion
F039 A03-02
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B305 EN_TRANSPORT_TAB
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F004 CLGETTS1
F011 A36-003
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F008 F22-01:  air - biota - sediment(s) - soil - water
F009 F21-01:  Calculation according Mackay, Level I
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F001 482
F002 2
F003 31-07-2006
F004 CLGETTS1
F011 A36-003
F012 2
F007 F20-07
F008 F22-01
F009 F21-01:  Level III simulation using the Mackay Multimedia Environmental
*    Model (Mackay, 2001)
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B308 EN_BIODEGRADATION_TAB
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F004 CLGETTS1
F047 A36-002
F048 1
F007 A01-03:  tert-amyl methyl ether; CAS #994-05-8
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F009 F26-18
F011 F27-0141
F017 4
F018 28
F019 F05-01
F020 F30-02:  not readily biodegradable
F046 A03-03
F052 28
F053 F05-01
EOB
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B310 EN_BIOACCUMULATION_TAB
F001 482
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F022 1
F007 A01-03: tert-amyl methyl ether (TAME); (CAS #994-05-8)
F008 E02-0161:  see remark
F009 F34-06:  calculation
F015 25
F016 A02-03
F017 6
F020 A03-01
EOB
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B401 EC_FISHTOX_TAB
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F004 CLGETTS1
F033 A36-002
F034 1
F007 A01-03:  tert-amyl methyl ether (TAME); CAS #994-05-8
F008 E01-02
F009 E02-0101
F010 E03-05:  U.S. Environmental Protection Agency, Methods for acute toxicity
*    testing with fish, macro-invertebrates and amphibians, TSCA § 797.1400
*    (EPA-660/3-75-009)
F011 1987
F012 96
F013 E04-02
F014 E05-02
F021 A02-03
F022 580
F031 A03-03
F032 A03-03
EOR
F001 482
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F033 A36-003
F034 2
F007 A01-03:  tert-amyl methyl ether; CAS #994-05-8
F009 E02-0161:  Fish
F010 E03-05:  ECOSAR version 0.99h, US EPA
F012 96
F013 E04-02
F014 E05-02
F021 A02-03
F022 200.6
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B402 EC_DAPHNIATOX_TAB
F001 482
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F008 E06-0010
F009 E07-04: U.S. Environmental Protection Agency, Methods for acute toxicity
*    testing with fish, macro-invertebrates and amphibians, TSCA § 797.1300
*    (EPA-660/3-75-009).
F010 1975
F011 48
F012 E04-02
F013 E05-02
F020 A02-03
F021 100
F030 A03-03
F031 A03-03
EOR
F001 482
F002 2
F003 31-07-2006
F004 CLGETTS1
F032 A36-003
F033 2
F007 A01-03:  tert-amyl methyl ether; CAS #994-05-8
F008 E06-0034:  Daphnia
F009 E07-04:  ECOSAR version 0.99h, US EPA
F011 48
F012 E04-02
F013 E05-02
F020 A02-03
F021 208.4
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B403 EC_ALGAETOX_TAB
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F003 01-08-2006
F004 CLGETTS1
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F037 1
F007 A01-03:  tert-amyl methyl ether (TAME); CAS #994-05-8
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F009 E09-03
F011 E10-01
F012 72
F013 E04-02
F014 E05-02
F015 A02-03
F016 77
F030 EbC50
F031 A02-03
F032 230
F034 A03-03
F035 A03-03
F038 ErC50
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F039 A02-03
F040 780
EOR
F001 482
F002 2
F003 31-07-2006
F004 CLGETTS1
F036 A36-003
F037 2
F007 A01-03: tert-amyl methyl ether (TAME); CAS #994-05-8
F008 E08-0063: Green Alga
F009 E09-04: ECOSAR version 0.99h, US EPA
F012 96
F013 E04-02
F014 E05-02
F027 A02-03
F028 126.9
F030 ChV
F031 A02-03
F032 9.8
EOB
C
B501 TO_ACUTE_ORAL_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F017 A36-003
F018 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T01-03
F009 T02-24
F010 T03-03: not specified
F011 1995
F012 A02-06
F013 2100
F015 T04-01
F016 A03-03
F019 T24-03
F021 T52-003: None; administered undiluted
F022 T23-42
EOB
C
B502 TO_ACUTE_INHAL_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F019 A36-002
F020 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T05-03
F009 T02-24
F010 T06-03: Not stated
F011 1991
F012 A02-04
F013 5.4

```
F015 T07-01
F016 4
F017 T08-01
F018 A03-03
F021 T24-03
F022 10
F023 T52-003:  none
F024 T23-42
F025 5.4 mg/L
EOB
C
B503 TO_ACUTE_DERMAL_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F017 A36-002
F018 1
F007 A01-03:  Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T01-03
F009 T02-23
F010 T09-02:  Limit test; protocol not stated
F011 1985
F012 A02-04
F013 3160
F015 T04-01
F019 T24-03
F020 6
F021 T52-003:  none
F022 T23-31
F023 3160 mg/kg
EOB
C
B507 TO_SENSITIZATION_TAB
F001 482
F002 1
F003 01-08-2006
F004 CLGETTS1
F015 A36-002
F016 1
F007 A01-03:  Tertiary Amyl Methyl Ether (TAME) (CAS:  994-05-8)
F008 T18-14:  Skin sensitization
F009 T02-19:  guinea pig - Dunkin Hartley
F010 T20-03:  TSCA TG 798.4100 (Buehler method)
F011 1995
F012 T47-01
F013 T21-02
F014 A03-03
F030 T52-003:  none
EOB
C
B508 TO_REPEATED_DOSE_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F030 A36-002
```

F031 3
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-24
F009 T23-16
F010 T24-03
F011 T25-11: Inhalation, whole body
F012 T26-16: TSCA TG 798.2450; US EPA TG 40 CFR Part 798 Subpart G
F013 1997
F014 6 hours/day
F015 5 days/week for 13 weeks (minimum 65 exposures)
F016 4 week recovery period
F017 0, 250, 1500 and 3500 ppm
F018 T27-07
F019 A02-03
F020 1500
F022 T28-05
F032 C07-002
EOR
F001 482
F002 2
F003 09-10-2006
F004 CLGETTS1
F030 A36-002
F031 4
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-18
F009 T23-10
F010 T24-03
F011 T25-08
F012 T26-16: TSCA TG 798.2450; US EPA TG 40 CFR Part 798 Subpart G
F013 1997
F014 6 hours/day
F015 5 days/week for 13 weeks
F016 4 week recovery period
F017 0, 250, 1500 and 3500 ppm; due to high incidence of mortality at 3500 ppm
*   early in the study, the high dose was eventually set at 2500 ppm (i.e.,
*   new high dose and control groups were established)
F018 T27-07
F019 A02-03
F020 1500
F022 T28-05
F029 A03-03
F032 C07-002
EOR
F001 482
F002 3
F003 09-10-2006
F004 CLGETTS1
F030 A36-003
F031 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-11: Inhalation, whole body
F013 1995
F014 6 hours/day

F015 5 days/week for 4 weeks
F016 18 hour fasting period
F017 0, 500, 2000 and 4000 ppm
F018 T27-07
F019 A02-03
F020 500
F022 T28-05
F032 C07-002
EOR
F001 482
F002 4
F003 09-10-2006
F004 CLGETTS1
F030 A36-002
F031 2
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-24
F009 T23-42
F010 T24-03
F011 T25-11: Oral, gavage
F012 T26-16
F013 1995
F015 7 days/week for 29 days
F017 0, 125, 500 and 1000 mg/kg/day
F018 T27-07
F019 A02-03
F020 500
F022 T28-02
F029 A03-03
F032 C07-002
EOB
C
B509 TO_GENETIC_IN_VITRO_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F016 A36-002
F017 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T30-05
F009 T31-18: EPA OTS 798.5265, Similar to OECD Guideline 471
F010 1995
F011 Salmonella typhimurium
F012 T32-03
F013 T33-02
F014 A03-03
F015 Doses ranging from 100 to 10,000 ug per plate
F018 >10,000 ug/plate
EOR
F001 482
F002 2
F003 09-10-2006
F004 CLGETTS1
F016 A36-002
F017 2
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)

F008 T30-19: Mammalian Chromosomal Aberration Test
F009 T31-18: OECD Guideline 473
F010 1997
F011 Chinese hamster ovary cells (CHO)
F012 T32-03
F013 T33-03
F014 A03-02
F015 313, 625, 1250, 2500 and 5000 ug/ml
F018 5000 ug/ml
EOB
C
B510 TO_GENETIC_IN_VIVO_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F018 A36-002
F019 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T34-12: Mammalian Erythrocyte Micronucleus Test
F009 T02-18
F010 T23-10
F011 T37-15: EPA OTS 798.5395, Similar to OECD Guideline 474
F012 1995
F013 T24-03
F014 T25-11: Intraperitoneal injection
F015 Bone marrow (femur) sampled at 24hr, 48hr, 72hr after administration
*   (24hr only for the positive control substance)
F016 0.15, 0.375, 0.75 g/kg
F017 A03-03
F020 T33-02
EOB
C
B512 TO_REPRODUCTION_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F037 A36-002
F038 1
F007 A01-03: Tertiary Amyl Methyl Ether (CAS # 994-05-8)
F008 T41-04: Two-generation Reproductive Toxicity Test
F009 T02-24
F010 T23-42
F011 T24-03
F012 T25-11: Whole body inhalation
F036 Males: premating, mating, postmating (30 days); Females: premating,
*   mating through gestational day 19, lactation (postnatal day 5 through 28)
F013 T40-05: OPPTS - 1996 draft guidelines
F014 2003
F015 6 hr/day, 5-7 days/week
F016 5 days/week for 10 weeks
F017 5 days/week for 10 weeks
F018 43 weeks
F019 250, 1500 and 3000 ppm
F020 T27-03: Yes - air-exposed
F035 A03-03

F054 2
EOB
C
B513 TO_DEVELOPMENTAL_TAB
F001 482
F002 1
F003 09-10-2006
F004 CLGETTS1
F030 A36-002
F031 1
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-24
F009 T23-42
F010 T24-01
F011 T25-08
F012 T44-03: EPA OPPTS - 1996 draft guidelines
F013 2003
F014 14 days
F015 6 hr/day
F016 Gestation Days 6-19 (14 consecutive days)
F017 0, 250, 1500, or 3500 ppm
F018 T27-03: yes (air-exposed)
F019 A02-03
F020 250
F022 T43-04
F029 A03-03
F032 T58-007: NOAEL Pupl
F033 A02-03
F034 1500
F036 T43-04
F047 Maternal NOAEL: 250 ppm; Pup NOAEL: 1500 ppm
EOR
F001 482
F002 2
F003 09-10-2006
F004 CLGETTS1
F030 A36-002
F031 2
F007 A01-03: Tertiary Amyl Methyl Ether (TAME) (CAS # 994-05-8)
F008 T02-18
F009 T23-10
F010 T24-01
F011 T25-08
F012 T44-03: EPA OPPTS - 1996 draft guidelines
F013 2003
F014 11 days
F015 6 hr/day
F016 Gestation Days 6-16 (11 consecutive days)
F017 0, 250, 1500, or 3500 ppm
F018 T27-03: yes (air-exposed)
F019 A02-03
F020 250
F022 T43-04
F029 A03-03
F032 T58-007: NOAEL Pup
F033 A02-03
F034 250

```
F036 T43-04
F047 Maternal NOAEL: 250 ppm;  Pup NOAEL: 250 ppm
EOB
C
B601 TEXT_TAB
F002 482
F010 2.1
F004 1
F005 ME
F006 Melting Point is calculated by the MPBPWIN, version 1.41, a subroutine of
*    the computer program EPI SuiteTM, version 3.012, (2000) which is based on
*    the average result of the methods of K. Joback and Gold and Ogle.
**
**   Joback's Method is descri
F007 Melting Point is calculated by the MPBPWIN, version 1.41, a subroutine of
*    the computer program EPI SuiteTM, version 3.012, (2000) which is based on
*    the average result of the methods of K. Joback and Gold and Ogle.
**
**   Joback's Method is described in Joback K (1982). A Unified Approach to
*    Physical Property Estimation Using Multivariate Statistical Techniques.
*    In The Properties of Gases and Liquids. Fourth Edition. (1987). R Reid, J
*    Prausnitz and B Poling, Eds.
**
**   The Gold and Ogle Method simply uses the formula
**   Tm = 0.5839Tb, where Tm is the melting point in Kelvin and Tb is the
*    boiling point in Kelvin.
F020 258639
EOR
F002 482
F010 2.1
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258642
EOR
F002 482
F010 2.1
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by EPI
*    SuiteTM.  This robust summary has a reliability rating of 2 because the
*    data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by EPI
*    SuiteTM.  This robust summary has a reliability rating of 2 because the
*    data are calculated and not measured.
F020 258641
EOR
F002 482
F010 2.1
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258640
```

EOR
F002 482
F010 2.2
F004 1
F005 RE
F006 Lide D, et al. (eds.) (1997-1998). CRC Handbook of Chemistry and Physics.
* 78th Edition. CRC Press, New York, NY, USA.
F007 Lide D, et al. (eds.) (1997-1998). CRC Handbook of Chemistry and Physics.
* 78th Edition. CRC Press, New York, NY, USA.
F020 258645
EOR
F002 482
F010 2.2
F004 1
F005 RL
F006 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 258644
EOR
F002 482
F010 2.2
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F020 258643
EOR
F002 482
F010 2.3
F004 1
F005 RE
F006 Lide D, et al. (eds.) (1997-1998). CRC Handbook of Chemistry and Physics.
* 78th Edition. CRC Press, New York, NY, USA.
F007 Lide D, et al. (eds.) (1997-1998). CRC Handbook of Chemistry and Physics.
* 78th Edition. CRC Press, New York, NY, USA.
F020 258648
EOR
F002 482
F010 2.3
F004 1
F005 RL
F006 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 The CRC Handbook of Chemistry and Physics is a peer reviewed publication.
* This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 258647
EOR
F002 482
F010 2.3
F004 1
F005 TS

F006 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F020 258646
EOR
F002 482
F010 2.4
F004 1
F005 ME
F006 Neste Company method 205 using Grabner apparatus.
F007 Neste Company method 205 using Grabner apparatus.
F020 258649
EOR
F002 482
F010 2.4
F004 1
F005 RE
F006 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F007 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F020 258653
EOR
F002 482
F010 2.4
F004 1
F005 RE
F006 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
* environmental hazards of gasoline oxygenate tert-amyl methyl ether
* (TAME). Chemosphere 35, 1199-1214.
F007 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
* environmental hazards of gasoline oxygenate tert-amyl methyl ether
* (TAME). Chemosphere 35, 1199-1214.
F020 258654
EOR
F002 482
F010 2.4
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. These data were used for the vapor pressure
* endpoint in the European Union Risk Assessment for tert-amyl methyl ether
* (Finnish Environment Ins
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. These data were used for the vapor pressure
* endpoint in the European Union Risk Assessment for tert-amyl methyl ether
* (Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane (TAME)
* Environmental Risk Assessment. Final Draft.).
F020 258652
EOR
F002 482
F010 2.4
F004 1
F005 RM
F006 Mean of duplicate determinations, SD = 6
F007 Mean of duplicate determinations, SD = 6

F020 258651
EOR
F002 482
F010 2.4
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F020 258650
EOR
F002 482
F010 2.4
F004 2
F005 ME
F006 Estimated value, interpolated from measured data (various sources)
F007 Estimated value, interpolated from measured data (various sources)
F020 258655
EOR
F002 482
F010 2.4
F004 2
F005 RE
F006 Huttunen H (1996). Risk assessment of complex petroleum substances:
*   hazard identification of NExTAME and re-formulated gasoline. Licentiate's
*   Thesis, University of Kuopio, April 1996.
F007 Huttunen H (1996). Risk assessment of complex petroleum substances:
*   hazard identification of NExTAME and re-formulated gasoline. Licentiate's
*   Thesis, University of Kuopio, April 1996.
F020 258658
EOR
F002 482
F010 2.4
F004 2
F005 RE
F006 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
*   environmental hazards of gasoline oxygenate tert-amyl methyl ether
*   (TAME). Chemosphere 35, 1199-1214.
F007 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
*   environmental hazards of gasoline oxygenate tert-amyl methyl ether
*   (TAME). Chemosphere 35, 1199-1214.
F020 258659
EOR
F002 482
F010 2.4
F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
*   not reviewed for quality. These data were used for the vapor pressure
*   endpoint in the European Union Risk Assessment for tert-amyl methyl ether
*   (Finnish Environment Ins
F007 This robust summary has a reliability rating of 2 because the data were
*   not reviewed for quality. These data were used for the vapor pressure
*   endpoint in the European Union Risk Assessment for tert-amyl methyl ether
*   (Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane (TAME)
*   Environmental Risk Assessment. Final Draft.).
F020 258657
EOR

F002 482
F010 2.4
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258656
EOR
F002 482
F010 2.4
F004 3
F005 ME
F006 Neste Method 103 using SETVAC apparatus.
F007 Neste Method 103 using SETVAC apparatus.
F020 258660
EOR
F002 482
F010 2.4
F004 3
F005 RE
F006 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F007 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F020 258664
EOR
F002 482
F010 2.4
F004 3
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. These data were used for the vapor pressure
* endpoint in the European Union Risk Assessment for tert-amyl methyl
* ether(Finnish Environment Inst
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. These data were used for the vapor pressure
* endpoint in the European Union Risk Assessment for tert-amyl methyl
* ether(Finnish Environment Institute (2004). 2-Methoxy-Methyl Butane
* (TAME) Environmental Risk Assessment. Final Draft.).
F020 258663
EOR
F002 482
F010 2.4
F004 3
F005 RM
F006 Mean of duplicate determinations, SD = 10
F007 Mean of duplicate determinations, SD = 10
F020 258662
EOR
F002 482
F010 2.4
F004 3
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.

F020 258661
EOR
F002 482
F010 2.5
F004 1
F005 ME
F006 Mean of six determinations. SD = 0.021 water : octanol ratios of 1:2, 1:1
* and 2:1 were used, and the concentration of TAME determined by gas
* chromatography after through mixing of the two phases. Volatilisation was
* controlled by sealed vial
F007 Mean of six determinations. SD = 0.021 water : octanol ratios of 1:2, 1:1
* and 2:1 were used, and the concentration of TAME determined by gas
* chromatography after through mixing of the two phases. Volatilisation was
* controlled by sealed vials and gas tight syringes.
F020 258665
EOR
F002 482
F010 2.5
F004 1
F005 RE
F006 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F007 Huttunen H (1996). Risk assessment of complex petroleum substances:
* hazard identification of NExTAME and re-formulated gasoline. Licentiate's
* Thesis, University of Kuopio, April 1996.
F020 258668
EOR
F002 482
F010 2.5
F004 1
F005 RE
F006 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
* environmental hazards of gasoline oxygenate tert-amyl methyl ether
* (TAME). Chemosphere 35, 1199-1214.
F007 Huttunen H, Wyness L and Kalliokoski P (1997). Identification of the
* environmental hazards of gasoline oxygenate tert-amyl methyl ether
* (TAME). Chemosphere 35, 1199-1214.
F020 258669
EOR
F002 482
F010 2.5
F004 1
F005 RE
F006 Russell S (1995). TAME: Determination of physico chemical properties.
* Hazleton Report 1359/1-1014. September 1995 (Neste Oil Refining Report RR
* 58/95).
F007 Russell S (1995). TAME: Determination of physico chemical properties.
* Hazleton Report 1359/1-1014. September 1995 (Neste Oil Refining Report RR
* 58/95).
F020 258670
EOR
F002 482
F010 2.5
F004 1
F005 RL
F006 The value cited by the authors is a measured and preferred value. This

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*    robust summary has a reliability rating of 2 because there is
*    insufficient information available on the method and analytical procedure.
F007 The value cited by the authors is a measured and preferred value. This
*    robust summary has a reliability rating of 2 because there is
*    insufficient information available on the method and analytical procedure.
F020 258667
EOR
F002 482
F010 2.5
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity is unknown.
F020 258666
EOR
F002 482
F010 2.6.1
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258674
EOR
F002 482
F010 2.6.1
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by EPI
*    SuiteTM (2000).  This robust summary has a reliability rating of 2
*    because the data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by EPI
*    SuiteTM (2000).  This robust summary has a reliability rating of 2
*    because the data are calculated and not measured.
F020 258673
EOR
F002 482
F010 2.6.1
F004 1
F005 TC
F006 Water Solubility is calculated by the WSKOW, version 1.41, a subroutine
*    of the computer program EPI SuiteTM, version 3.12, which is based on a
*    Kow correlation method described by W. Meylan, P. Howard and R. Boethling
*    in "Improved method for
F007 Water Solubility is calculated by the WSKOW, version 1.41, a subroutine
*    of the computer program EPI SuiteTM, version 3.12, which is based on a
*    Kow correlation method described by W. Meylan, P. Howard and R. Boethling
*    in "Improved method for estimating water solubility from octanol/water
*    partition coefficient". Environ. Toxicol. Chem. 15:100-106. 1995.
**   A log Kow of 1.55 was used with the model.
F020 258671
EOR
F002 482
F010 2.6.1
F004 1
F005 TS
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F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258672
EOR
F002 482
F010 3.1.1
F004 1
F005 ME
F006 Calculated values using AOPWIN version 1.89, a subroutine of the computer
*   program EPI SuiteTM version 3.12
**
**   Indirect photodegradation, or atmospheric oxidation potential, is based
*   on the structure-activity relationship methods developed by
F007 Calculated values using AOPWIN version 1.89, a subroutine of the computer
*   program EPI SuiteTM version 3.12
**
**   Indirect photodegradation, or atmospheric oxidation potential, is based
*   on the structure-activity relationship methods developed by R. Atkinson
*   under the following conditions:
**   Temperature: 25°C
**   Sensitizer: OH- radical
**   Concentration of Sensitizer: 1.5E6 OH- radicals/cm3
F020 258675
EOR
F002 482
F010 3.1.1
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*   Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*   Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258679
EOR
F002 482
F010 3.1.1
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by
*   EPIWIN. This robust summary has a reliability rating of 2 because the
*   data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by
*   EPIWIN. This robust summary has a reliability rating of 2 because the
*   data are calculated and not measured.
F020 258677
EOR
F002 482
F010 3.1.1
F004 1
F005 RM
F006 Tertiary-amyl methyl ether has the potential to volatilize to air, based
*   on a relatively high vapor pressure, where it is subject to atmospheric
*   oxidation. In air, tert-amyl methyl ether can react with photosensitized
*   oxygen in the form of
F007 Tertiary-amyl methyl ether has the potential to volatilize to air, based
*   on a relatively high vapor pressure, where it is subject to atmospheric
*   oxidation. In air, tert-amyl methyl ether can react with photosensitized

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*    oxygen in the form of hydroxyl radicals (OH-). The computer program
*    AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI
*    SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the
*    12-hour day half-life value normalizes degradation to a standard day
*    light period during which hydroxyl radicals needed for degradation are
*    generated), based on an OH- reaction rate constant and a defined OH-
*    concentration.
**   Based on a 12-hour day, a rate constant of 5.22 E-12 cm3/molecule*sec,
*    and an OH- concentration of 1.5 E6 OH-/cm3, tertiary-amyl methyl ether
*    has a calculated half-life in air of 2.05 days or 24.6 hours of daylight.
F020 258676
EOR
F002 482
F010 3.1.1
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258678
EOR
F002 482
F010 3.1.1
F004 2
F005 ME
F006 Technical discussion
F007 Technical discussion
F020 258680
EOR
F002 482
F010 3.1.1
F004 2
F005 RE
F006 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
*    Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and
*    DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
*    Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and
*    DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 258684
EOR
F002 482
F010 3.1.1
F004 2
F005 RE
F006 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
*    environment. Environ Sci Technol 11, 359-366.
F007 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
*    environment. Environ Sci Technol 11, 359-366.
F020 258685
EOR
F002 482
F010 3.1.1
F004 2
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
*    discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
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*    discussion and not a study.
F020 258682
EOR
F002 482
F010 3.1.1
F004 2
F005 RM
F006 Direct photochemical degradation occurs through the absorbance of solar
*    radiation by a chemical substance in aqueous solution. If the absorbed
*    energy is high enough, then the resultant excited state of the chemical
*    may undergo a transformat
F007 Direct photochemical degradation occurs through the absorbance of solar
*    radiation by a chemical substance in aqueous solution. If the absorbed
*    energy is high enough, then the resultant excited state of the chemical
*    may undergo a transformation. A prerequisite for direct photodegradation
*    is the ability of one or more bonds within a chemical to absorb
*    ultraviolet (UV)/visible light in the 290 to 750 nm range. Light
*    wavelengths longer than 750 nm do not contain sufficient energy to break
*    chemical bonds, and wavelengths below 290 nm are shielded from the earth
*    by the stratospheric ozone layer (Harris, 1982).
**   An approach to assessing the potential for a substance to undergo
*    photochemical degradation is to assume that degradation will occur in
*    proportion to the amount of light wavelengths >290 nm absorbed by
*    constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding
*    electrons in ethers do not give rise to absorption above 160 nm, which is
*    why pure ether solvents can be used in spectroscopic studies.
*    Consequently, tert-amyl methyl ether is not subject to photolytic
*    processes in the aqueous environment.
F020 258681
EOR
F002 482
F010 3.1.1
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258683
EOR
F002 482
F010 3.1.2
F004 1
F005 RE
F006 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
*    Reinhart and Winston, New York, NY, USA.
F007 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
*    Reinhart and Winston, New York, NY, USA.
F020 258689
EOR
F002 482
F010 3.1.2
F004 1
F005 RE
F006 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
*    Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
*    Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
*    Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
```

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*    Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 258690
EOR
F002 482
F010 3.1.2
F004 1
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
*    discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
*    discussion and not a study.
F020 258687
EOR
F002 482
F010 3.1.2
F004 1
F005 RS
F006 Hydrolysis of an organic chemical is the transformation process in which
*    a water molecule or hydroxide ion reacts to form a new carbon-oxygen
*    bond. Chemicals with leaving groups that have a potential to hydrolyze
*    include alkyl halides, amid
F007 Hydrolysis of an organic chemical is the transformation process in which
*    a water molecule or hydroxide ion reacts to form a new carbon-oxygen
*    bond. Chemicals with leaving groups that have a potential to hydrolyze
*    include alkyl halides, amides, carbamates, carboxylic acid esters and
*    lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould,
*    1959). The lack of a suitable leaving group renders a compound resistant
*    to hydrolysis. Tertiary amyl methyl ether is resistant to hydrolysis
*    because it lacks a functional group that is hydrolytically reactive and
*    Harris (1982) identifies ether groups as generally resistant to
*    hydrolysis. Therefore, hydrolysis will not contribute to the removal of
*    tert-amyl methyl ether from the environment.
F020 258686
EOR
F002 482
F010 3.1.2
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258688
EOR
F002 482
F010 3.3.1
F004 1
F005 RE
F006 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
*    Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
*    Trent University, Ontario, Canada.
F007 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
*    Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
*    Trent University, Ontario, Canada.
F020 258695
EOR
F002 482
F010 3.3.1
F004 1
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F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
*   calculated.
F007 This robust summary has a reliability rating of 2 because the data are
*   calculated.
F020 258694
EOR
F002 482
F010 3.3.1
F004 1
F005 RM
F006 Physicochemical data used in the calculation:
**
**   Parameter   Value w/ Units
**
**   Molecular Weight = 102.18
**   Temperature =   25° C
**   Log Kow =   1.55
**   Water Solubility = 5468 g/m3
**   Vapor Pressure =   12,000 Pa
**   Melting Point =   -81.22° C
F007 Physicochemical data used in the calculation:
**
**   Parameter   Value w/ Units
**
**   Molecular Weight = 102.18
**   Temperature =   25° C
**   Log Kow =   1.55
**   Water Solubility = 5468 g/m3
**   Vapor Pressure =   12,000 Pa
**   Melting Point =   -81.22° C
F020 258692
EOR
F002 482
F010 3.3.1
F004 1
F005 RS
F006 Using the Mackay Level I calculation, the following
**   distribution is predicted for tert-amyl methyl ether:
**
**   %Distribution Compartment
**   97.77   Air
**   2.16   Water
**   0.07   Soil
**   <0.01   Sediment
**   <0.01   Suspended Sediment
**   <0.01   Biota
F007 Using the Mackay Level I calculation, the following
**   distribution is predicted for tert-amyl methyl ether:
**
**   %Distribution Compartment
**   97.77   Air
**   2.16   Water
**   0.07   Soil
**   <0.01   Sediment
**   <0.01   Suspended Sediment
**   <0.01   Biota

F020 258693
EOR
F002 482
F010 3.3.1
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258691
EOR
F002 482
F010 3.3.1
F004 2
F005 CL
F006 The majority of tert-amyl methyl ether (TAME) is calculated to partition
*   into the water phase, with smaller but significant amounts into air and
*   soil, based on the modeling parameters used in this calculation. TAME is
*   considered to be a Typ
F007 The majority of tert-amyl methyl ether (TAME) is calculated to partition
*   into the water phase, with smaller but significant amounts into air and
*   soil, based on the modeling parameters used in this calculation. TAME is
*   considered to be a Type 1 chemical with potential to partition into all
*   environmental compartments.
F020 258700
EOR
F002 482
F010 3.3.1
F004 2
F005 ME
F006 Level III simulation using the Mackay Multimedia Environmental Model
*   (Mackay, 2001). Mass balances are calculated for the four bulk media of
*   air (gas + aerosol), water (solution + suspended sediment + biota), soil,
*   (solids + air + water), a
F007 Level III simulation using the Mackay Multimedia Environmental Model
*   (Mackay, 2001). Mass balances are calculated for the four bulk media of
*   air (gas + aerosol), water (solution + suspended sediment + biota), soil,
*   (solids + air + water), and sediment (solids + pore water). Equilibrium
*   exists within, but not between media. Physical-chemical properties are
*   used to quantify a chemical's behavior in an evaluative environment.
*   Three types of chemicals are treated in this model: chemicals that
*   partition into all media (Type 1), non volatile chemicals (Type 2), and
*   chemicals with zero, or near-zero, solubility (Type 3). The model cannot
*   treat ionizing or speciating substances. The Level III model assumes a
*   simple, evaluative environment with user-defined volumes and densities
*   for the following homogeneous environmental media (or compartments): air,
*   water, soil, sediment, suspended sediment, fish and aerosols.
**
**   This model provides a description of a chemical's fate including the
*   important degradation and advection losses and the intermedia transport
*   processes. The distribution of the chemical between media depends on how
*   the chemical enters the system, e.g. to air, to water, or to both. This
*   mode of entry also affects persistence or residence time.
**
**   The rates of intermedia transport are controlled by a series of 12
*   transport velocities. Reaction half-lives are requested for all 7 media.
*   The advective residence time selected for air also applies to aerosols
*   and the residence time for water applies to suspended sediment and fish.

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*    The advective residence time of aerosols, suspended sediment and fish
*    cannot be specified independently of the air and water residence times.
F020 258696
EOR
F002 482
F010 3.3.1
F004 2
F005 RE
F006 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
*    Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
*    Trent University, Ontario, Canada.
F007 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
*    Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
*    Trent University, Ontario, Canada.
F020 258702
EOR
F002 482
F010 3.3.1
F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
*    calculated.
F007 This robust summary has a reliability rating of 2 because the data are
*    calculated.
F020 258701
EOR
F002 482
F010 3.3.1
F004 2
F005 RS
F006 Output:
**          Mass% Emissions(kg/hr)
**   Air          26.2  1000
**   Water        55.1  1000
**   Soil         18.6  1000
**   Sediment     0.1   0
F007 Output:
**          Mass% Emissions(kg/hr)
**   Air          26.2  1000
**   Water        55.1  1000
**   Soil         18.6  1000
**   Sediment     0.1   0
F020 258697
EOR
F002 482
F010 3.3.1
F004 2
F005 TC
F006 Physicochemical data used in the calculation:
**
**   Parameter         Value w/ Units
**
**   Molecular Weight = 102.18
**   Temperature =            25° C
**   Log Kow =          1.55
**   Water Solubility = 5468 g/m3
**   Vapor Pressure =   12,000 Pa
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**   Melting Point =          -81.22° C
**
**   Reaction Hal
F007 Physicochemical data used in the calculation:
**
**   Parameter         Value w/ Units
**
**   Molecular Weight = 102.18
**   Temperature =            25° C
**   Log Kow =          1.55
**   Water Solubility = 5468 g/m3
**   Vapor Pressure =   12,000 Pa
**   Melting Point =          -81.22° C
**
**   Reaction Half Lives in hours as predicted using EPI SuiteTM:
**
**   Air (gaseous)            46.7
**   Water (no susp. part.)   360
**   Bulk Soil          720
**   Bulk Sediment            3240
**
**   Environmental Properties (EQC standard environment)
**   Dimensions (all defaults)
**   Densities (all defaults)
**   Organic carbon & Advection (all defaults)
**   Transport Velocities (all defaults)
**
**   Emission and Inflows (defaults used)
**   Air 1000 kg/hr
**   Water 1000 kg/hr
**   Soil 1000 kg/hr
**   Sediment 0 kg/hr
F020 258698
EOR
F002 482
F010 3.3.1
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258699
EOR
F002 482
F010 3.5
F004 1
F005 CL
F006 tert-Amyl methyl ether is not readily biodegradable.
F007 tert-Amyl methyl ether is not readily biodegradable.
F020 258705
EOR
F002 482
F010 3.5
F004 1
F005 RE
F006 Bealing D (1995). Tertiary amyl methyl ether (TAME): assessment of ready
*    biodegradability by measurement of oxygen uptake. Hazleton Europe. Report
*    No. 1359/3-1018. 28 February 1995.
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F007 Bealing D (1995). Tertiary amyl methyl ether (TAME): assessment of ready
*    biodegradability by measurement of oxygen uptake. Hazleton Europe. Report
*    No. 1359/3-1018. 28 February 1995.
F020 258707
EOR
F002 482
F010 3.5
F004 1
F005 RS
F006 4.0% degradation was observed after 28 days incubation with an
*    unacclimated inoculum. >60% Degradation of the control substance (sodium
*    benzoate) occurred within 10 days, indicating that the test was valid.
**   % Biodegradation of test substanc
F007 4.0% degradation was observed after 28 days incubation with an
*    unacclimated inoculum. >60% Degradation of the control substance (sodium
*    benzoate) occurred within 10 days, indicating that the test was valid.
**   % Biodegradation of test substance after days:
**   2 days = 0 %
**   7 days = 5 %
**   14 days      = 4 %
**   21 days      = 4 %
**   28 days      = 4 %
**
**   % Biodegradation of positive control, Benzoic acid, sodium salt:
**   2 days = 52 %
**   7 days = 77 %
F020 258703
EOR
F002 482
F010 3.5
F004 1
F005 TC
F006 OECD Guideline 301 D "Ready Biodegradability: Closed Bottle Test",  using
*    1.99 ± 0.03 mg/l of test substance.
F007 OECD Guideline 301 D "Ready Biodegradability: Closed Bottle Test",  using
*    1.99 ± 0.03 mg/l of test substance.
F020 258704
EOR
F002 482
F010 3.5
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; purity unknown.
F007 CAS #994-05-8; tert-amyl methyl ether; purity unknown.
F020 258706
EOR
F002 482
F010 3.7
F004 1
F005 RE
F006 ECOSAR v0.99h (2004) in EPI SuiteTM, U.S. EPA (2000). Estimation Program
*    Interface Suite, v3.12. Syracuse Research Corporation, Syracuse, NY, USA.
F007 ECOSAR v0.99h (2004) in EPI SuiteTM, U.S. EPA (2000). Estimation Program
*    Interface Suite, v3.12. Syracuse Research Corporation, Syracuse, NY, USA.
F020 258711
EOR
F002 482
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F010 3.7
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 258709
EOR
F002 482
F010 3.7
F004 1
F005 RM
F006 A log bioconcentration factor (BCF) of 0.78 is calculated (BCF = 6.0).
* With respect to a log Kow = 1.92, which was used to calculate the BCF,
* tert-amyl methyl ether in the aquatic environment is expected to have a
* low bioaccumulation potent
F007 A log bioconcentration factor (BCF) of 0.78 is calculated (BCF = 6.0).
* With respect to a log Kow = 1.92, which was used to calculate the BCF,
* tert-amyl methyl ether in the aquatic environment is expected to have a
* low bioaccumulation potential.
F020 258708
EOR
F002 482
F010 3.7
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258710
EOR
F002 482
F010 4.1
F004 1
F005 ME
F006 The test guideline followed was TSCA § 797.1400. Twenty organisms (ten
* per replicate) were exposed in duplicate test aquaria to each of five
* concentrations of TAME and a dilution water control for 96-hours. During
* the test, nominal concentr
F007 The test guideline followed was TSCA § 797.1400. Twenty organisms (ten
* per replicate) were exposed in duplicate test aquaria to each of five
* concentrations of TAME and a dilution water control for 96-hours. During
* the test, nominal concentrations of 950, 570, 340, 210, and 120 mg A.I./L
* were maintained by introducing approximately 6.5 aquarium volumes per day
* of newly prepared test dilution via a modified constant-flow serial
* diluter apparatus. Each replicate solution was sampled and analyzed for
* TAME concentration at 0 hours and after 96 hours of exposure. Based on
* the results of these analyses, the mean measured exposure concentrations
* were defined as 640, 560, 310, 150, and 78 mg A.I./L. Biological
* observations and observations of the physical characteristics of the
* exposure solutions were made and recorded at test initiation and every 24
* hours thereafter until the test was terminated. Throughout the exposure
* period, treatment level solution were observed to be clear and colorless
* and contained no visible sign of undissolved test material. Test vessels
* were not covered during the exposure period.
F020 258712
EOR

F002 482
F010 4.1
F004 1
F005 RE
F006 American Petroleum Institute (1995). Tert-Amyl Methyl Ether (TAME) -
*   Acute Toxicity to Rainbow Trout (Oncorhynchus mykiss) Under Flow-through
*   Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc.
*   SLI Report 93-3-4682.
F007 American Petroleum Institute (1995). Tert-Amyl Methyl Ether (TAME) -
*   Acute Toxicity to Rainbow Trout (Oncorhynchus mykiss) Under Flow-through
*   Conditions. Toxicology Report Number 408. Springborn Laboratories, Inc.
*   SLI Report 93-3-4682.
F020 258717
EOR
F002 482
F010 4.1
F004 1
F005 RL
F006 Guideline study that followed GLP.
F007 Guideline study that followed GLP.
F020 258716
EOR
F002 482
F010 4.1
F004 1
F005 RM
F006 Statistics: The LC50 was estimated by nonlinear interpolation and 95%
*   confidence intervals were calculated by bionomial probability.
F007 Statistics: The LC50 was estimated by nonlinear interpolation and 95%
*   confidence intervals were calculated by bionomial probability.
F020 258713
EOR
F002 482
F010 4.1
F004 1
F005 RS
F006 96-hour LC50 = 580 mg/L based on mean measured values.
**   72-hour LC50 = 580 mg/L based on mean measured values.
**   48-hour LC50 = 600 mg/L based on mean measured values.
**   24-hour LC50 = 600 mg/L based on mean measured values.
**   96-hour NOEC = 310 m
F007 96-hour LC50 = 580 mg/L based on mean measured values.
**   72-hour LC50 = 580 mg/L based on mean measured values.
**   48-hour LC50 = 600 mg/L based on mean measured values.
**   24-hour LC50 = 600 mg/L based on mean measured values.
**   96-hour NOEC = 310 mg/L based on mean measured values.
**
**   After 72-hours of exposure, 100% mortality was observed among fish
*   exposed to the highest mean measured concentration tested (640 mg/L). At
*   test termination (96 hours), 30% mortality was observed among fish
*   exposed to the 560 mg/L treatment level. In addition, sublethal effects,
*   as defined by darkened pigmentation and equilibrium loss, were observed
*   among all of the surviving fish exposed to this treatment level. No
*   mortality or sublethal effects were observed among fish exposed to the
*   remaining concentrations tested. The NOEC established during this study
*   was 310 mg/L, based on darkened pigmentation and equilibrium loss. There
*   was no control mortality through the test period.

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**
**   Analytical results:
**   Nominal treatment levels of 950, 570, 340, 210, and 120 mg A.I./L
*    measured 640, 560, 310, 150, and 78 mg  A.I./L, respectively. Both 0- and
*    96-hour control samples measured <5.3 mg  A.I./L. Mean measured
*    concentrations averaged 79% of the nominal concentrations. Coefficients
*    of variation averaged 12% for all mean measured concentrations.
**
**   Water quality parameter results:
**   Temperature ranged between 11 to 12°C through the 96-hour exposure. The
*    pH was 7.1 in all treatment levels and the control at time 0, and pH was
*    7.2 in all treatment levels and the control at the 24, 48, 72, and
*    96-hour samplings. Dissolved oxygen ranged from 9.6 to 9.8 mg/L in all
*    treatment levels and the control at time 0, 9.4 to 9.6 mg/L in all
*    treatment levels and the control at time 24, 9.0 to 9.4 mg/L in all
*    treatment levels and the control at time 48, 9.4 to 9.8 mg/L in all
*    treatment levels and the control at time 72, and 8.9 to 9.1 mg/L in all
*    treatment levels and the control at time 96.
F020 258714
EOR
F002 482
F010 4.1
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
F007 CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
F020 258715
EOR
F002 482
F010 4.1
F004 2
F005 ME
F006 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
*    (SARs) presented in this program are used to predict the aquatic toxicity
*    of chemicals based on their similarity of structure to chemicals for
*    which the aquatic toxicity h
F007 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
*    (SARs) presented in this program are used to predict the aquatic toxicity
*    of chemicals based on their similarity of structure to chemicals for
*    which the aquatic toxicity has been previously measured.  Most SAR
*    calculations in the ECOSAR Class Program are based upon the octanol/water
*    partition coefficient (Kow). SARs have been used by the U.S.
*    Environmental Protection Agency since 1981 to predict the aquatic
*    toxicity of new industrial chemicals in the absence of test data.  SARs
*    are developed for chemical classes based on measured test data that have
*    been submitted by industry or they are developed by other sources for
*    chemicals with similar structures, e.g., phenols.  Using the measured
*    aquatic toxicity values and estimated Kow values, regression equations
*    can be developed for a class of chemicals.  Toxicity values for new
*    chemicals may then be calculated by inserting the estimated Kow into the
*    regression equation and correcting the resultant value for the molecular
*    weight of the compound.
**
**   To date, over 150 SARs have been developed for more than 50 chemical
*    classes.  These chemical classes range from the very large, e.g., neutral
*    organics, to the very small, e.g., aromatic diazoniums.  Some chemical
*    classes have only one SAR, such as acid chlorides, for which only a fish
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*    96-hour LC50 has been developed.  The class with the greatest number of
*    SARs is the neutral organics, which has SARs ranging from acute and
*    chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
*     The ECOSAR Class Program is a computerized version of the ECOSAR
*    analysis procedures as currently practiced by the Office of Pollution
*    Prevention and Toxics (OPPT).  It has been developed within the
*    regulatory constraints of the Toxic Substances Control Act (TSCA).  It is
*    a pragmatic approach to SAR as opposed to a theoretical approach.
F020 258718
EOR
F002 482
F010 4.1
F004 2
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258723
EOR
F002 482
F010 4.1
F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
*    calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
*    calculated and not measured.
F020 258722
EOR
F002 482
F010 4.1
F004 2
F005 RS
F006 Calculated 96-hr LC50 for fish = 200.6 mg/L
F007 Calculated 96-hr LC50 for fish = 200.6 mg/L
F020 258719
EOR
F002 482
F010 4.1
F004 2
F005 TC
F006 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
*    Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
*    2000) were entered into the program.
**   Class: Neutral organics
F007 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
*    Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
*    2000) were entered into the program.
**   Class: Neutral organics
F020 258720
EOR
F002 482
F010 4.1
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
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F007 CAS #994-05-8; tert-amyl methyl ether
F020 258721
EOR
F002 482
F010 4.2
F004 1
F005 ME
F006 The test guideline followed was TSCA § 797.1300. Twenty organisms (ten
* per replicate) were exposed in duplicate test vessels to five
* concentrations of TAME and a dilution water control for 48 hours. During
* the test, nominal concentrations
F007 The test guideline followed was TSCA § 797.1300. Twenty organisms (ten
* per replicate) were exposed in duplicate test vessels to five
* concentrations of TAME and a dilution water control for 48 hours. During
* the test, nominal concentrations of 690, 410, 250, 150, and 89 mg A.I./L
* were maintained in the exposure vessels by introducing approximately 6.0
* test chamber volumes per day of newly prepared test solution via an
* intermittent-flow proportional diluter apparatus. Each replicate solution
* was sampled and analyzed for TAME concentration at 0 hours (test
* initiation) and after 48 hours (test termination) of the exposure period.
* Based on the results of these analyses, the mean measured exposure
* concentrations were defined as 120, 83, 55, 28, and 15 mg/l. Biological
* observations and observations of the physical characteristics of the
* exposure solutions were made and recorded at test initiation, 6, 24, and
* 48 hours. Throughout the exposure period, no visible signs of undissolved
* test material were observed in either the diluter system or in the
* exposure solutions.
F020 258724
EOR
F002 482
F010 4.2
F004 1
F005 RE
F006 American Petroleum Institute (1994). Tert-Amyl Methyl Ether (TAME) -
* Acute Toxicity to Daphnids (Daphnia magna) Under Flow-through Conditions.
* Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report
* 92-12-4545.
F007 American Petroleum Institute (1994). Tert-Amyl Methyl Ether (TAME) -
* Acute Toxicity to Daphnids (Daphnia magna) Under Flow-through Conditions.
* Toxicology Report Number 408. Springborn Laboratories, Inc. SLI Report
* 92-12-4545.
F020 258729
EOR
F002 482
F010 4.2
F004 1
F005 RL
F006 Guideline study that followed GLP.
F007 Guideline study that followed GLP.
F020 258728
EOR
F002 482
F010 4.2
F004 1
F005 RM
F006 Statistics: The EC50 was estimated by nonlinear interpolation and 95%
* confidence intervals were calculated by bionomial probability.

F007 Statistics: The EC50 was estimated by nonlinear interpolation and 95%
*   confidence intervals were calculated by bionomial probability.
F020 258725
EOR
F002 482
F010 4.2
F004 1
F005 RS
F006 6-hour LC50 = >120 mg/L based on mean measured values.
**   24-hour LC50 = >120 mg/L based on mean measured values.
**   48-hour LC50 = 100 mg/L based on mean measured values.
**   48-hour NOEC = 83 mg/L based on mean measured values.
**
**   After 24-hours of e
F007 6-hour LC50 = >120 mg/L based on mean measured values.
**   24-hour LC50 = >120 mg/L based on mean measured values.
**   48-hour LC50 = 100 mg/L based on mean measured values.
**   48-hour NOEC = 83 mg/L based on mean measured values.
**
**   After 24-hours of exposure, 15% immobilization was observed among dahpnia
*   exposed to the highest mean measured concentration tested (120 mg/L). At
*   test termination (48 hours), 90% immobilization was observed among
*   daphnia exposed to the 120 mg/L treatment level. In addition, sublethal
*   effects, as defined by lethargy, were observed among all of the surviving
*   daphnia exposed to this treatment level. No immobilization or sublethal
*   effects were observed among daphnia exposed to the remaining
*   concentrations tested. The NOEC established during this study was 83
*   mg/L, based on lethargy. 5% immobilization occurred in the control at 48
*   hours. There was no immobilization in the control prior to this sampling
*   point.
**
**   Analytical results:
**   Nominal treatment levels of 690, 410, 250, 150, and 89 mg A.I./L measured
*   120, 83, 55, 28, and 15 78 mg A.I./L, respectively. Both 0- and 48-hour
*   control samples measured <0.40 mg A.I./L. Mean measured concentrations
*   averaged 19% of the nominal concentrations. Coefficients of variation
*   averaged 11% for all mean measured concentrations. The relatively low
*   recovery obtained for the tested treatment levels (mean=19%) is believed
*   due to the volatile nature of the test material and the size of the test
*   vessels.
**
**   Water quality parameter results:
**   Temperature ranged between 19 to 20°C through the 48-hour exposure. The
*   pH was 8.2 in all treatment levels and the control at time 0, and pH
*   ranged between 8.0 to 8.1 in all treatment levels and the control at the
*   24 and 48-hour samplings. Dissolved oxygen ranged from 9.1 to 9.2 mg/L in
*   all treatment levels and the control at time 0, 8.7 to 9.1 mg/L in all
*   treatment levels and the control at time 24, and 8.8 to 9.0 mg/L in all
*   treatment levels and the control at time 48. Total hardness as mg/L of
*   CaCO3 ranged from 170 to 190 in the control and treatment levels at test
*   initiation. Total alkalinity ansmg/L CaCO3 ranged from 110 to 120 in the
*   control and treatment levels at test initiation. Specific conductance was
*   500 umhos/cm in the control and treatment levels at test initiation.
F020 258726
EOR
F002 482
F010 4.2

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F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
F007 CAS #994-05-8; tert-amyl methyl ether; 98.8% purity
F020 258727
EOR
F002 482
F010 4.2
F004 2
F005 ME
F006 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
*    presented in this program are used to predict the aquatic toxicity of
*    chemicals based on their similarity of structure to chemicals for which
*    the aquatic toxicity has
F007 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
*    presented in this program are used to predict the aquatic toxicity of
*    chemicals based on their similarity of structure to chemicals for which
*    the aquatic toxicity has been previously measured.  Most SAR calculations
*    in the ECOSAR Class Program are based upon the octanol/water partition
*    coefficient (Kow). SARs have been used by the U.S. Environmental
*    Protection Agency since 1981 to predict the aquatic toxicity of new
*    industrial chemicals in the absence of test data.  SARs are developed for
*    chemical classes based on measured test data that have been submitted by
*    industry or they are developed by other sources for chemicals with
*    similar structures, e.g., phenols.  Using the measured aquatic toxicity
*    values and estimated Kow values, regression equations can be developed
*    for a class of chemicals.  Toxicity values for new chemicals may then be
*    calculated by inserting the estimated Kow into the regression equation
*    and correcting the resultant value for the molecular weight of the
*    compound.
**
**   To date, over 150 SARs have been developed for more than 50 chemical
*    classes.  These chemical classes range from the very large, e.g., neutral
*    organics, to the very small, e.g., aromatic diazoniums.  Some chemical
*    classes have only one SAR, such as acid chlorides, for which only a fish
*    96-hour LC50 has been developed.  The class with the greatest number of
*    SARs is the neutral organics, which has SARs ranging from acute and
*    chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
*     The ECOSAR Class Program is a computerized version of the ECOSAR
*    analysis procedures as currently practiced by the Office of Pollution
*    Prevention and Toxics (OPPT).  It has been developed within the
*    regulatory constraints of the Toxic Substances Control Act (TSCA).  It is
*    a pragmatic approach to SAR as opposed to a theoretical approach.
F020 258730
EOR
F002 482
F010 4.2
F004 2
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258735
EOR
F002 482
F010 4.2
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F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 258734
EOR
F002 482
F010 4.2
F004 2
F005 RS
F006 Calculated 48-hr LC50 for Daphnia = 208.4 mg/L
F007 Calculated 48-hr LC50 for Daphnia = 208.4 mg/L
F020 258731
EOR
F002 482
F010 4.2
F004 2
F005 TC
F006 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
* Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
* 2000) were entered into the program.
** Class: Neutral organics
F007 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
* Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
* 2000) were entered into the program.
** Class: Neutral organics
F020 258732
EOR
F002 482
F010 4.2
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258733
EOR
F002 482
F010 4.3
F004 1
F005 ME
F006 The test material was known to be volatile and hence testing was
* conducted in completely filled, stopperred test vessels in order to
* minimize possible losses due to volatilization. Following the
* recommendations in published data (Herman et
F007 The test material was known to be volatile and hence testing was
* conducted in completely filled, stopperred test vessels in order to
* minimize possible losses due to volatilization. Following the
* recommendations in published data (Herman et al. 1990. Aquatic toxicology
* 18: 87-100.; Mayer et al. 2000. Environmental Toxicology and Chemistry
* 19: 2551-2556), in order to prevent inhibition of growth due to the
* restriction of gaseous exchange, additional sodium carbonate was added to
* the culture medium to provide a source of carbon dioxide for algal growth.
**
** The range-finding test was conducted at nominal test concentrations of
* 11, 1000, 5000, and 8000 mg/l for 72 hours. Based on the results the

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*    following test concentrations were assigned to the definitive test: 100,
*    200, 400, 800 and 1600 mg/l. At initiation of the test, the culture
*    contained a nominal cell density of 3 E3 cells per ml.
**
**   Temperature was maintained at 23 to 25 degrees C throughout the test. The
*    pH values of the control cultures increased from pH 7.5 at 0 hours to pH
*    8.8 to 8.9 at 72 hours. The test material vessels showed an increase in
*    pH over the 72-hour period following a concentration dependent pattern
*    with the lower test material concentrations exhibiting a greater increase
*    in pH. This effect was considered to be due to there being greater
*    numbers of viable cells in the lower test concentrations and hence
*    greater utilization of carbonate and bicarbonate from
*    photosynthesis/respiration. In all cases, however, the pH shift was less
*    than 1.5 pH unit. No immediate adsorption of the test material to algal
*    cells occurred.
F020 258736
EOR
F002 482
F010 4.3
F004 1
F005 RE
F006 Fortum Oyj (2003). 2-Methoxy-methylbutane (TAME): Algal inhibition test.
*    SafePharm Laboratories. Project No. 1755/003.
F007 Fortum Oyj (2003). 2-Methoxy-methylbutane (TAME): Algal inhibition test.
*    SafePharm Laboratories. Project No. 1755/003.
F020 258741
EOR
F002 482
F010 4.3
F004 1
F005 RL
F006 Guideline study that followed GLP.
F007 Guideline study that followed GLP.
F020 258740
EOR
F002 482
F010 4.3
F004 1
F005 RM
F006 New genus/species name for the organism tested is Pseudokirchneriella
*    subcapitata.
F007 New genus/species name for the organism tested is Pseudokirchneriella
*    subcapitata.
F020 258738
EOR
F002 482
F010 4.3
F004 1
F005 RS
F006 72-hour EbC50 = 230 mg/L based on mean measured values.
**   72-hour ErC50 = 780 mg/L based on mean measured values.
**   72-hour NOEC = 77 mg/L based on mean measured values.
**
**   Results are based on the geometric mean of measured test concentrations.
F007 72-hour EbC50 = 230 mg/L based on mean measured values.
**   72-hour ErC50 = 780 mg/L based on mean measured values.
**   72-hour NOEC = 77 mg/L based on mean measured values.
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**
**   Results are based on the geometric mean of measured test concentrations.
*    Analysis of the test preparations at 0 hours showed the measured
*    concentrations to range from 83 to 100% of nominal values. After 72 hours
*    there was a slight decline in measured concentrations to 69 to 84% of
*    nominal values. Analysis of samples taken from replicate test vessels
*    that had not been opened during the test period gave measured
*    concentrations of 82 to 96% of nominal values. It was therefore
*    considered that the slight decline in measured test concentrations
*    observed in the test vessels that had been opened on a daily basis in
*    order to enable samples to be removed for the determination of algal cell
*    density was the result of losses due volatility.
F020 258737
EOR
F002 482
F010 4.3
F004 1
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258739
EOR
F002 482
F010 4.3
F004 2
F005 ME
F006 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
*    presented in this program are used to predict the aquatic toxicity of
*    chemicals based on their similarity of structure to chemicals for which
*    the aquatic toxicity has
F007 ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs)
*    presented in this program are used to predict the aquatic toxicity of
*    chemicals based on their similarity of structure to chemicals for which
*    the aquatic toxicity has been previously measured.  Most SAR calculations
*    in the ECOSAR Class Program are based upon the octanol/water partition
*    coefficient (Kow). SARs have been used by the U.S. Environmental
*    Protection Agency since 1981 to predict the aquatic toxicity of new
*    industrial chemicals in the absence of test data.  SARs are developed for
*    chemical classes based on measured test data that have been submitted by
*    industry or they are developed by other sources for chemicals with
*    similar structures, e.g., phenols.  Using the measured aquatic toxicity
*    values and estimated Kow values, regression equations can be developed
*    for a class of chemicals.  Toxicity values for new chemicals may then be
*    calculated by inserting the estimated Kow into the regression equation
*    and correcting the resultant value for the molecular weight of the
*    compound.
**
**   To date, over 150 SARs have been developed for more than 50 chemical
*    classes.  These chemical classes range from the very large, e.g., neutral
*    organics, to the very small, e.g., aromatic diazoniums.  Some chemical
*    classes have only one SAR, such as acid chlorides, for which only a fish
*    96-hour LC50 has been developed.  The class with the greatest number of
*    SARs is the neutral organics, which has SARs ranging from acute and
*    chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
*     The ECOSAR Class Program is a computerized version of the ECOSAR
*    analysis procedures as currently practiced by the Office of Pollution
*    Prevention and Toxics (OPPT).  It has been developed within the
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*    regulatory constraints of the Toxic Substances Control Act (TSCA).  It is
*    a pragmatic approach to SAR as opposed to a theoretical approach.
F020 258742
EOR
F002 482
F010 4.3
F004 2
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
*    Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.
F020 258747
EOR
F002 482
F010 4.3
F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
*    calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
*    calculated and not measured.
F020 258746
EOR
F002 482
F010 4.3
F004 2
F005 RS
F006 Calculated 96-hr EC50 for a green alga = 126.9 mg/L
**   Calculated 96-hr ChV for a green alga = 9.8 mg/L
F007 Calculated 96-hr EC50 for a green alga = 126.9 mg/L
**   Calculated 96-hr ChV for a green alga = 9.8 mg/L
F020 258743
EOR
F002 482
F010 4.3
F004 2
F005 TC
F006 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
*    Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
*    2000) were entered into the program.
**   Class: Neutral organics
F007 Experimental water solubility, 5468 mg/l @ 20°C (U.S. EPA, 2000), log
*    Kow, 1.55 (Huttunen et al., 1997) and melting point, -82.1°C (U.S. EPA,
*    2000) were entered into the program.
**   Class: Neutral organics
F020 258744
EOR
F002 482
F010 4.3
F004 2
F005 TS
F006 CAS #994-05-8; tert-amyl methyl ether
F007 CAS #994-05-8; tert-amyl methyl ether
F020 258745
EOR
F002 482
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F010 5.1.1
F004 1
F005 CL
F006 TAME has a low order of toxicity by the oral route of exposure.
F007 TAME has a low order of toxicity by the oral route of exposure.
F020 260337
EOR
F002 482
F010 5.1.1
F004 1
F005 RE
F006 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
* subchronic toxicity studies on tertiary amyl methyl ether. J Applied
* Toxicology 15(4), 313-319.
F007 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
* subchronic toxicity studies on tertiary amyl methyl ether. J Applied
* Toxicology 15(4), 313-319.
F020 258752
EOR
F002 482
F010 5.1.1
F004 1
F005 RM
F006 test type: acute oral toxicity
** route of administration: oral gavage
** dose level: variable
** dose volume: variable
F007 test type: acute oral toxicity
** route of administration: oral gavage
** dose level: variable
** dose volume: variable
F020 258748
EOR
F002 482
F010 5.1.1
F004 1
F005 RS
F006 LD50 ~ 2.1 g/kg (combined sexes)
F007 LD50 ~ 2.1 g/kg (combined sexes)
F020 258750
EOR
F002 482
F010 5.1.2
F004 1
F005 CL
F006 TAME has a low order of toxicity by the inhalation route of exposure.
F007 TAME has a low order of toxicity by the inhalation route of exposure.
F020 258755
EOR
F002 482
F010 5.1.2
F004 1
F005 RE
F006 Amoco (1991). Acute inhalation toxicity study of tert-amyl methyl ether
* (TAME) in rats. Project No. LO8100 1652. IIT Research Institute Life
* Sciences Research, Chicago, IL, USA.
F007 Amoco (1991). Acute inhalation toxicity study of tert-amyl methyl ether

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*    (TAME) in rats.  Project No. LO8100 1652. IIT Research Institute Life
*    Sciences Research, Chicago, IL, USA.
F020 258756
EOR
F002 482
F010 5.1.2
F004 1
F005 RM
F006 Animals were exposed to TAME vapor for 4 hours in a whole body exposure
*    chamber at a concentration of 5.4 mg/L.  TAME concentration was measured
*    by infrared absorption.  Animals were observed for 14 days post exposure.
F007 Animals were exposed to TAME vapor for 4 hours in a whole body exposure
*    chamber at a concentration of 5.4 mg/L.  TAME concentration was measured
*    by infrared absorption.  Animals were observed for 14 days post exposure.
F020 258753
EOR
F002 482
F010 5.1.2
F004 1
F005 RS
F006 There were no premature deaths during the course of the study.
**   During the post-mortem evaluation, seven animals showed external
*    hemorrhagic lung foci, with one female having numerous foci (>10).  One
*    male had a diffused red area on the lu
F007 There were no premature deaths during the course of the study.
**   During the post-mortem evaluation, seven animals showed external
*    hemorrhagic lung foci, with one female having numerous foci (>10).  One
*    male had a diffused red area on the lungs.  Six animals showed enlarged
*    mandibular lymph nodes.  However, the study authors indicated that the
*    observed lung foci were in most cases of a type and number commonly seen
*    in control animals of this strain. LC50 > 5.4 mg/L.
F020 258754
EOR
F002 482
F010 5.1.3
F004 1
F005 CL
F006 TAME was of low dermal toxicity in rats.  LD50 > 3160 mg/kg.
F007 TAME was of low dermal toxicity in rats.  LD50 > 3160 mg/kg.
F020 258761
EOR
F002 482
F010 5.1.3
F004 1
F005 RE
F006 Exxon (1985). Acute dermal toxicity study in the rabbit. Project No.
*    254806. Bio/dynamics Inc., East Laboratory, East Millstone, NJ, USA.
F007 Exxon (1985). Acute dermal toxicity study in the rabbit. Project No.
*    254806. Bio/dynamics Inc., East Laboratory, East Millstone, NJ, USA.
F020 258762
EOR
F002 482
F010 5.1.3
F004 1
F005 RM
F006 TAME was applied neat to the skin of each animal at a dose level of 3160
*    mg/kg.  An occlusive patch covered the test material during the 24 hour
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*    exposure period. Animals were observed for 14 days post exposure.
F007 TAME was applied neat to the skin of each animal at a dose level of 3160
*    mg/kg.  An occlusive patch covered the test material during the 24 hour
*    exposure period. Animals were observed for 14 days post exposure.
F020 258757
EOR
F002 482
F010 5.1.3
F004 1
F005 RS
F006 There were no premature deaths during the study.  However, it was
*    irritating to the skin of the rats.  Very slight to severe erythema and
*    slight to very slight edema were observed in all animals.  Desquamation
*    was seen in all animals on day
F007 There were no premature deaths during the study.  However, it was
*    irritating to the skin of the rats.  Very slight to severe erythema and
*    slight to very slight edema were observed in all animals.  Desquamation
*    was seen in all animals on days 10 and 14; eschar was seen in five
*    animals and atonia in three animals.  One animal showed blanching on day
*    3.  At necropsy, desquamation was noted in two animals and another was
*    considered to be slightly emaciated.
F020 258758
EOR
F002 482
F010 5.3
F004 1
F005 CL
F006 TAME is not a dermal sensitizer
F007 TAME is not a dermal sensitizer
F020 258767
EOR
F002 482
F010 5.3
F004 1
F005 RE
F006 American Petroleum Institute (1995). Closed-patch repeated insult dermal
*    sensitization study of tertiary amyl methyl ether (TAME) in guinea pigs
*    (Buehler Method). Project No. 403. Bio/dynamics Inc., East Laboratory,
*    East Millstone, NJ, USA.
F007 American Petroleum Institute (1995). Closed-patch repeated insult dermal
*    sensitization study of tertiary amyl methyl ether (TAME) in guinea pigs
*    (Buehler Method). Project No. 403. Bio/dynamics Inc., East Laboratory,
*    East Millstone, NJ, USA.
F020 258768
EOR
F002 482
F010 5.3
F004 1
F005 RM
F006 Route of administration:  Dermal
**   Dose volume:  0.3 ml neat
**   Control group included:  Positive and negative controls included
**   Number of animals:  Test group--10/sex; Control group--5/sex
F007 Route of administration:  Dermal
**   Dose volume:  0.3 ml neat
**   Control group included:  Positive and negative controls included
**   Number of animals:  Test group--10/sex; Control group--5/sex
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F020 258763
EOR
F002 482
F010 5.3
F004 1
F005 RS
F006 TAME was non-sensitizing to the skin of guinea pigs
F007 TAME was non-sensitizing to the skin of guinea pigs
F020 258764
EOR
F002 482
F010 5.3
F004 1
F005 TC
F006 During the induction phase (days 1, 8 and 15), TAME (approximately 0.3
* ml) was applied to the clipped area on the back of the test animals for 6
* hours, using an occlusive chamber. Excess material was wiped off at the
* conclusion of each exp
F007 During the induction phase (days 1, 8 and 15), TAME (approximately 0.3
* ml) was applied to the clipped area on the back of the test animals for 6
* hours, using an occlusive chamber. Excess material was wiped off at the
* conclusion of each exposure. The control animals received mineral oil in
* place of the test chemical under similar conditions.
**
** During the challenge phase (day 29), TAME was applied to a clipped area
* on the back which had not previously been exposed for 6 hours, using an
* occlusive chamber; a vehicle control (mineral oil) was also used; a
* further previously untreated group of 5/sex was used as irritation
* control.
F020 258765
EOR
F002 482
F010 5.3
F004 1
F005 TS
F006 Tertiary Amyl Methyl Ether (CAS No. 994-05-8)
** Chemical Name: butane, 2-methoxy-2-methyl-
** Source/purity not specified.
F007 Tertiary Amyl Methyl Ether (CAS No. 994-05-8)
** Chemical Name: butane, 2-methoxy-2-methyl-
** Source/purity not specified.
F020 258766
EOR
F002 482
F010 5.4
F004 1
F005 CL
F006 The NOAEL for subchronic toxicity was 1500 ppm in both males and females.
F007 The NOAEL for subchronic toxicity was 1500 ppm in both males and females.
F020 258773
EOR
F002 482
F010 5.4
F004 1
F005 RE
F006 American Petroleum Institute (1997). A 13-week inhalation
* toxicity/neurotoxicity study of tert-amyl methyl ether (TAME) in the rat

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*    and mouse via whole-body exposures with a 4-week recovery period. Project
*    No. 95-6101. Huntingdon Life Scienc
F007 American Petroleum Institute (1997). A 13-week inhalation
*    toxicity/neurotoxicity study of tert-amyl methyl ether (TAME) in the rat
*    and mouse via whole-body exposures with a 4-week recovery period. Project
*    No. 95-6101. Huntingdon Life Sciences, East Millstone, NJ, USA.
F020 258774
EOR
F002 482
F010 5.4
F004 1
F005 RM
F006 Fischer 344 rats were exposed to 0, 250, 1500 and 3500 ppm TAME for 6
*    hours per day, generally 5 days per week for 13 weeks (minimum 65
*    exposures). Groups of 10/sex at 0 ppm and 3500 ppm were allowed a 4 week
*    recovery period.  A satellite g
F007 Fischer 344 rats were exposed to 0, 250, 1500 and 3500 ppm TAME for 6
*    hours per day, generally 5 days per week for 13 weeks (minimum 65
*    exposures). Groups of 10/sex at 0 ppm and 3500 ppm were allowed a 4 week
*    recovery period.  A satellite group of 10/sex/dose was used for acute
*    neurological testing.
**
**   Animals were observed twice daily for mortality or obvious signs of
*    toxicity, and given a detailed examination each week.  Body weight and
*    food consumption measurements were performed twice pre-test and weekly
*    during the study.  Ophthalmology evaluations were performed pre-exposure,
*    at termination and at the end of the recovery period.  Neurobehavioral
*    studies were performed pre-test and on weeks 2,3,5,9 and 14.  Hematology
*    and serum chemistry evaluations were performed during weeks 5 or 6, week
*    14 and following recovery.  Cell proliferation was assessed in kidney by
*    examination of incorporation of 5-bromo-2'-deoxyuridine after 1, 4 and 13
*    weeks exposure to TAME.  Nephropathy was evaluated by the presence of
*    hyaline droplets, and specific staining for a2µ-globulin in the proximal
*    convoluted tubules.  Animals were subject to a full macroscopic
*    examination at autopsy, and selected organs weighed, sampled and
*    preserved for all animals.  Selected tissues from the control and high
*    dose rats were processed, stained and examined by light microscopy.
F020 258770
EOR
F002 482
F010 5.4
F004 1
F005 RM
F006 Number of animals:  51/sex for the control and high dose groups; 41/sex
*    for the low and mid dose groups
F007 Number of animals:  51/sex for the control and high dose groups; 41/sex
*    for the low and mid dose groups
F020 260355
EOR
F002 482
F010 5.4
F004 1
F005 RS
F006 A number of effects were observed at the highest dose used, 3500 ppm.
*    These included two deaths, post-exposure clinical signs, acute
*    neurological effects, decreased body weight and body weight gain,
*    increased platelet counts, increases in
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F007 A number of effects were observed at the highest dose used, 3500 ppm.
* These included two deaths, post-exposure clinical signs, acute
* neurological effects, decreased body weight and body weight gain,
* increased platelet counts, increases in total protein, albumin and
* globulin, and a number of effects on organ weights. Many of these
* resolved after the 4 week recovery period. There were effects on the
* body weight and brain weight of males after this time. The effects on
* the kidneys of the male rats were consistent with the male rat specific
* a2µ-globulin syndrome and were not considered to be relevant to risk
* assessment in humans.
**
** Exposure of rats at 1500 ppm resulted in effects including post exposure
* clinical signs, acute neurological effects (males only), increased
* platelet count in males, increases in total protein, albumin and globulin
* and effects on liver and kidney (only in females) weight. An increase in
* liver weights of male rats exposed to 250 ppm was also observed. Many of
* these resolved after the 4 week recovery period.
**
** No test material related changes in motor activity were observed at any
* doses. Functional observational battery (FOB) tests were performed on
* the satellite group 1, 6 and 24 hours after acute exposure. Central
* nervous system (CNS) depression, indicated by postural changes, drooping
* or half-closed eyelids, slight stupor or lack of reflex responses, and
* lack of neuromuscular coordination, indicated by ataxia, impaired
* locomotion, poor righting reflex, reduced grip strength and increased
* landing foot splay, were seen in most 3500 ppm animals and a few 1500 ppm
* males after 1 hour. After 6 hours, one 3500 ppm male was in a low
* arousal state and a slight decrease in hindlimb grip strength in the 3500
* ppm females was observed. After 24 hours, the FOB test results for all
* groups were comparable to controls.
**
** Following repeated exposures for a second satellite group of 10/sex/dose,
* an increase in forelimb grip strength was recorded in the 3500 ppm males
* and 1500 and 3500 ppm females. No other effects on measures of
* neuromuscular function or CNS depression were observed.
**
** Microscopic examination of the brain, spinal cord (cervical, thoracic,
* lumbar) and sciatic, sural and tibial nerves showed no evidence of any
* treatment-related effects.
**
** The increased severity of hypertrophy/hyperplasia of the goblet cells in
* the respiratory mucosa and in the epithelium lining the nasopharynx was
* observed in the 3500 ppm group. This effect was considered to be a
* localized adaptive response to a minimal irritant effects rather than an
* adverse toxicological response to the test material. Similar responses
* have been seen in rats exposed to mild irritants such as cigarette smoke,
* formaldehyde, and ammonia.
F020 258771
EOR
F002 482
F010 5.4
F004 2
F005 CL
F006 The NOAEL for subchronic toxicity was 1500 ppm in both males and females.
F007 The NOAEL for subchronic toxicity was 1500 ppm in both males and females.
F020 258779
EOR

F002 482
F010 5.4
F004 2
F005 RE
F006 American Petroleum Institute (1997). A 13-week inhalation
*   toxicity/neurotoxicity study of tert-amyl methyl ether (TAME) in the rat
*   and mouse via whole-body exposures with a 4-week recovery period. Project
*   No. 95-6101. Huntingdon Life Scienc
F007 American Petroleum Institute (1997). A 13-week inhalation
*   toxicity/neurotoxicity study of tert-amyl methyl ether (TAME) in the rat
*   and mouse via whole-body exposures with a 4-week recovery period. Project
*   No. 95-6101. Huntingdon Life Sciences, East Millstone, NJ, USA.
F020 258780
EOR
F002 482
F010 5.4
F004 2
F005 RM
F006 CD-1 mice were exposed to 0, 250, 1500 and 3500 ppm TAME initially; a new
*   high dose group of mice at 2500 ppm and corresponding control group were
*   established due to high mortality at 3500 ppm. Exposures were for 6
*   hours per day, generally
F007 CD-1 mice were exposed to 0, 250, 1500 and 3500 ppm TAME initially; a new
*   high dose group of mice at 2500 ppm and corresponding control group were
*   established due to high mortality at 3500 ppm. Exposures were for 6
*   hours per day, generally 5 days per week for 13 weeks (minimum 65
*   exposures); groups of 10/sex at 0 ppm and the highest dose, 2500 ppm were
*   allowed a 4 week recovery period.
**
**   Animals were observed twice daily for mortality or obvious signs of
*   toxicity, and given a detailed examination each week. Body weight and
*   food consumption measurements were performed twice pre-test and weekly
*   during the study. Ophthalmology evaluations were performed pre-exposure,
*   at termination and at the end of the recovery period.   Hematology and
*   serum chemistry evaluations were performed during weeks 5 or 6, week 14
*   and following recovery. Cell proliferation was assessed in liver by
*   examination of incorporation of 5-bromo-2'-deoxyuridine after 1, 4 and 13
*   weeks exposure to TAME. Animals were subject to a full macroscopic
*   examination at autopsy, and selected organs weighed, sampled and
*   preserved for all animals. Selected tissues from the control and high
*   dose rats were processed, stained and examined by light microscopy.
F020 258776
EOR
F002 482
F010 5.4
F004 2
F005 RM
F006 Number of animals: 46/sex for the control and high dose groups (two
*   groups each); 36/sex for the low and mid dose groups
F007 Number of animals: 46/sex for the control and high dose groups (two
*   groups each); 36/sex for the low and mid dose groups
F020 260356
EOR
F002 482
F010 5.4
F004 2
F005 RS

F006 At 3500 ppm, 13 of 46 males and 10 of 46 females died after the first
* exposure and 26 of 46 males and 14 of 46 females died within three
* exposures to TAME. A trial was conducted with groups of 15 mice/sex
* exposed at 3000 ppm; 8 males and 4
F007 At 3500 ppm, 13 of 46 males and 10 of 46 females died after the first
* exposure and 26 of 46 males and 14 of 46 females died within three
* exposures to TAME. A trial was conducted with groups of 15 mice/sex
* exposed at 3000 ppm; 8 males and 4 females died within eight exposures.
* Accordingly the high dose was set at 2500 ppm.
**
** A number of effects were observed at the highest dose used in the main
* study, 2500 ppm. These included 27 deaths among 92 mice, post-exposure
* clinical signs, effects on a number of clinical chemistry parameters, and
* increased liver weights. Many of these resolved after the 4 week recovery
* period. Liver cell proliferation studies showed increases in the
* labelling index of hepatocytes and centrilobular hepatocellular
* hypertrophy was observed in both sexes.
**
** Exposure of mice at 1500 ppm resulted in effects including post exposure
* clinical signs, increased globulin in males at week 6 and effects on
* liver weights in males. Similar findings were made in the liver cell
* proliferation studies and microscopic examination to those for the 2500
* ppm animals. These liver effects were also observed for female mice
* exposed to 250 ppm.
**
** Centrilobular hepatocellular hypertrophy is frequently seen in the liver
* following exposure to agents that cause hepatic enzyme induction.
* Therefore, this effect is considered an adaptive response to increased
* metabolic load.
F020 258777
EOR
F002 482
F010 5.4
F004 3
F005 CL
F006 The NOAEL for subchronic toxicity was 500 ppm in both males and females.
F007 The NOAEL for subchronic toxicity was 500 ppm in both males and females.
F020 260340
EOR
F002 482
F010 5.4
F004 3
F005 RE
F006 White RD, Daughtrey, WC, Wells, MS (1995). Health effects of inhaled
* tertiary amyl methyl ether and ethyl tertiary butyl ether. Toxicol Lett
* 82/83, 719-724.
F007 White RD, Daughtrey, WC, Wells, MS (1995). Health effects of inhaled
* tertiary amyl methyl ether and ethyl tertiary butyl ether. Toxicol Lett
* 82/83, 719-724.
F020 260341
EOR
F002 482
F010 5.4
F004 3
F005 RM
F006 Number of animals: 14/sex/dose group
F007 Number of animals: 14/sex/dose group

F020 260353
EOR
F002 482
F010 5.4
F004 3
F005 RM
F006 Sprague-Dawley rats were exposed to 0, 500, 2000 and 4000 ppm TAME for 6
*   hours per day, 5 days per week for 4 weeks. Animals were observed at
*   least once daily for mortality or obvious signs of toxicity. Body
*   weights were measured at the i
F007 Sprague-Dawley rats were exposed to 0, 500, 2000 and 4000 ppm TAME for 6
*   hours per day, 5 days per week for 4 weeks. Animals were observed at
*   least once daily for mortality or obvious signs of toxicity. Body
*   weights were measured at the initiation of the study, weekly during the
*   exposure, and immediately before termination of the animal. All rats
*   were fasted for approximately 18 hours following the final exposure to
*   TAME and anesthetized with sodium pentobarbital. Blood samples were
*   obtained for serum chemistry and hematology parameters.
**
**   In addition to daily observation for general toxicity, the study included
*   a functional observational battery (FOB) to evaluate neuromuscular
*   function and sensory perception. The FOB was performed 1 week prior to
*   the first exposure and after 1, 5, or 20 exposures. Four TAME-exposed
*   animals were evaluated approximately 1 hour after the end of exposure and
*   10 animals were examined the following morning in each exposure group.
*   The FOB consisted of an evaluation of the following parameters: tail
*   pinch, rotorod performance, body temperature, righting reflex, auditory
*   response, hindlimb extension, foot splay, grip strength, home-cage
*   observation, hand-held observation, open-field observation, extensor
*   thrust, catalepsy, visual placing, tactile placing, negative geotaxis,
*   vision, eyeblink, and pupil response.
**
**   Necropsies were performed on 10 of the TAME-exposed rats. The following
*   tissues were weighed and fixed in 10% neutral buffered formalin: brain,
*   adrenal glands, gonads, heart, kidneys, liver, lungs and spleen.
*   Approximately 31 other tissues were also collected and fixed at necropsy.
*   Only those from the high exposure and control groups were processed for
*   histological examination.
**
**   For all quantitative parameters, the data were analyzed using both
*   multivariate and univariate two-factor fixed-effects analyses of
*   variance. Quantal data for functional observational battery (FOB)
*   parameters were analyzed using chi-square. A minimum significance level
*   of P<0.05 was used in all comparisons.
F020 260338
EOR
F002 482
F010 5.4
F004 3
F005 RS
F006 Three out of 14 males and 4 out of 14 females exposed to 4000 ppm TAME
*   died on test. The deaths were apparently due to severe central nervous
*   system (CNS) depression as there were no gross or histopathology changes
*   to indicate organ-specif
F007 Three out of 14 males and 4 out of 14 females exposed to 4000 ppm TAME
*   died on test. The deaths were apparently due to severe central nervous
*   system (CNS) depression as there were no gross or histopathology changes

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*    to indicate organ-specific tissue injury.
**
**   Clinical observations in both the 2000 and 4000 ppm TAME-exposed groups
*    included sedation, coma, ataxia, coldness to touch, ptosis,
*    hyperirritability, hypoactivity and effects on posture.  The incidence
*    and severity of effects were greater in the high dose animals.  The FOB
*    assessment confirmed the clinical observations.  TAME-exposed animals
*    evaluated 1 hour after exposure, especially the 4000 ppm group, displayed
*    reductions in tail pinch response, righting reflex and negative geotaxis,
*    along with reduced body temperature, impaired rotorod performance and
*    increased hindlimb splay.  The signs of CNS depression were absent in
*    animals examined 18 hours after the end of exposure. .
**
**   Body weight gain was significantly reduced only in male rats exposed to
*    4000 ppm TAME.  Exposure to 2000 and 4000 ppm TAME caused an increase in
*    relative liver weights in males and females.  Many relative organ weights
*    were increased for the 4000 ppm males due to the reduced body weights of
*    these animals.
**
**   No treatment-related histopathological findings were noted.  Clinical
*    chemistry and hematology findings were minimal with TAME.  Increased
*    serum cholesterol was found in both male rats (at 2000 and 4000 ppm) and
*    female rats (at 4000 ppm) exposed to TAME.  The 4000 ppm males also had
*    reduced serum triglycerides.  A single male rat in the 4000 ppm group had
*    an increase in serum alanine aminotransferase (ALT).  This animal also
*    displayed multifocal hepatocellular necrosis that can be associated with
*    elevated ALT.  The significance of this finding is unclear as this
*    occurred in only one of the seven animals examined. (Three animals had
*    died on test due to CNS depression.)
F020 260339
EOR
F002 482
F010 5.4
F004 4
F005 CL
F006 The NOAEL for subchronic toxicity was 500 mg/kg/day in both males and
*    females.
F007 The NOAEL for subchronic toxicity was 500 mg/kg/day in both males and
*    females.
F020 260344
EOR
F002 482
F010 5.4
F004 4
F005 RE
F006 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
*    subchronic toxicity studies on tertiary amyl methyl ether. J Applied
*    Toxicology 15(4), 313-319.
F007 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
*    subchronic toxicity studies on tertiary amyl methyl ether. J Applied
*    Toxicology 15(4), 313-319.
F020 260345
EOR
F002 482
F010 5.4
F004 4
F005 RM
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F006 Number of animals: 5/sex/dose group
F007 Number of animals: 5/sex/dose group
F020 260354
EOR
F002 482
F010 5.4
F004 4
F005 RM
F006 Sprague-Dawley rats were exposed to 0, 125, 500 and 1000 mg/kg/day TAME
*   in corn oil by gavage at a dose volume of 2 ml/kg. Vehicle control
*   animals received corn oil only. The dosing regimen was once daily, 7
*   days a week for a period of 29
F007 Sprague-Dawley rats were exposed to 0, 125, 500 and 1000 mg/kg/day TAME
*   in corn oil by gavage at a dose volume of 2 ml/kg. Vehicle control
*   animals received corn oil only. The dosing regimen was once daily, 7
*   days a week for a period of 29 days.
**
**   Observations were made daily for overt signs of toxicity. Body weights
*   were recorded prior to the first dosing and weekly thereafter during the
*   test period. Food consumption was measured weekly over the course of the
*   study. At study termination, blood samples were collected from all
*   animals (after an overnight fast) for routine hematology and serum
*   chemistry determinations. A complete necropsy was carried out on all
*   animals, and organ weights were obtained for the kidneys, adrenals,
*   liver, testes and ovaries. The following tissues were preserved in 10%
*   neutral buffered formalin: kidneys, adrenals, liver, heart, spleen,
*   ovaries, testes and any tissues appearing abnormal. All tissues
*   preserved from the control and high-dose group, as well as those from
*   animals that died during the study, were processed, sectioned, stained
*   with hematoxylin and eosin and examined microscopically.
**
**   Data from the treated groups were compared to those of the control group
*   using the following tests. Comparisons were limited to within-sex
*   analysis. Bartlett's test of homogeneity of variance was used to
*   determine if the groups had equivalent variance at the 1% level. If the
*   variances were not statistically different, the groups were compared
*   using a standard one-way analysis of variance. If significant
*   differences among the means were indicated, Dunnett's test was used to
*   determine which treatment groups differed from controls. Where groups
*   did not have equivalent variance, the non-parametric Kruskall-Wallis test
*   was used to assess differences in group means. If the means were
*   different, Dunn's summed rank test was used to determine which treatment
*   group differed from control.
F020 260342
EOR
F002 482
F010 5.4
F004 4
F005 RS
F006 Four animals (two males, two females) in the high-dose (1000 mg/kg/day)
*   group died during the course of the study. Of these four, two deaths
*   were attributed to dosing accidents. The remaining two deaths were
*   presumed to be test-material r
F007 Four animals (two males, two females) in the high-dose (1000 mg/kg/day)
*   group died during the course of the study. Of these four, two deaths
*   were attributed to dosing accidents. The remaining two deaths were
*   presumed to be test-material related, although a precise cause of death

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*    could not be identified.  All other animals survived to the scheduled
*    termination.
**
**   For the most part, in-life observations were unremarkable.  Lung rales
*    and anogenital staining of the fur were observed at a low frequency in
*    the high-dose group.  The majority of animals of either sex did not
*    exhibit any unusual symptoms or behaviors.
**
**   Overall increases in body weight were noted for all groups of animals.
*    However, mean body weights of high-dose males were significantly lower
*    than those of control males at day 7, day 21 and day 28.  Mean body
*    weight gain in high-dose females was also lower than in control females,
*    although the difference was not statistically significant.  Food
*    consumption in high-dose males and females was also significantly reduced
*    compared to controls during week 1. During week 2, food consumption was
*    significantly reduced only in high-dose males.
**
**   A dose-related increase in adrenal weights (absolute and relative
*    weights) was observed that was statistically significant in the mid- and
*    high-dose males.  A similar increase in adrenal weights was not observed
*    in female rats dosed with TAME.  Relative kidney weights were also
*    increased in mid- and high-dose male rats compared to control.
**
**   Hematology and serum chemistry values were generally similar across
*    groups.  Activated partial thromboplastin time was statistically
*    increased in the high-dose male (but not female) group.  However, this
*    small increase was not believed to be biologically meaningful.  The mean
*    serum glucose value was also significantly reduced in the high-dose male
*    group.  The biological significance of this finding was unknown, however
*    a similar decrease in serum glucose was not observed in high-dose females.
**
**   No treatment-related tissue lesions were observed during the
*    histopathological examination.  Any changes observed were limited to
*    naturally occurring lesions that were present in approximately equal
*    frequency in all groups, including controls.  It was noteworthy that the
*    organ weight increases observed in the kidney and adrenals were not
*    accompanied by any histopathological changes.
F020 260343
EOR
F002 482
F010 5.5
F004 1
F005 CL
F006 Under the conditions of this study, the test material was not mutagenic.
F007 Under the conditions of this study, the test material was not mutagenic.
F020 258784
EOR
F002 482
F010 5.5
F004 1
F005 RE
F006 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
*    subchronic toxicity studies on tertiary amyl methyl ether. J Applied
*    Toxicology 15(4), 313-319.
F007 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
*    subchronic toxicity studies on tertiary amyl methyl ether. J Applied
*    Toxicology 15(4), 313-319.
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F020 258785
EOR
F002 482
F010 5.5
F004 1
F005 RM
F006 Strains tested: Salmonella typhimurium tester strains TA98, TA100,
*   TA1535, TA1537, TA1538
**
**   Test substance doses/concentration levels: The concentration of TAME
*   ranged from 100 to 10,000 ug per plate
**
**   Metabolic activation: With and withou
F007 Strains tested: Salmonella typhimurium tester strains TA98, TA100,
*   TA1535, TA1537, TA1538
**
**   Test substance doses/concentration levels: The concentration of TAME
*   ranged from 100 to 10,000 ug per plate
**
**   Metabolic activation: With and without (S9 fraction mix of livers of
*   Aroclor 1254 pretreated rats)
**
**   Vehicle: Dimethyl sulfoxide (DMSO)
**
**   Positive Controls: 2-aminoanthracene (5 ug/plate); 9-aminoacridine (100
*   ug/plate); N-methyl-N-nitro-N-nitrosoguanidine (MNNG) (10 ug/plate) and
*   2-nitrofluorene (5 ug/plate).
**
**   Statistical analysis: Mean revertant colony count (means of triplicate
*   plates) were determined for each dose point.
**
**   Cytotoxicity study: A toxicity screening test conducted prior to the
*   full assay indicated a lack of toxicity at concentrations as high as
*   10,000 ug per plate.
F020 258781
EOR
F002 482
F010 5.5
F004 1
F005 RS
F006 TAME did not induce reverse gene mutation in any strain. The test
*   substance was not genotoxic in this assay with or without metabolic
*   activation. A satisfactory response was obtained with the positive
*   control substances (2-aminoanthracene,
F007 TAME did not induce reverse gene mutation in any strain. The test
*   substance was not genotoxic in this assay with or without metabolic
*   activation. A satisfactory response was obtained with the positive
*   control substances (2-aminoanthracene, 9-aminoacridine, MNNG,
*   2-nitrofluorene).
F020 258782
EOR
F002 482
F010 5.5
F004 2
F005 CL
F006 TAME was clastogenic under the conditions of this test.
F007 TAME was clastogenic under the conditions of this test.

F020 258790
EOR
F002 482
F010 5.5
F004 2
F005 RE
F006 American Petroleum Institute (1997). Chromosome aberrations in Chinese
* hamster ovary (CHO) cells: Tertiary amyl methyl ether (TAME). Project No.
* G96CJ24.330. Microbiological Associates, Inc., Rockville, MD, USA.
F007 American Petroleum Institute (1997). Chromosome aberrations in Chinese
* hamster ovary (CHO) cells: Tertiary amyl methyl ether (TAME). Project No.
* G96CJ24.330. Microbiological Associates, Inc., Rockville, MD, USA.
F020 258791
EOR
F002 482
F010 5.5
F004 2
F005 RM
F006 Metabolic activation: With and without rat liver S9 from animals
* pretreated with Arochlor 1254
**
** Test type: Chromosome damage
**
** CHO cells were treated with 313, 625, 1250 and 5000 ug/ml TAME in the
* presence and absence of rat liver S9. Ce
F007 Metabolic activation: With and without rat liver S9 from animals
* pretreated with Arochlor 1254
**
** Test type: Chromosome damage
**
** CHO cells were treated with 313, 625, 1250 and 5000 ug/ml TAME in the
* presence and absence of rat liver S9. Cells were treated with TAME for
* 12 hours in the absence of S9 (-S9) and for 4 hours with a 16 hour
* recovery period in the presence of S9. Mitomycin C was used as the
* positive control for experiments conducted in the absence of S9 whereas
* cyclophosphamide was used as the positive control for experiments
* conducted in the presence of S9. Ethanol was the negative control in all
* experiments.
**
** Colcemid (0.1 ug/ml) was added 2 hours before harvest to arrest cells in
* metaphase. TAME was soluble in the treatment medium at all doses tested.
**
** In the absence of S9, a statistically significant increase in aberrant
* cells was observed at 2500 and 5000 ug/ml, and a dose response was
* observed. In the presence of S9, a statistically significant increase in
* aberrant cells was observed at all concentrations and a dose response was
* observed.
**
** The positive controls caused large, statistically significant increases
* in the proportion of aberrant cells in all cases, indicating that the
* test system responded appropriately.
F020 258787
EOR
F002 482
F010 5.6
F004 1
F005 CL

F006 TAME did not produce clastogenic effects in mouse bone marrow.
F007 TAME did not produce clastogenic effects in mouse bone marrow.
F020 258796
EOR
F002 482
F010 5.6
F004 1
F005 RE
F006 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
* subchronic toxicity studies on tertiary amyl methyl ether. J Applied
* Toxicology 15(4), 313-319.
F007 Daughtrey WC and Bird MG (1995). Genotoxicity and twenty-eight-day
* subchronic toxicity studies on tertiary amyl methyl ether. J Applied
* Toxicology 15(4), 313-319.
F020 258797
EOR
F002 482
F010 5.6
F004 1
F005 RM
F006 Tertiary amyl methyl ether was diluted in corn oil and administered as a
* single intraperitoneal (i.p.) injection at doses of 0.75, 0.375 and 0.15
* g/kg body weight. Cyclophosphamide was dissolved in water and used as
* the positive control at
F007 Tertiary amyl methyl ether was diluted in corn oil and administered as a
* single intraperitoneal (i.p.) injection at doses of 0.75, 0.375 and 0.15
* g/kg body weight. Cyclophosphamide was dissolved in water and used as
* the positive control at a dose of 40 mg/kg i.p.
**
** Animals from the appropriate groups were euthanized by CO2 at ca. 24, 48
* and 72 hours after administration of test article. Animals dosed with
* cyclophosphamide were taken at 24 hours only. Each group consisted of 10
* animals (five per sex) per time point. At death, both femurs from each
* animal were removed and bone marrow was recovered and suspended in fetal
* bovine serum. Following centrifugation to pellet the tissue, the
* supernatant was drawn off, the pellet resuspended and the suspension
* spread on slides and dried (two slides were prepared per animal). Prior
* to microscopic evaluation, the slides were stained using acridine orange.
**
** One thousand polychromatic erythrocytes from each animal were examined
* for micronuclei formation. Criteria for scoring micronuclei were those
* of Schmid. In addition, the ratio of polychromatic erythrocytes (PCEs)
* to normochromatic erythrocytes (NCEs) was determined by counting 1000
* erythrocytes (PCEs and NCEs). The data were evaluated statistically
* using ANOVA.
F020 260346
EOR
F002 482
F010 5.6
F004 1
F005 RS
F006 All mice survived to scheduled termination. No increase in micronucleus
* frequency was observed at any dose level of TAME or at any of the bone
* marrow collection times. The positive control (cyclophosphamide)
* produced statistically signifi
F007 All mice survived to scheduled termination. No increase in micronucleus
* frequency was observed at any dose level of TAME or at any of the bone

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*    marrow collection times.  The positive control (cyclophosphamide)
*    produced statistically significant increases in micronucleus frequencies
*    in both males and females.  Overt marow toxicity, as measured by a
*    statistically significant decrease in the percentage of polychromatic
*    erythrocytes, was not observed in any of the groups dosed with TAME.  The
*    percentages of polychromatic erythrocytes observed were within the normal
*    range.  Thus, these data indicated that TAME did not cause clastogenic
*    effects in mouse bone marrow.
F020 258793
EOR
F002 482
F010 5.8.1
F004 1
F005 CL
F006 Exposure to TAME vapor for 6 hr/day, 5-7 days/week for two generations,
*    one litter per generation, at 0, 250, 1500 and 3000 ppm resulted in
*    systemic effects at 1500 and 3000 ppm, minimum adult reproductive
*    toxicity at 3000 ppm and offspring
F007 Exposure to TAME vapor for 6 hr/day, 5-7 days/week for two generations,
*    one litter per generation, at 0, 250, 1500 and 3000 ppm resulted in
*    systemic effects at 1500 and 3000 ppm, minimum adult reproductive
*    toxicity at 3000 ppm and offspring toxicity at 1500 and 3000 ppm. The
*    NOAEL for adult reproductive toxicity was 1500 ppm for males and 3000 ppm
*    for females. The NOAEL for offspring toxicity was 250 ppm in rats under
*    the conditions of this study.
F020 260359
EOR
F002 482
F010 5.8.1
F004 1
F005 RE
F006 Tyl RW, Myers CB, Marr MC, Fail PA, Seely JC, Elswick B, James A and
*    Welsch F (2003). Two-generation reproductive toxicity study of inhaled
*    tertiary amyl methyl ether (TAME) vapor in CD® rats. J Appl Toxicol
*    23(6), 397-410.
F007 Tyl RW, Myers CB, Marr MC, Fail PA, Seely JC, Elswick B, James A and
*    Welsch F (2003). Two-generation reproductive toxicity study of inhaled
*    tertiary amyl methyl ether (TAME) vapor in CD® rats. J Appl Toxicol
*    23(6), 397-410.
F020 260360
EOR
F002 482
F010 5.8.1
F004 1
F005 RM
F006 The study began with 30 males and 30 females per group to yield at least
*    20 pregnant females per group at or near term. Exposure began for all F0
*    animals when they were ca. 7 weeks old. Animals were assigned to groups
*    by means of randomizat
F007 The study began with 30 males and 30 females per group to yield at least
*    20 pregnant females per group at or near term. Exposure began for all F0
*    animals when they were ca. 7 weeks old. Animals were assigned to groups
*    by means of randomization stratified by body weight, such that the body
*    weights by gender of all groups were homogeneous by statistical analysis
*    at study initiation.
**
**   The study was conducted with three treatment groups and an air (vehicle
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control) group, each comprising 30 rats/gender. The target exposure concentrations were 250, 1500 and 3000 ppm. The F0 animals (parents of the F1 generation) and selected F1 offspring (parents of F2 generation) were exposed to TAME vapor for 6 hr/day, 5 days/week, during the premating exposure periods (for at least 10 weeks) and the postmating holding period (males, for ca. 30 days). During mating (both genders), gestation (dams) and lactation (dams) of F1 and F2 litters, exposures were 6 hr/day, 7 days/week. Pregnant dams were not exposed beginning on gestational day (gd) 20. Dams with litters were not exposed on postnatal day (pnd) 0 (day of parturition) through to pnd 4. Exposures to the dams resumed on pnd 5. Retained postwean F2 offspring were not exposed to TAME vapor.

Observations for mortality were made twice daily and clinical examinations were conducted and recorded daily, prior to and after each exposure period, through the course of the study. The body weights of male rats were recorded initially and weekly through mating. The body weights of female rats were recorded in the same manner until confirmation of mating. Females were weighed and the feed consumption was recorded on gd 0, 7, 14 and 20 and on pnd 0, 4, 7, 14, 21 and 28. For the last three weeks of the premating exposure period, vaginal smears were taken for all F0 and F1 females. The slides from the premating period were evaluated for estrous cyclicity and normality. Vaginal smears were taken daily during the 14-day mating period or until mating was confirmed. The observation of vaginal sperm or copulation plug was considered evidence of successful mating.

All pups (F1 and F2 litters) were counted, weighed, sexed and examined as soon as possible after birth to determine the number of viable and stillborn members of each litter. Thereafter, all live pups were counted, their gender determined, weighed individually and examined grossly, and litters were evaluated for survival on pnd 4, 7, 14 and 21 and at weaning (pnd 28).

Statistical method:

The unit of comparison was the male, the female, the pregnant female or litter, as appropriate. Quantitative continuous data (e.g. parental and pup body weights, organ weights, F2 anogenital distance, feed consumption, food efficiency, etc.) were compared among the three treatment groups and the one vehicle control group by the use of Bartlett's test for homogeneitiy of variances. If Bartlett's test indicated a lack of homogeneity of variances (i.e. $P<0.001$), then non-parametric statistical tests were employed for the continuous variables. Non-parametric tests, used for continuous data that did not have homogeneous variances, included the Kruskal-Wallis test to determine whether significant differences were present among the groups, followed by the Mann-Whitney U test for pairwise comparisons to the vehicle control group if the Kruskal-Wallis test was significant. Jonckheere's test for k independent samples was used to identify significant dose-response trends for non-parametric continous data. If Bartlett's test indicated homogeneous variances (i.e. $P>0.001$), then parametric statistical tests were employed for the continuous variables. A general linear model (GLM) procedures for the analysis of variance (ANOVA) were used to determine the significance of the dose-response relationship and to determine whether significant dosage effects had occurred for selected measures. For all statistical tests, the significance limit of 0.05 was used as the criterion for significance. A test for statistical outliers

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*    was performed on parental body weights and feed consumption (in g/day).
*    If examination of pertinent study data did not provide a plausible and
*    biologically sound reason for inclusion of the data flagged as "outlier,"
*    the data were excluded from summarization and analysis and were
*    designated as outliers.  If feed consumption data (in g/ day) were
*    negative for a given animal and period, they were designated
*    "unrealistic" and excluded from summarization and analysis.  If feed
*    consumption data for a given observational interval (e.g. study days 0-7,
*    7-14, 14-28, 28-35, etc.) during the premating exposure period were
*    designated outliers or unrealistic, then summarized data encompassing
*    this period (e.g. study days 0-70 for the premating exposure period) also
*    did not include this value.
F020 260357
EOR
F002 482
F010 5.8.1
F004 1
F005 RS
F006 Adult systemic toxicity was present for F0 and F1 parental animals at
*    1500 and 3000 ppm. At 3000 ppm, there were consistent and persistent
*    reductions in body weights, weight gains and feed consumption (in g/day)
*    in both genders and both gen
F007 Adult systemic toxicity was present for F0 and F1 parental animals at
*    1500 and 3000 ppm. At 3000 ppm, there were consistent and persistent
*    reductions in body weights, weight gains and feed consumption (in g/day)
*    in both genders and both generations. Feed consumption (in g/kg/day) and
*    food efficiency were variable. Clinical observations at 3000 ppm were
*    limited to ataxia (during and immediately after exposures) in most to all
*    animals in both genders and both generations. Body weights during
*    gestation in F1 dams and during lactation in F0 and F1 dams were reduced
*    at 3000 ppm. At 1500 ppm, there were no effects on body weights, feed
*    consumption or food efficiency, but ataxia was present in F0 males and
*    females and lactational weight change was reduced in F1 dams.
**
**   At necropsy, parental absolute and relative liver weights were increased
*    in both genders and generations at 3000 ppm (in F0 males, absolute and
*    relative kidney weights also were increased at 250 and 1500 ppm).
*    Relative (but not absolute) spleen weights also were increased at 3000
*    ppm. Brain weights, absolute or relative, were not consistently affected.
*    There were no treatment-related gross or histopathological findings for
*    any of these organs.
**
**   Reproductive toxicity:
**   Adult reproductive toxicity was minimally present at 3000 ppm in males,
*    expressed as reduced body weights throughout premating and mating and
*    increased relative (but not absolute) testes weights in F0 and F1 males,
*    most likely due to reduced terminal body weights at this concentration,
*    reduced absolute prostate weight in F1 (but not F0) males, reduced
*    epididymal sperm concentration in F1 (but not F0) males and significantly
*    increased percentage of abnormal sperm in F0 (but not in F1) males. At
*    1500 ppm, the percentage of abnormal sperm was increased relative to the
*    concurrent control value in F0 males, but this value was well within the
*    historical control range for this parameter. There were no effects of
*    treatment on mating or survival indices, absolute testes weight, absolute
*    or relative weights of the epididymides or seminal vesicles with
*    coagulating gland, relative prostate weight, percentage of motile or
*    progressively motile sperm, testicular homogenization-resistant spermatid
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*    head counts, daily sperm production or efficiency of daily sperm
*    production. There were also no treatment-related gross or
*    histopathological findings in the reproductive organs in F0 or F1 males.
**
**   In F0 and F1 females there were no effects of treatment on vaginal
*    cyclicity, estrous cycle length, mating, fertility, pregnancy,
*    gestational indices or gestational length.  Cycle length was reduced at
*    1500 ppm but not at 3000 ppm in F1 females, and not in F0 females at any
*    concentration. This is most likely due to biological variation.
*    Gestational length was significantly longer than the concurrent control
*    values at 1500 ppm, with no effects at 3000 ppm in F1 females and no
*    effects in F0 females at any concentration. The values were all well
*    within the historical control range for this parameter. There were also
*    no effects on number of implantation sites per litter, on number of
*    total, live or dead pups per litter on pnd 0 or on the percentage of
*    postimplantation loss per litter (prenatal mortality index). There were
*    also no effects on absolute or relative ovary or uterine weight and no
*    treatment-related gross or histopathological findings in these organs.
**
**   Offspring toxicity:
**   Offspring toxicity was present at 1500 and 3000 ppm. Survival indices
*    were unaffected for F1 offspring throughout lactation (pnd 4, 7, 14, 21
*    and 28) and were unaffected for F2 offspring for pnd 7, 14 and 28. The F2
*    survival indices were significantly reduced at 3000 ppm for pnd 4 and 21.
*    The F1 pup body weights per litter were significantly reduced during
*    lactation at 1500 and 3000 ppm on pnd 4, 7, 14, 21 and 28 (but not on pnd
*    0) and at 250 ppm on pnd 14, 21 and 28 (the last only for males). The F2
*    pup body weights per litter were significantly reduced during lactation
*    at 3000 ppm for pnd 0, 4, 7, 14, 21 and 28 and at 1500 ppm for pnd 14 and
*    21. There were no effects on the F2 pups at 250 ppm.  Delays (not
*    correlated with body weight differences) in the age of preputial
*    separation in males (F1 at 1500 and 3000 ppm, and F2 at 3000 ppm) and
*    vaginal patency in females (F1 at 3000 ppm, and F2 at 250 and 3000 ppm)
*    were observed in both generations. Overall the effects seemed more severe
*    on the F1 generation. Shorter anogenital distances at birth were observed
*    in both sexes of the F2 generation. These appeared to be related to lower
*    birth weights. The pattern exhibited by these results was considered more
*    likely to be due to overall toxicity, rather than endocrine disruption,
*    which would be expected to have more severe effects on one sex than the
*    other.
F020 260358
EOR
F002 482
F010 5.8.2
F004 1
F005 CL
F006 There was no evidence of treatment-related teratogenicity at any of the
*    three exposure concentrations and no other developmental effects.  Almost
*    all the fetal malformation and variation findings were those commonly
*    observed in historical c
F007 There was no evidence of treatment-related teratogenicity at any of the
*    three exposure concentrations and no other developmental effects.  Almost
*    all the fetal malformation and variation findings were those commonly
*    observed in historical control Sprague-Dawley rat fetuses and in
*    published control databases.  Therefore, the NOAEL was 250 ppm for
*    maternal toxicity and 1500 ppm for developmental toxicity in rats under
*    the conditions of this study.
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F020 258802
EOR
F002 482
F010 5.8.2
F004 1
F005 RE
F006 Welsch F, Elswick B, James RA, Marr MC, Myers CB and Tyl RW (2003).
*   Developmental toxicity evaluation of inhaled tertiary amyl methyl ether
*   in mice and rats. J Applied Toxicology 23, 387-395.
F007 Welsch F, Elswick B, James RA, Marr MC, Myers CB and Tyl RW (2003).
*   Developmental toxicity evaluation of inhaled tertiary amyl methyl ether
*   in mice and rats. J Applied Toxicology 23, 387-395.
F020 258803
EOR
F002 482
F010 5.8.2
F004 1
F005 RM
F006 In this study, 25 evidence-of-mating-positive females per group were
*   exposed to TAME for 6 hr/day on 14 consecutive days (gd 6-19). Clinical
*   observations were taken daily, except during the exposure period. During
*   this period they were mad
F007 In this study, 25 evidence-of-mating-positive females per group were
*   exposed to TAME for 6 hr/day on 14 consecutive days (gd 6-19). Clinical
*   observations were taken daily, except during the exposure period. During
*   this period they were made at least twice daily, immediately
**   before and after each daily TAME exposure. Maternal body weights were
*   recorded in the morning on gd 0, 6, 9, 12, 15, 18 and 20. Feed
*   consumption was measured for the intervals gd 0-6, 6-9, 9-12, 12-15,
*   15-18, and 18-20. At scheduled termination on gd 20, the dams were
*   evaluated for body, liver and gravid uterine weights. Ovarian corpora
*   lutea were counted and the status of uterine implantation sites (i.e.
*   resorptions, dead fetuses, live fetuses) was recorded. All fetuses were
*   dissected from the uterus, counted and weighed; their gender was
*   determined and the fetuses were examined for external abnormalities.
*   Approximately half of the fetuses in each litter were examined for
*   visceral malformations and variations by a fresh tissue dissection
*   method. The heads of the fetuses were removed and fixed in Bouin's
*   solution; serial free-hand sections of the heads were examined for
*   soft--tissue craniofacial malformations and variations. All fetuses in
*   each litter were eviscerated, fixed in alcohol and stained with alizarin
*   red S/alcian blue. Intact fetuses (approximately half per litter; the
*   one not examined viscerally or decapitated) were examined for skeletal
*   malformations and variations.
**
**   Statistical method:
**   Quantitative continuous data (e.g. maternal body weights, fetal body
*   weights, maternal feed consumptions, etc.) were compared among the three
*   treatment groups against the air inhalation control group by Bartlett's
*   test for homogeneity of variances. If Bartlett's test indicated lack of
*   homogeneity of variances (i.e. P<0.001), then non-parametric statistical
*   tests were employed for the continuous variables. If Bartlett's test
*   indicated homogeneous variances (i.e. P>0.001), then parametric
*   statistical tests were used. Parametric statistical procedures that were
*   applied to selected measures from this developmental toxicity study were
*   as follows. Appropriate general linear model (GLM) procedures were used
*   for the analysis of variance (ANOVA). Prior to GLM analysis, an arcsine

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*    square root transformation was performed on all litter-derived percentage
*    data to allow the use of parametric methods.  For these litter-derived
*    percentage data, the ANOVA was weighted according to litter size.  The
*    GLM analysis was used to determine the significance of the
*    concentration-response relationship (test for linear trend) and to
*    determine whether significant concentration-related effects had occurred
*    for selected measures (ANOVA).  When a significant (P<0.05) main effect
*    for concentration occurred, Dunnett's multiple comparison test was used
*    to compare each TAME-exposed group to the control group for that measure.
*     A one-tailed
**   Test (i.e. Dunnett's test) was used for all pairwise differences from the
*    air-only control group, except that a two-tailed test was used for
*    maternal body and organ weight parameters, maternal feed consumption,
*    fetal body weight and percent of males per litter.
**   Non-parametric tests were used on continuous data without homogeneous
*    variances and included the Kruskal-Wallis test to determine if
*    significant differences were present among the groups, followed by the
*    Mann-Whitney U test for pairwise differences from the designated control
*    group if the Kruskal-Wallis test was significant. Jonckheere's test for k
*    independent samples was applied to identify significant dose-response
*    trends for non-parametric continuous data.  Nominal scale measures were
*    analyzed by the chi-square test for independence for differences among
*    treatment groups and by the Cochran-Armitage test for a linear trend on
*    proportions.  When the chi-square test revealed significant (P<0.05)
*    differences among groups, a two-tailed Fisher's exact probability test
*    with appropriate adjustment for multiple comparisons was used for
*    pairwise differences between each TAME-exposed group and the control
*    group.  A test for statistical outliers was performed on maternal body
*    weights and feed consumption (in g/day).  If examination of pertinent
*    study data did not provide a plausible and biologically sound reason for
*    inclusion of the data flagged as "outlier," the data were excluded from
*    summarization and analysis and were designated as outliers.  If feed
*    consumption data (in g/day) were negative for a given dam and period,
*    they were designated unrealistic and excluded from summarization and
*    analysis.  If feed consumption data for a given observational interval
*    (e.g. gd 6-9, 9-12, 12-15 or 15-17) were designated outliers or
*    unrealistic, then summarized data encompassing this period (e.g.
*    treatment period) also did not include this value.
F020 258799
EOR
F002 482
F010 5.8.2
F004 1
F005 RS
F006 Maternal toxicity observations:
**
**   Prior to the start of exposures, maternal body weights were equivalent
*    across all groups.  Maternal body weight was significantly reduced only
*    at 3500 ppm for gd 12, 15, 18 and 20 (in-life and at termination
F007 Maternal toxicity observations:
**
**   Prior to the start of exposures, maternal body weights were equivalent
*    across all groups.  Maternal body weight was significantly reduced only
*    at 3500 ppm for gd 12, 15, 18 and 20 (in-life and at termination).
*    Maternal weight change was significantly reduced at 1500 and 3500 ppm for
*    gd 6-9
**   and at 3500 ppm for gd 6-20 (exposure period).  Maternal weight change
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*   was significantly reduced at 1500 and 3500 ppm for gd 0-20 (entire
*   gestation period), as was gestational weight change corrected for weight
*   of the gravid uterus. There were no effects on maternal weight change at
*   250 ppm. Gravid uterine weight exhibited a significant
*   exposure-concentration related downward linear trend (P<0.05) but no
*   statistically significant pairwise comparison differences in any group
*   compared with the concurrent control group. Maternal absolute liver
*   weights were equivalent across all groups. At scheduled necropsy,
*   maternal liver weight relative to body weight was significantly increased
*   at 3500 ppm.
**
**   Maternal feed consumption (in g/day) was significantly reduced at 3500
*   ppm for gd 6-9, 9-12, 12-15, 15-18, 18-20, 6-20 (exposure period) and
*   0-20 (gestation period). At 1500 ppm, feed consumption was significantly
*   reduced only for gd 9-12. When the data were expressed as g/kg/day,
*   maternal feed consumption at 3500 ppm was reduced for gd 6-9, 9-12 and
*   6-20. At 1500 ppm, feed consumption (as g/kg/day) was significantly
*   reduced only for gd 6-9. There were no effects of treatment on maternal
*   feed consumption at 250 ppm.
**
**   Clinical observations related to TAME exposure at 3500 ppm included
*   ataxia (after exposure on gd 6-11), dazed appearance (gd 6-12), lethargy
*   (gd 6-13 and 16-19), eyes squinted (gd 6-8 and 10), eyes closed (gd 8 and
*   11), pica (gd 6-14 and 16), slow respiration (gd 6, 8 and 11),
*   piloerection (gd 6, 7, 9, 15, 16, 17 and 19), rough coat (gd 7, 9 and
*   10), facial tremors (gd 8 and 11), gasping (gd 8) and clinical weight
*   loss (>5.0 g within a weighing period) on gd 9. At 1500 ppm, dams
*   exhibited lethargy (one each on gd 6 and 7) and piloerection (one on gd
*   15). At 250 ppm, one dam exhibited pica on gd 6 and two dams exhibited
*   piloerection on gd 19. There was a clear indication of maternal
*   accommodation to the highest TAME exposure concentration, as evidenced by
*   diminution in incidence and intensity of clinical signs such as ataxia,
*   lethargy and slow respiration over time. At scheduled necropsy, no gross
*   anomalies were found in dams.
**
**   Embryo/fetal toxicity
**
**   There were no significant effects of treatment on gestational parameters,
*   including number of ovarian corpora lutea, total number of uterine
*   implantation sites, pre- or post-implantation loss, number of live
*   fetuses per litter and gender ratio (% male fetuses) per litter. Fetal
*   body weight per litter, when calculated as all fetuses,or males or
*   females separately, was significantly reduced at 3500 ppm.
**
**   There were no treatment-related changes in the incidence of individual or
*   pooled external, visceral, skeletal or total malformation or variations
*   by litter or by fetus per litter. One fetus in one litter at 250 ppm
*   exhibited all the external malformations observed in the TAME-exposed
*   groups of this study: unilateral right anophthalmia, ocular orbits close
*   together, agenesis of the nostril and micrognathia. Fetal visceral
*   malformations were almost exclusively limited to hydronephrosis and
*   hydroureter, distributed across 0. 250 and 1500 ppm, and one fetus in one
*   litter at 0 ppm with interventricular septal defect. For fetal skeletal
*   malformations, one fetus at 0 ppm exhibited fused sternebrae, one fetus
*   at 1500 ppm exhibited scrambled sternebrae and agenesis of a rib and one
*   fetus at 3500 ppm exhibited bipartite cartilage and bipartite
*   ossification center in the thoracic centrum. Fetal external variations

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*    were distributed across all groups and were limited to hematomas at
*    various locations.  Fetal visceral variations were distributed across all
*    groups with no TAME exposure-related pattern; they included predominantly
*    enlarged laterl ventricles of the cerebrum and distended ureters, both
*    common findings in term fetuses.  Fetal skeletal variations included
*    misaligned sternebrae and changes in cartilage and bone in the thoracic
*    centra, predominantly extra rib (full or rudimentary) on lumbar vertebra
*    no. 1 across all groups examined.  These variations are common fetal
*    findings.
F020 258800
EOR
F002 482
F010 5.8.2
F004 2
F005 CL
F006 TAME caused only unspecific embryotoxic effects that were apparently
*    related to high exposure concentrations and associated concomitant
*    maternal stress. The NOAEL for maternal and developmental toxicity in
*    mice was 250 ppm in the present st
F007 TAME caused only unspecific embryotoxic effects that were apparently
*    related to high exposure concentrations and associated concomitant
*    maternal stress. The NOAEL for maternal and developmental toxicity in
*    mice was 250 ppm in the present study.
F020 258808
EOR
F002 482
F010 5.8.2
F004 2
F005 RE
F006 Welsch F, Elswick B, James RA, Marr MC, Myers CB and Tyl RW (2003).
*    Developmental toxicity evaluation of inhaled tertiary amyl methyl ether
*    in mice and rats. J Applied Toxicology 23, 387-395.
F007 Welsch F, Elswick B, James RA, Marr MC, Myers CB and Tyl RW (2003).
*    Developmental toxicity evaluation of inhaled tertiary amyl methyl ether
*    in mice and rats. J Applied Toxicology 23, 387-395.
F020 258809
EOR
F002 482
F010 5.8.2
F004 2
F005 RM
F006 In this study, 25 evidence-of-mating-positive females per group were
*    exposed to TAME for 6 hrs per day on 11 consecutive days (gd 6-16).
*    Clinical observations were taken daily, except during the exposure
*    period.  During this period they wer
F007 In this study, 25 evidence-of-mating-positive females per group were
*    exposed to TAME for 6 hrs per day on 11 consecutive days (gd 6-16).
*    Clinical observations were taken daily, except during the exposure
*    period.  During this period they were made at least twice daily,
*    immediately
**   before and after each daily TAME exposure.  Maternal body weights were
*    recorded in the morning on gd 0, 6, 9, 12, 15 and 17.  Feed consumption
*    was measured for the intervals gd 0-6, 6-9, 9-12, 12-15, and 15-17.  At
*    scheduled termination on gd 17, the dams were evaluated for body, liver
*    and gravid uterine weights.  Ovarian corpora lutea were counted and the
*    status of uterine implantation sites (i.e. resorptions, dead fetuses,
*    live fetuses) was recorded.  All fetuses were dissected from the uterus,
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*   counted and weighed; their gender was determined and the fetuses were
*   examined for external abnormalities. Approximately half of the fetuses
*   in each litter were examined for visceral malformations and variations by
*   a fresh tissue dissection method. The heads of the fetuses were removed
*   and fixed in Bouin's solution; serial free-hand sections of the heads
*   were examined for soft--tissue craniofacial malformations and variations.
*   All fetuses in each litter were eviscerated, fixed in alcohol and
*   stained with alizarin red S/alcian blue. Intact fetuses (approximately
*   half per litter; the one not examined viscerally or decapitated) were
*   examined for skeletal malformations and variations.
**
**   Statistical method:
**   Quantitative continuous data (e.g. maternal body weights, fetal body
*   weights, maternal feed consumptions, etc.) were compared among the three
*   treatment groups against the air inhalation control group by Bartlett's
*   test for homogeneity of variances. If Bartlett's test indicated lack of
*   homogeneity of variances (i.e. P<0.001), then non-parametric statistical
*   tests were employed for the continuous variables. If Bartlett's test
*   indicated homogeneous variances (i.e. P>9.001), then parametric
*   statistical tests were used. Parametric statistical procedures that were
*   applied to selected measures from this developmental toxicity study were
*   as follows. Appropriate general linear model (GLM) procedures were used
*   for the analysis of variance (ANOVA). Prior to GLM analysis, an arcsine
*   square root transformation was performed on all liter-derived percentage
*   data to allow the use of parametric methods. For these litter-derived
*   percentage data, the ANOVA was weighted according to litter size. The
*   GLM analysis was used to determine the significance of the
*   concentration-response relationship (test for linear trend) and to
*   determine whether significant concentration-related effects had occurred
*   for selected measures (ANOVA). When a significant (P<0.05) main effect
*   for concentration occurred, Dunnett's multiple comparison test was used
*   to compare each TAME-exposed group to the control group for that measure.
*   A one-tailed
**   Test (i.e. Dunnett's test) was used for all pairwise differences from the
*   air-only control group, except that a two-tailed test was used for
*   maternal body and organ weight parameters, maternal feed consumption,
*   fetal body weight and percent of males per litter.
**   Non-parametric tests were used on continuous data without homogeneous
*   variances and included the Kruskal-Wallis test to determine if
*   significant differences were present among the groups, followed by the
*   Mann-Whitney U test for pairwise differences from the designated control
*   group if the Kruskal-Wallis test was significant. Jonckheere's test for k
*   independent samples was applied to identify significant dose-response
*   trends for non-parametric continuous data. Nominal scale measures were
*   analyzed by the chi-square test for independence for differences among
*   treatment groups and by the Cochran-Armitage test for a linear trend on
*   proportions. When the chi-square test revealed significant (P<0.05)
*   differences among groups, a two-tailed Fisher's exact probability test
*   with appropriate adjustment for multiple comparisons was used for
*   pairwise differences between each TAME-exposed group and the control
*   group. A test for statistical outliers was performed on maternal body
*   weights and feed consumption (in g/day). If examination of pertinent
*   study data did not provide a plausible and biologically sound reason for
*   inclusion of the data flagged as "outlier," the data were excluded from
*   summarization and analysis and were designated as outliers. If feed
*   consumption data (in g/day) were negative for a given dam and period,
*   they were designated unrealistic and excluded from summarization and

```
*    analysis.  If feed consumption data for a given observational interval (
*    e.g. gd 6-9, 9-12, 12-15 or 15-17) were designated outliers or
*    unrealistic, then summarized data encompassing this period (e.g.
*    treatment period) also did not include this value.
F020 258805
EOR
F002 482
F010 5.8.2
F004 2
F005 RS
F006 Maternal toxicity observations:
**
**   In this study, inhalation of TAME by pregnant mice during gestation days
*    6-16 resulted in maternal toxicity at 3500 ppm, including maternal
*    mortality (4 of 25), reductions in body weight, weight gain and tre
F007 Maternal toxicity observations:
**
**   In this study, inhalation of TAME by pregnant mice during gestation days
*    6-16 resulted in maternal toxicity at 3500 ppm, including maternal
*    mortality (4 of 25), reductions in body weight, weight gain and
*    treatment-related clinical signs of toxicity.  The increased maternal
*    absolute and relative liver weights at 1500 and 3500 ppm may have been
*    due to induction of metabolizing enzymes and therefore increase in mass.
**
**   Maternal body weight was significantly reduced only at 3500 ppm for gd 15
*    and 17 (in-life and at termination). Prior to the start of exposures,
*    maternal body weights were equivalent across all groups.  Maternal weight
*    change was significantly reduced at 3500 ppm for gd 9-12, 12-15, 15-17,
*    6-17 (exposure period) and 0-17 (entire gestation period).  Maternal
*    gestational weight change, corrected for the weight of the gravid uterus,
*    was unaffected across groups. There were no effects on maternal weight
*    change at 250 or 1500 ppm.  Gravid uterine weight was significantly
*    reduced at 3500 ppm. Maternal absolute liver weight was significantly
*    increased at 1500 ppm but not at 3500 ppm, although the value at 3500 ppm
*    was slightly increased.  Maternal liver weight relative to weight at
*    termination was significantly increased at 1500 and 3500 ppm.  The
*    increased relative liver weight may also have been due, in part, to the
*    reduced body weights of the dams at termination at 3500 ppm.
**
**   Clinical observations related to TAME exposure at 3500 ppm included
*    ataxia, hyperactivity, prone positioning, lethargy, gasping, rough coat,
*    slow respiration, head tremors, squinted eyes, and maternal mortality. At
*    1500 ppm, dam exhibited half-closed eyes and head tremors.  At 250 ppm,
*    one dam delivered early on gd 16.  In addition to solvent smell on fur,
*    findings for the unscheduled deaths at 3500 ppm included red to dark red
*    nail beds, red foci or red areas on lungs.  These findings appeared to be
*    consistent with severe congestion.  There was clear indication of reduced
*    pharmacological effects with time and maternal accommodation to the top
*    two exposure concentrations.  This interpretation was supported by
*    observations of mortality at 3500 ppm early in the exposure period (gd
*    6-9) only and diminution over time in the incidence of clinical signs of
*    toxicity, such as ataxia, lethargy, gasping and slow respiration. At
*    scheduled necropsy, there were no gross findings in dams indicative of
*    any lesions caused by the TAME exposure.
**
**   Maternal feed consumption (in g/day) was significantly reduced at 3500
*    ppm for gd 9-12, 12-15, 15-17, and 6-17 (exposure period).  Maternal feed
```

* consumption for the gestational period (gd 0-17) was unaffected across
* the other groups. At 1500 ppm, feed consumption was significantly
* reduced only for gd 6-9. When the data were expressed as g/kg/day,
* maternal feed consumption at 3500 ppm reduced only for gd 9-12. At 1500
* ppm, feed consumption (as g/kg/day) was unaffected. There were no
* effects of treatment on maternal feed consumption at 250 ppm.
**
** Embryo/fetal toxicity
**
** There were no significant effects of maternal TAME vapor inhalation on
* gestational parameters, including number of ovarian corpora lutea, total
* number of uterine implantation sites, pre- or post-implantation loss,
* number of live fetuses per litter and gender ratio (% male fetuses) per
* litter. At 3500 ppm, there were significant increases in the percentage
* of late fetal deaths per litter and percentage of litters with late fetal
* deaths. There were significant concentration-related upward trends for
* percentage of non-live implants per litter and percentage of adversely
* affected (non-live plus malformed) implants per litter, with no
* significant pairwise comparisons with the concurrent control group
* values. Fetal body weight per litter when calculated as all fetuses, or
* males or females separately, was significantly reduced at 3500 ppm.
**
** A statistically significant TAME-exposure-related increase was observed
* in the percentage of litters with fetal external malformations at 3500
* ppm (31.68%); the value at 1500 ppm was also increased (18.28%) but not
* statistically significantly relative to the control group value (0.00%).
* A statistically significant, treatment-related increase was also observed
* in the percentage of litters with visceral variations at 3500 ppm
* (89.47%) relative to the control group value (47.83%). Values at 250 ppm
* (52.38%) and 1500 ppm (50.00%) were unchanged from the control group
* value. There were statistically significant, treatment-related upward
* trends (P<0.001) for the percentage of fetuses with variations per litter
* and for the percentage of male fetuses (but not for female fetuses) with
* variations per litter but no significant pairwise comparisons with the
* concurrent control group values for these parameters. The incidences of
* visceral, skeletal and total malformations and of external, skeletal and
* total variations were unchanged across groups when expressed as fetuses
* per litter or as litters with affected fetuses. External malformations
* were limited to cleft palate in three fetuses in three litters at 1500
* ppm and 11 fetuses in six litters at 3500 ppm. One litter at 1500 ppm had
* three fetuses with polydactyly of fore- and hindpaws, one fetus with
* exencephaly and open left eye and one fetus with micrognathia and
* polydactyly. Fetal skeletal malformations were also distributed across
* all groups, with findings limited to the sternum (sternal plate and
* sternebrae) and ribs (branched, fused and inappropriate attachments of
* floating ribs to the sternum).
**
** Fetal external variations were limited to hematomas in various locations
* at 250 and 1500 ppm. Fetal visceral variations were limited mainly to
* enlarged lateral ventricles of the cerebrum across all groups. One fetus
* in one litter at 0 ppm and three fetuses in three litters at 1500 ppm had
* red foci on urinary bladder and one fetus in one litter at 0 ppm had red
* foci on kidney. The incidence of enlarged lateral ventricles (full) and
* bilateral ventricles exhibited a clear treatment-related increased
* incidence only at 3500 ppm, with eight affected fetuses in seven litters
* at 0 ppm, six affected fetuses in four litters at 250 ppm, seven affected
* fetuses in seven litters at 1500 ppm and 38 affected fetuses in 16

```
*    litters at 3500 ppm.  Fetal skeletal variations included extra rib(s) on
*    lumbar vertebra no. 1 in all groups, misaligned sternebrae at 0, 250 and
*    1500 ppm, reduced ossification in sternebrae in all groups, in lumbar
*    centrum at 1500 ppm and in thoracic centrum and pubis at 3500 ppm and
*    floating extra rib cartilage at 1500 ppm.
**
**   Developmental toxicity was present at 3500 ppm, expressed specifically as
*    increased incidence of late fetal deaths, reduced fetal body weights per
*    litter and increased incidences of cleft palate (an external
*    malformation) and of enlarged lateral ventricles of the cerebrum ( a
*    visceral variation).  At 1500 ppm, three fetuses in three litters also
*    exhibited cleft palate (with none observed at 250 of 9 ppm).  This
*    increase was not statistically significant, but it is considered
*    biologically relevant and related to maternal TAME exposure.  The finding
*    of one additional litter at 1500 ppm with three multiply malformed
*    fetuses (out of nine live fetuses total) may be unrelated to treatment
*    because these malformations were not observed at 3500 ppm and were
*    limited to only one litter at 1500 ppm.  The observation of cleft palate
*    in fetuses at 1500 and 3500 ppm appears to be consistent with a proposed
*    mechanism for cleft palate in mice exposed to methyl tertiary butyl ether
*    (MTBE).  Maternal exposure to MTBE with anesthetic qualities at high
*    concentrations associated with maternal stress results in elevated
*    endogenous corticosteroid levels, which cause cleft palate in the
*    developing offspring in mice (Bevan et al., 1997).  Although those
*    hormone levels were not determined in the present study, the biological
*    mode of action of TAME appears to be similar and comparable to that of
*    MTBE, as judged by clinical observations.  At high exposure
*    concentrations in mice, TAME exerts depressant effects on the central
*    nervous system that resemble anesthetic properties and are preceded by a
*    pronounced excitatory stage.  Therefore, the brain stimulation and
*    excitation may have induced a rise in endogenous corticosteroid levels in
*    the mouse dams. The occurrence of a significantly increased incidence of
*    fetal cleft palate at the 3500 ppm exposure level, coincident with
*    maternal toxicity, suggests that stress of the dams is a contributing
*    factor.  Mice are sensitive to stress, and cleft palate occurs in
*    offspring if the pregnant dams experience stress such as food and water
*    deprivation, transportation, restraint or low humidity.  That
*    corticosteroids cause cleft palate in susceptible mouse strains is well
*    documented.
**
**   The increased incidence of enlarged lateral ventricles of the fetal
*    cerebrum at 3500 ppm is consistent with developmental delay because the
*    fetuses at this exposure concentration exhibited mean body weights per
*    litter of ca. 60% of the concurrent control group values.  There were no
*    notable developmental effects at 250 ppm.  Almost all of the fetal
*    malformations and variation findings observed in the present study are
*    documented in control CD-1 mice fetuses collected at the Research
*    Triangle Institute.  In that historical database (47 control mouse
*    litters with 589 fetuses), bilateral enlarged lateral ventricles was the
*    most common fetal visceral variation in control fetuses.
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Data Set

Existing Chemical	:	ID: 6795-87-5
CAS No.	:	6795-87-5
TSCA Name	:	Butane, 2-methoxy
EINECS Name	:	Methyl-sec-butyl ether
Molecular Formula	:	C5H12O

Producer related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	17.10.2007

Substance related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	17.10.2007
Status	:	
Memo	:	U.S. EPA - HPV Challenge Program
Printing date	:	18.10.2007
Revision date	:	
Date of last update	:	18.10.2007
Number of pages	:	22
Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type	**:**	
Substance type	**:**	organic
Physical status	**:**	gaseous
Purity	**:**	
Colour	**:**	
Odour	**:**	

17.10.2007

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= -100 °C
Sublimation	:	
Method	:	other: calculated
Year	:	
GLP	:	
Test substance	:	
Method	:	Melting Point is calculated by the MPBPWIN, version 1.42, a subroutine of the computer program EPI SuiteTM, version 3.20, (2000) which is based on the average result of the methods of K. Joback and Gold and Ogle. Joback's Method is described in Joback K (1982). A Unified Approach to Physical Property Estimation Using Multivariate Statistical Techniques. In The Properties of Gases and Liquids. Fourth Edition. (1987). R Reid, J Prausnitz and B Poling, Eds. The Gold and Ogle Method simply uses the formula Tm = 0.5839Tb, where Tm is the melting point in Kelvin and Tb is the boiling point in Kelvin.
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPI SuiteTM. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (9)

2.2 BOILING POINT

Value	:	= 65 °C at 1012 hPa
Decomposition	:	
Method	:	other: calculated
Year	:	
GLP	:	
Test substance	:	
Method	:	Calculated values using MPBPWIN version 1.42, a subroutine of the computer program EPIWIN version 3.20
Test condition	:	Boiling Point is calculated by the MPBPWIN subroutine, which is based on the method of S. Stein and R. Brown in "Estimation of Normal Boiling Points from Group Contributions". 1994. J. Chem. Inf. Comput. Sci. 34: 581-587.
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPI SuiteTM. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (9)

2.3 DENSITY

Type	:	density
Value	:	= .742 g/cm³ at 20 °C

Method	:	other: not specified
Year	:	
GLP	:	
Test substance	:	
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (1)

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value	:	= 277.3 hPa at 25 °C
Decomposition	:	
Method	:	other (measured)
Year	:	
GLP	:	no data
Test substance	:	
Remark	:	This vapor pressure indicates that MSBE is highly volatile.
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. However, the data source is a peer reviewed publication.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (2)

2.5 PARTITION COEFFICIENT

Partition coefficient	:	octanol-water
Log pow	:	= 1.47 at 25 °C
pH value	:	
Method	:	other (calculated)
Year	:	
GLP	:	
Test substance	:	
Method	:	Calculated values using KOWWIN version 1.67, a subroutine of the computer program EPIWIN version 3.20
Test condition	:	Octanol / Water Partition Coefficient is calculated by the KOWWIN subroutine, which is based on an atom/fragment contribution method of W. Meylan and P. Howard in "Atom/fragment contribution method for estimating octanol-water partition coefficients". 1995. J. Pharm. Sci. 84:83-92.
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPI SuiteTM. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (9)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	= 16400 mg/l at 25 °C
pH value	:	
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	
Stable	:	
Deg. product	:	
Method	:	other: not specified
Year	:	
GLP	:	no data
Test substance	:	
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. However, the data source is a peer reviewed publication.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (10)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

Type	:	air
Light source	:	Sun light
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	1500000 molecule/cm³
Rate constant	:	= .0000000000001687 cm³/(molecule*sec)
Degradation	:	= 50 % after 7.6 hour(s)
Deg. product	:	
Method	:	other (calculated): Calculated values using AOPWIN version 1.92, a subroutine of the computer program EPI SuiteTM version 3.20
Year	:	
GLP	:	
Test substance	:	

Method	:	Calculated values using AOPWIN version 1.92, a subroutine of the computer program EPI SuiteTM version 3.20 Indirect photodegradation, or atmospheric oxidation potential, is based on the structure-activity relationship methods developed by R. Atkinson under the following conditions: Temperature: 25°C Sensitizer: OH- radical Concentration of Sensitizer: 1.5E6 OH- radicals/cm
Remark	:	Methyl-sec-butyl ether has the potential to volatilize to air, based on a relatively high vapor pressure, where it is subject to atmospheric oxidation. In air, methyl-sec-butyl ether can react with photosensitized oxygen in the form of hydroxyl radicals (OH-). The computer program AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the 12-hour day half-life value normalizes degradation to a standard day light period during which hydroxyl radicals needed for degradation are generated), based on an OH- reaction rate constant and a defined OH- concentration. Based on a 12-hour day, a rate constant of 16.87 E-12 cm3/molecule*sec, and an OH- concentration of 1.5 E6 OH-/cm3, methyl-sec-butyl ether has a calculated half-life in air of 0.63 days or 7.6 hours of daylight.
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions The value was calculated based on chemical structure as modeled by EPIWIN. This robust summary has a reliability rating of 2 because the data are calculated and not measured.
Flag	:	Critical study for SIDS endpoint

17.10.2007 (9)

Type	:	water
Light source	:	
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight

Method	:	Technical Discussion
Remark	:	Direct photochemical degradation occurs through the absorbance of solar radiation by a chemical substance in aqueous solution. If the absorbed energy is high enough, then the resultant excited state of the chemical may undergo a transformation. A prerequisite for direct photodegradation is the ability of one or more bonds within a chemical to absorb ultraviolet

(UV)/visible light in the 290 to 750 nm range. Light wavelengths longer than 750 nm do not contain sufficient energy to break chemical bonds, and wavelengths below 290 nm are shielded from the earth by the stratospheric ozone layer (Harris, 1982).

An approach to assessing the potential for a substance to undergo photochemical degradation is to assume that degradation will occur in proportion to the amount of light wavelengths >290 nm absorbed by constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding electrons in ethers do not give rise to absorption above 160 nm, which is why pure ether solvents can be used in spectroscopic studies. Consequently, methyl-sec-butyl ether is not subject to photolytic processes in the aqueous environment.

Test substance : CAS #6795-87-5; methyl-sec-butyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability of 2 because it is a technical discussion and not a study.

17.10.2007 (4) (11)

3.1.2 STABILITY IN WATER

Type : abiotic
t1/2 pH4 : at °C
t1/2 pH7 : at °C
t1/2 pH9 : at °C
Deg. product :
Method : other: Technical Discussion
Year :
GLP :
Test substance :

Result : Hydrolysis of an organic chemical is the transformation process in which a water molecule or hydroxide ion reacts to form a new carbon-oxygen bond. Chemicals with leaving groups that have a potential to hydrolyze include alkyl halides, amides, carbamates, carboxylic acid esters and lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould, 1959). The lack of a suitable leaving group renders a compound resistant to hydrolysis. Methyl-sec-butyl ether is resistant to hydrolysis because it lacks a functional group that is hydrolytically reactive and Harris (1982) identifies ether groups as generally resistant to hydrolysis. Therefore, hydrolysis will not contribute to the removal of Methyl-sec-butyl ether from the environment.

Test substance : CAS #6795-87-5; methyl-sec-butyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability of 2 because it is a technical discussion and not a study.
Flag : Critical study for SIDS endpoint

17.10.2007 (3) (5)

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type : fugacity model level I
Media : other: air - biota - sediment(s) - soil - water
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: Calculation according Mackay, Level I
Year :

Remark : Physicochemical data used in the calculation:

Parameter	Value w/ Units
Molecular Weight =	88.15
Temperature =	25° C
Log Kow =	1.47
Water Solubility =	16,400 g/m3
Vapor Pressure =	27,730 Pa
Melting Point =	-100.0° C

Result : Using the Mackay Level I calculation, the following distribution is predicted for methyl-sec-butyl ether:

%Distribution	Compartment
96.70	Air
3.22	Water
0.08	Soil
<0.01	Sediment
<0.01	Suspended Sediment
<0.01	Biota

Test substance : CAS #6795-87-5; methyl-sec-butyl ether
Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated.
Flag : Critical study for SIDS endpoint
17.10.2007 (6)

Type : fugacity model level III
Media :
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001)
Year :

Method : Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001). Mass balances are calculated for the four bulk media of air (gas + aerosol), water (solution + suspended sediment + biota), soil, (solids + air + water), and sediment (solids + pore water). Equilibrium exists within, but not between media. Physical-chemical properties are used to quantify a chemical's behavior in an evaluative environment. Three types of chemicals are treated in this model: chemicals that partition into all media (Type 1), non volatile chemicals (Type 2), and chemicals with zero, or near-zero, solubility (Type 3). The model cannot treat ionizing or speciating substances. The Level III model assumes a simple, evaluative environment with user-defined volumes and densities for the following homogeneous

environmental media (or compartments): air, water, soil, sediment, suspended sediment, fish and aerosols.

This model provides a description of a chemical's fate including the important degradation and advection losses and the intermedia transport processes. The distribution of the chemical between media depends on how the chemical enters the system, e.g. to air, to water, or to both. This mode of entry also affects persistence or residence time.

The rates of intermedia transport are controlled by a series of 12 transport velocities. Reaction half-lives are requested for all 7 media. The advective residence time selected for air also applies to aerosols and the residence time for water applies to suspended sediment and fish. The advective residence time of aerosols, suspended sediment and fish cannot be specified independently of the air and water residence times.

Result : Output:

	Mass%	Emissions(kg/hr)
Air	7.3	1000
Water	64.8	1000
Soil	27.8	1000
Sediment	0.2	0

Test condition : Physicochemical data used in the calculation:

Parameter	Value w/ Units
Molecular Weight =	88.15
Temperature =	25° C
Log Kow =	1.47
Water Solubility =	16,400 g/m3
Vapor Pressure =	27,730 Pa
Melting Point =	-100.0° C

Reaction Half Lives in hours as predicted using EPI SuiteTM:

Air (gaseous)	7.6
Water (no susp. part.)	360
Bulk Soil	720
Bulk Sediment	3240

Environmental Properties (EQC standard environment)
Dimensions (all defaults)
Densities (all defaults)
Organic carbon & Advection (all defaults)
Transport Velocities (all defaults)

Emission and Inflows (defaults used)
Air 1000 kg/hr
Water 1000 kg/hr
Soil 1000 kg/hr
Sediment 0 kg/hr

Test substance : CAS #6795-87-5; methyl-sec-butyl ether

Conclusion : The majority of methyl-sec-butyl ether (MSBE) is calculated to partition into the water phase, with smaller but significant amounts into air and soil, based on the modeling parameters used in this calculation. MSBE is considered to be a Type 1 chemical with potential to partition into all environmental compartments.

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated.

Flag : Critical study for SIDS endpoint

17.10.2007 (7)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	:	
Species	:	other: Fish
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 206 calculated
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Test condition : Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and melting point, -100.0°C were entered into the program.

Class: Neutral organics

Test substance : CAS #6795-87-5; methyl-sec-butyl ether

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

Flag : Critical study for SIDS endpoint

18.10.2007 (9)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	
Species	:	other: Daphnia
Exposure period	:	48 hour(s)
Unit	:	mg/l

EC50	:	= 213 calculated
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Test condition : Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and melting point, -100.0°C were entered into the program.

Class: Neutral organics

Test substance : CAS #6795-87-5; methyl-sec-butyl ether

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

Flag : Critical study for SIDS endpoint

18.10.2007 (9)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species	:	other algae: Green Alga
Endpoint	:	
Exposure period	:	96 hour(s)
Unit	:	mg/l
EC50	:	= 129 calculated
ChV	:	= 9.5 calculated
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of

chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Test condition : Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and melting point, -100.0°C were entered into the program.

Class: Neutral organics

Test substance : CAS #6795-87-5; methyl-sec-butyl ether

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

Flag : Critical study for SIDS endpoint

18.10.2007 (9)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

5.1.2 ACUTE INHALATION TOXICITY

Type	:	LC50
Value	:	= 141000 - mg/m³
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	141 gm/m3/15M
Exposure time	:	
Method	:	other: not specified
Year	:	1950
GLP	:	no
Test substance	:	
Remark	:	Other effects reported as: General anesthetic
Test substance	:	CAS #6795-87-5; methyl-sec-butyl ether
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure. However, the data comes from a peer-reviewed source.
Flag	:	Critical study for SIDS endpoint

18.10.2007 (8)

5.1.3 ACUTE DERMAL TOXICITY

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

5.2.2 EYE IRRITATION

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

5.5 GENETIC TOXICITY ‘IN VITRO‘

5.6 GENETIC TOXICITY ‘IN VIVO‘

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) Aldrich Handbook (2003-2004). Fine Chemicals and Laboratory Equipment.

(2) Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As

(3) Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt, Reinhart and Winston, New York, NY, USA.

(4) Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(5) Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(6) Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(7) Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(8) Marsh DF, Leake CD (1950). The comparative anesthetic activity of the aliphatic ethers. Anesthesiology 11: 455-463.

(9) U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM, Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.

(10) Wakita, K., M. Yoshimoto, S. Miyamoto and H. Watanabe. (1986). A method for calculation of the aqueous solubility of organic compounds by using new fragment solubility constants. Chem. Pharm. Bull. 34:4663-4681.

(11) Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous environment. Environ Sci Technol 11, 359-366.

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT

I U C L I D

Data Set

Existing Chemical	:	ID: 1634-04-4
CAS No.	:	1634-04-4
EINECS Name	:	tert-butyl methyl ether
EC No.	:	216-653-1
TSCA Name	:	Propane, 2-methoxy-2-methyl-
Molecular Formula	:	C5H12O

Producer related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	01.10.2007

Substance related part

Company	:	ExxonMobil Biomedical Sciences Inc.
Creation date	:	01.10.2007
Status	:	
Memo	:	U.S. EPA - HPV Challenge Program
Printing date	:	16.10.2007
Revision date	:	
Date of last update	:	16.10.2007
Number of pages	:	71
Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type :
Substance type : organic
Physical status : liquid
Purity :
Colour :
Odour :

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Purity type :
Substance type : petroleum product
Physical status : liquid
Purity :
Colour :
Odour :

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1,1-dimethyl ether

Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

DRIVERON

Source : Huels AG Marl
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl 1,1-dimethylethyl ether

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl 1,1-dimethylethyl ether

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl tertbutyl ether

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl tertbutyl ether

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl tertiary butyl ether

Source : Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl-1,1-dimethylethylether

Source : Huels AG Marl
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl-tert. - butylether

Source : DSM Hydrocarbons B.V. Sittard
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

METHYL-TERT. BUTYL ETHER

Source : Neste MTBE S.A. Linda-a-Velha
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

METHYL-TERT. BUTYL ETHER

Source : NESTE MTBE Business Unit ESPOO
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

METHYL-TERT. BUTYL ETHER

Source : Neste Oy Espoo
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

methyl-tert.-butyl ether

Source : NEREFCO, Netherlands Refining Company (BP/Texaco Joint Venture) B.V. Rozenburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

methyl-tert.-butyl ether

Source : BP Lavera SNC, Raffinerie de Lavera Lavera
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

methyl-tert.-butyl ether

Source : BP Oil Espana, S.A. Madrid
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

methyl-tert.-butyl ether

Source : BP Austria Aktiengesellschaft Wien
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

methyl-tert.-butyl ether

Source : RVI - Raffineriegesellschaft Vohburg-Ingolstadt mbH Ingolstadt
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Methyl-tert.-butylether

Source : Huels AG Marl
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Metil-terz,-butil etere; MTBE

Source : PRAOIL S.R.L. ASSAGO MI
ECB - Existing Chemicals Ispra (VA)

Exxon Chemical Europe Inc. Bruxelles

04.11.1997

metyylitertiäärinen butyylieetteri

Source : Neste Oy Espoo
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : DSM Hydrocarbons B.V. Sittard
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Neste MTBE S.A. Linda-a-Velha
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Agip Petroli SpA ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Huels AG Marl

ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Brenntag AG Muehlheim a. d. Ruhr
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Mobil Marketing und Raffinerie GmbH, Raffinerie W"rth W"rth am Rhein
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Leuna Raffineriegesellschaft mbH Leuna
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : NESTE MTBE Business Unit ESPOO
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE

Source : Neste Oy Espoo
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

mtbe, mtb, tert-butylmethylether, 2-methoxy-2-methylpropan

Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, Propane, 2-Methoxy-2-Methyl,

Source : OK Raffinaderi AB Gøteborg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Buthyl Methyl Ether

Source : Anonima Petroli Italiana ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : Kuwait Petroleum Italia Roma
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : Statoil København K
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : Statoil A/S Copenhagen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

MTBE, ter-Butyl Methyl Ether

Source : Statoil Ireland Limited Dublin 2
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Propane, 2-methoxy-2-methyl

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Propane, 2-methoxy-2-methyl

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Propane, 2-methoxy-2-methyl-

Source : Huels AG Marl
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Ter-Butyl-Methyl-Ether

Source : Agip Petroli SpA ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

tert-butyl methyl ether

Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

Quantity : 500000 - 1000000 tonnes in

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

Type of use : type
Category : Non dispersive use

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : type

Category : Use in closed system

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : type
Category : Wide dispersive use

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : industrial
Category : Basic industry: basic chemicals

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : industrial
Category : Fuel industry

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : Fuel

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : Fuel additives

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : Intermediates

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : Solvents

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : other: componente benzine

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : other: gasoline component

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

Type of use : use
Category : other

Source : ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Flag : non confidential
04.11.1997

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

Type of limit : MAK (DE)
Limit value :

Country : Germany
Remark : MAK-Wert not established
Source : Huels AG Marl
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other
Limit value : 185 mg/m3
Short term exposure limit value
Limit value : 280 mg/m3
Time schedule :
Frequency : times

Remark : Sweden
185 mg/m3 8 kr.
Source : DSM Hydrocarbons B.V. Sittard
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Type of limit: 8 hours TWA.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Type of limit: 8 hours TWA.
Source : FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Type of limit: 8 hours TWA.
Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Type of limit: 8 hours TWA.
Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Remark : Il limite indicato è stabilito dalla Svezia ed è da intendersi come TWA su 8 ore.
Source : Agip Petroli SpA ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Tye of limit: 8 hours TWA.
Source : Statoil København K
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Tye of limit: 8 hours TWA.
Source : Statoil A/S Copenhagen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other
Limit value : 180 mg/m3

Country : Sweden
Remark : Tye of limit: 8 hours TWA.
Source : Statoil Ireland Limited Dublin 2
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other: 8 hours TWA
Limit value : 180 mg/m3

Source : Anonima Petroli Italiana ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other: Exxon recommended Occupational Exposure Limits
Limit value : 100 ml/m3
Short term exposure limit value
Limit value : 50 ml/m3
Time schedule : 15 minute(s)
Frequency : times

Remark : Exxon Occupational Exposure Limits (OEL) are Time Weight Averaged (TWA) concentrations for an 8-hour workweek.
Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997 (35)

Type of limit : other: Sweden
Limit value : 180 mg/m3

Source : OK Raffinaderi AB Gøteborg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other: WEEL(Work place exposure limit,ACGIH)/TWA
Limit value : 100 ml/m3

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Type of limit : other: WEEL(Work place exposure limit,ACGIH)/TWA
Limit value : 100 ml/m3

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)

ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : None established
Source : Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Source : PRAOIL S.R.L. ASSAGO MI
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Workplace exposure literature:

MTBE exposure additional to sources as reported by our Environmental Protection Agency. (1986). SAF studies, surveys and reports on employees exposure to butadiene, methanol, tertiary-butyl alcohol, and other hydrocarbons. TSCA Section 4 Submission.

Hartle, R. (1993). exposure to methyl tert-butyl ether and benzene among service station attendants and operators. Environ. Health Perspect., 101, S 6:23-26.

NIOSH. (1978). Information Profiles on Potential Occupational Hazards: Methyl-tert-Butyl-Ether. Report No. PB87-174603.

Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : nicht festgelegt
Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997 (24)

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997 (23)

Remark : Nell'uso come carburante l'esposizione è possibile nelle fasi di distribuzione e dei rifornimento dei veicoli
Utilizzato in sistemi chiusi: esposizione possibile durante il campionamento.
Source : Agip Petroli SpA ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
04.11.1997

Remark : Utilizzato in sistemi chiusi: l'esposizione può verificarsi nelle fasi di campionamento del prodotto.
Source : PRAOIL S.R.L. ASSAGO MI
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : Anonima Petroli Italiana ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : MTBE is produced in a closed system which is only opened for maintenance. Exposure of MTBE occurs therefor only at the end-user level.
Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : Statoil København K
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : Statoil A/S Copenhagen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Expositionsgefahr bei Herstellung, Lagerung, Umschlag, Transport.
Source : DEA Mineraloel AG Hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : exposition bei transport lagerung und umschlag
Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Due to the type of use of MTBE, exposure occurs mainly at the end-user level.
Source : Statoil Ireland Limited Dublin 2
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

1.11 ADDITIONAL REMARKS

Remark : TRANSPORT INFORMATION

UN Number: 2398
Class: 3
Packing Group: II
Proper Shipping Name: Methyl tertiary butyl ether

Sea (IMO)
Class: 3.1
Packing Group: II
Symbol: Flammable liquid
Marine Pollutant (Y/N): No

Rail/Road (RID/ADR)
Class: 3
Item: 3(b)
Symbol: Flammable liquid
Kemler Plate: 33/2398

Air (IATA/ICAO)
Class: 3
Packing Group: II
Symbol: Flammable liquid

Source : Shell Nederland Chemie B.V. Hoogvliet-Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Transport by barge (sometimes railroad tankwagon and roadtanker.

Source : DSM Hydrocarbons B.V. Sittard
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Brenntag AG
Hauptverwaltung
Humboldtring 15
45422 Mulheim an der Rurh
Germany

Oberrheinische Mineralolwerke GmbH
Dea Schosenstrasse
76187 Karlsruhe
Germany

Lindsey Oil Refinery Ldt
Killingholme, Grimsby
South Humberside DN40 3LW
United Kingdom
EXXON Chemical Limited
4600 Parkway
Fareham, Hampshire PO15 7AP
United Kingdom

HUELS AG
Paul Baumann Strasse 1
D-45764 Marl
Germany

Shell international Company Ltd.
Shell Center
SE1 7NA London
United Kingdom
Kuwait Petroleum Italia
Viale dell'Oceano Indiano 13
00144- Rome
Italy

DEA Mineraloel AG
Uberseering 40
D-22297 Hamburg
Netherlands

Mobil Marketing und Raffinerie GmbH
Raffinerie Worth
76744 Worth
Germany
Leuna Raffineriegellschaft mbH
Am Haupttor, Bau 18
06236 Leuna
Germany
Shell Nederland BV
Vondelingenweg 601
3196 KK Rotterdam
Netherlands

Deutsche Shell AG
Dept QSU-QS
Uberseering 35
22297 Hamburg
Netherlands

NESTE OY
Corporate Environment & Safety
Keilaniemi
PO Box 20
SF-02151 Espoo
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The HEDSET is submitted on behalf of the following companies:

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00142 Roma
Italy

ARCO CHIMIE FRANCE SNC.
BP 201
13775 Fos sur Mer Cedex
France

DSM Hydrocarbons BV
Poststraat 1
6135 KR Sittard
Netherlands

Source **:** ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Methods of carriage : sea
Quantity : 4780 ton
ADNR-class : 3(111a)/6301/1a
ADNR-category : K1s
ADR/RID number : 1203
ADR/RID-class : 3.3b)
UN number : 1203
Danger identification number : 33

Source : FINA RAFFINADERIJ ANTWERPEN N.V. Antwerpen
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : FROM CHAPTER 1.6.1 ONWARDS, PLEASE REFER TO THE FULL HEDSET
SUBMITTED BY THE COMPANY MENTIONED ON SECTION 1.03.

Source : ARCO CHIMIE FRANCE SNC. Fos sur Mer Cedex
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : DISPOSAL CONSIDERATIONS: Take up with sand or other noncombustible adsorbent material and place into containers for later disposal. Surplus : controlled incineration.

HANDLING: Wear appropiate boots and gloves. Use antistatic footwear; self contained breathing apparatus, in case of vapours. Eliminate all sources of ignition from areas where the material is stored, handled or used. Good local exhaust ventilation in confined areas.

STORAGE: Protect against physical damage and fire. Outdoor or detached storage is prefered. For indoor storage, use areas prepared for flammable liquid storage. Containers product resistant, properly identified, placed inappropiated areas.

TRANSPORT:
UN No: 2398
Hazard identification No: 33
ADR(TPC)/RID(TPF): Class 3,item 3b
IATA: Class 3
IMDG: Class 3.2

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : DISPOSAL CONSIDERATIONS: Take up with sand or other noncombustible adsorbent material and place into containers for later disposal. Surplus : controlled incineration.

HANDLING: Wear appropiate boots and gloves. Use antistatic footwear; self contained breathing apparatus, in case of vapours. Eliminate all sources of ignition from areas where the material is stored, handled or used. Good local exhaust ventilation in confined areas.

STORAGE: Protect against physical damage and fire. Outdoor or detached storage is prefered. For indoor storage, use areas prepared for flammable liquid storage. Containers product resistant, properly identified, placed inappropiated areas.

TRANSPORT:
UN No: 2398
Hazard identification No: 33
ADR(TPC)/RID(TPF): Class 3,item 3b
IATA: Class 3
IMDG: Class 3.2

Source : PETRONOR Las Arenas. Guecho (VIZCAYA)
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Prescrizioni di sicurezza per il trasporto:

ADR/RID: 3.17° b)
UN : 1230
Questo File HEDSET viene presentato dalla Societ... AGIP PETROLI come caposettore di un gruppo industriale di cui fanno parte le societ... ECOFUEL SpA e PRAOIL Srl.

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Viale Brenta 15
20139 MILANO MI
fax +39-2-52021943

PRAOIL Srl
Strada 2 Palazzo F 7
20090 ASSAGO-MILANOFIORI MI
fax +39-2-52026986

Source : Agip Petroli SpA ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Transportation classification:
By Land:railroad/road (ARD/RID)
ADR/RID Class: 3,3 eb ; Danger number:33 ; Danger label:3
Substance ID number : 2398
By Inland waterways (ADN/R)
ADN/R Class : III a,1.a
By Sea (IMDG)
UN number : 2398 ; IMO Class: 3.1 ; EMS number : 3.07 ; Risk label : 3 ; IMDG code : 3136 ; MFAG number : 330 ; Packaging group : II
Waste disposal: MTBE can be disposed of by controlled incineration, use as a fuel component or recovered by distillation.

Source : EXXON CHEMICAL, Limited Fareham, Hampshire
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : Entsorgung: Rückgewinnung durch Destillation
Transportvorschriften: Kl.3; Ziff.3b); Kemmlerzahl 33;

UN-Nr.2398.

Source : DEA Mineraloel AG Hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Remark : als sehr leicht entzündliche flüssigkeit handhaben
zur entsorgung fachmann heranziehen.

Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= -108.6 °C
Decomposition	:	no, at °C
Sublimation	:	no
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	
Reliability	:	(2) valid with restrictions The CRC Handbook of Chemistry and Physics is a peer reviewed publication. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

16.10.2007 (12) (55) (60)

2.2 BOILING POINT

Value	:	= 55.3 °C at 1013 hPa
Decomposition	:	no
Method	:	Directive 84/449/EEC, A.2 "Boiling point/boiling range"
Year	:	1994
GLP	:	yes
Test substance	:	
Reliability	:	(2) valid with restrictions The CRC Handbook of Chemistry and Physics is a peer reviewed publication. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

16.10.2007 (13) (60)

2.3 DENSITY

Type	:	density
Value	:	= .7404 g/cm³ at 20 °C
Method	:	Directive 84/449/EEC, A.3 "Relative Density"
Year	:	
GLP	:	yes
Test substance	:	
Reliability	:	(2) valid with restrictions The CRC Handbook of Chemistry and Physics is a peer reviewed publication. This robust summary has a reliability rating of 2 because there is insufficient information available on the method and analytical procedure.
Flag	:	Critical study for SIDS endpoint

16.10.2007 (60)

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value : = 268 hPa at 20 °C
Decomposition :
Method : Directive 84/449/EEC, A.4 "Vapour pressure"
Year : 1994
GLP : yes
Test substance :

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data were not reviewed for quality. However, the data source is a peer reviewed publication.
Flag : Critical study for SIDS endpoint
16.10.2007 (26)

Value : 330 hPa at 25 °C
Decomposition :
Method : other (measured)
Year : 1985
GLP : no data
Test substance :

Remark : This vapor pressure indicates that MTBE is highly volatile.
Source : Statoil København K
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Reliability : (2) valid with restrictions
16.10.2007 (27)

Value : 334 hPa at 25 °C
Decomposition :
Method : other (calculated)
Year : 1976
GLP :
Test substance :

Source : Anonima Petroli Italiana ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated not measured.
16.10.2007 (9)

2.5 PARTITION COEFFICIENT

Partition coefficient : octanol-water
Log pow : = 1.06 - 1.24 at °C
pH value :
Method : other (calculated)
Year :
GLP : no data
Test substance :

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data were not reviewed for quality. However, the data source is a peer reviewed publication.
Flag : Critical study for SIDS endpoint
16.10.2007 (46)

Partition coefficient	:	
Log pow	:	= 1.06 at 23 °C
pH value	:	
Method	:	OECD Guide-line 107 "Partition Coefficient (n-octanol/water), Flask-shaking Method"
Year	:	1981
GLP	:	no
Test substance	:	
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (56)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	ca. 51 g/l at 25 °C
pH value	:	
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	soluble (1000-10000 mg/L)
Stable	:	
Deg. product	:	
Method	:	other
Year	:	1928
GLP	:	no
Test substance	:	
Reliability	:	(2) valid with restrictions This robust summary has a reliability rating of 2 because the data were not reviewed for quality. However, the data source is a peer reviewed publication.
Flag	:	Critical study for SIDS endpoint

16.10.2007 (17) (56)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

Value	:	= -29 °C
Type	:	closed cup
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	
Test condition	:	Method: SETA.

04.11.1997 (13)

Value	:	= -28 °C
Type	:	closed cup
Method	:	Directive 84/449/EEC, A.9 "Flash point"
Year	:	1994
GLP	:	yes

Test substance :

Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

2.8 AUTO FLAMMABILITY

Value : = 375 °C at
Method : other
Year :
GLP : no data
Test substance :

04.11.1997 (13)

Value : = 460 °C at
Method : other
Year :
GLP : no data
Test substance :

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Test condition : DIN 51794
04.11.1997 (56)

2.9 FLAMMABILITY

Result : highly flammable
Method : other: classified provisionally by manufacturer
Year :
GLP : no data
Test substance :

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Result : highly flammable
Method : Directive 84/449/EEC, A.12 "Flammability (substances which, in contact with water or damp air evolve highly flammable gases in dangerous quantities)"
Year : 1994
GLP : yes
Test substance :

Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

2.10 EXPLOSIVE PROPERTIES

Result : other

Remark : ueg 1.6 vol% oeg 8.4 vol%
Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

2.11 OXIDIZING PROPERTIES

Result : other

Remark : offenes feuer
Source : MABANAFT GmbH hamburg
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

Remark : FLAMABILITI LIMITS (% vol. in air): Lower 1.5, Upper: 8.5
STABILITY: Flammable and combustible.
CONDITIONS TO AVOID: Exposure to heat, sparks, static electricity or flames. It is unstable in acid solutions.
INCOMPATIBILITIES: Strong acids and strong oxidants.
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CO(in defect of
oxigen), CO2.
EXTINGUISHING AGENTS: Carbon dioxide, Dry chemicals, Water spray, etc.
SPECIAL HAZARDS: Vapour is heavier than air and may travel long distances to a source of ignition and flash back.

04.11.1997 (13)

3.1.1 PHOTODEGRADATION

Method	:	Technical Discussion
Remark	:	Direct photochemical degradation occurs through the absorbance of solar radiation by a chemical substance in aqueous solution. If the absorbed energy is high enough, then the resultant excited state of the chemical may undergo a transformation. A prerequisite for direct photodegradation is the ability of one or more bonds within a chemical to absorb ultraviolet (UV)/visible light in the 290 to 750 nm range. Light wavelengths longer than 750 nm do not contain sufficient energy to break chemical bonds, and wavelengths below 290 nm are shielded from the earth by the stratospheric ozone layer (Harris, 1982). An approach to assessing the potential for a substance to undergo photochemical degradation is to assume that degradation will occur in proportion to the amount of light wavelengths >290 nm absorbed by constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding electrons in ethers do not give rise to absorption above 160 nm, which is why pure ether solvents can be used in spectroscopic studies. Consequently, methyl-tert-butyl ether is not subject to photolytic processes in the aqueous environment.
Reliability	:	(2) valid with restrictions This robust summary has a reliability of 2 because it is a technical discussion and not a study.

16.10.2007 (47) (95)

Type	:	air
Light source	:	Sun light
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight
DIRECT PHOTOLYSIS		
Halflife t1/2	:	=
Degradation	:	% after
Quantum yield	:	
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	1500000 molecule/cm³
Rate constant	:	= .00000000000226 cm³/(molecule*sec)
Degradation	:	= 50 % after 56.9 hour(s)
Deg. product	:	
Method	:	other (calculated): Calculated values using AOPWIN version 1.89, a subroutine of the computer program EPI SuiteTM version 3.12
Year	:	
GLP	:	no
Test substance	:	

Method	:	Calculated values using AOPWIN version 1.89, a subroutine of the computer program EPI SuiteTM version 3.12 Indirect photodegradation, or atmospheric oxidation potential, is based on the structure-activity relationship methods developed by R. Atkinson under the following conditions: Temperature: 25°C Sensitizer: OH- radical Concentration of Sensitizer: 1.5E6 OH- radicals/cm3
Remark	:	Bethyl-Tertiary-butyl ether has the potential to volatilize to air, based on a relatively high vapor pressure, where it is subject to atmospheric oxidation. In air, methyl-tert-butyl ether can react with photosensitized oxygen in the

form of hydroxyl radicals (OH-). The computer program AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the 12-hour day half-life value normalizes degradation to a standard day light period during which hydroxyl radicals needed for degradation are generated), based on an OH- reaction rate constant and a defined OH- concentration.

Based on a 12-hour day, a rate constant of 2.26 E-12 cm3/molecule*sec, and an OH- concentration of 1.5 E6 OH-/cm3, methyl-tertiary-butyl ether has a calculated half-life in air of 4.7 days or 56.9 hours of daylight.

Reliability : (2) valid with restrictions
The value was calculated based on chemical structure as modeled by EPIWIN. This robust summary has a reliability rating of 2 because the data are calculated and not measured.

Flag : Critical study for SIDS endpoint

16.10.2007 (91)

Type : air
Light source : other
Light spectrum : nm
Relative intensity : based on intensity of sunlight
Conc. of substance : at 22 °C
INDIRECT PHOTOLYSIS
Sensitizer : OH
Conc. of sensitizer : 1000000 molecule/cm³
Rate constant : = .0000000000025 cm³/(molecule*sec)
Degradation : = 50 % after 3.2 day(s)
Deg. product :
Method : other (measured)
Year :
GLP : no data
Test substance :

Remark : Concentrations between 0.34 and 3.7 ppm were tested.
The major products of the oxidation were tentatively identified as t-butyl formate and acetone, and a mechanism for the formation of these products was suggested.

Test condition : Relative rate study
Light source: fluorescent "Black lamps"

16.10.2007 (25)

Type : air
Light source : other
Light spectrum : nm
Relative intensity : based on intensity of sunlight
Conc. of substance : at 25 °C
INDIRECT PHOTOLYSIS
Sensitizer : OH
Conc. of sensitizer : 1000000 molecule/cm³
Rate constant : = .00000000000283 cm³/(molecule*sec)
Degradation : = 50 % after 2.8 day(s)
Deg. product :
Method : other (measured)
Year :
GLP : no data
Test substance : no data

16.10.2007 (14)

Type : air
Light source : Sun light
Light spectrum : nm

Relative intensity	:	based on intensity of sunlight
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	500000 molecule/cm³
Rate constant	:	.00000000000284 cm³/(molecule*sec)
Degradation	:	= 100 % after 5.6 day(s)
Deg. product	:	
Method	:	other (measured)
Year	:	1990
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Indirect photolysis of MTBE by OH radicals (which then hydrolyse PG) is rapid in air.
Test condition	:	Measured at 25 deg. C.

16.10.2007 (16)

Type	:	air
Light source	:	Xenon lamp
Light spectrum	:	= 330 - 370 nm
Relative intensity	:	based on intensity of sunlight
Conc. of substance	:	at 25 °C
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	1000000 molecule/cm³
Rate constant	:	= .00000000000309 cm³/(molecule*sec)
Degradation	:	= 50 % after 2.6 day(s)
Deg. product	:	
Method	:	other (measured)
Year	:	
GLP	:	no data
Test substance	:	no data
Test condition	:	Relative rate study

16.10.2007 (15)

Type	:	air
Light source	:	other
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight
Conc. of substance	:	at 22 °C
INDIRECT PHOTOLYSIS		
Sensitizer	:	OH
Conc. of sensitizer	:	1000000 molecule/cm³
Rate constant	:	= .00000000000324 cm³/(molecule*sec)
Degradation	:	= 50 % after 2.5 day(s)
Deg. product	:	
Method	:	other (measured)
Year	:	
GLP	:	no data
Test substance	:	no data
Test condition	:	Relative rate study

16.10.2007 (94)

3.1.2 STABILITY IN WATER

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	at °C

t1/2 pH9	:	at °C
Deg. product	:	
Method	:	other: Technical Discussion
Year	:	
GLP	:	
Test substance	:	
Result	:	Hydrolysis of an organic chemical is the transformation process in which a water molecule or hydroxide ion reacts to form a new carbon-oxygen bond. Chemicals with leaving groups that have a potential to hydrolyze include alkyl halides, amides, carbamates, carboxylic acid esters and lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould, 1959). The lack of a suitable leaving group renders a compound resistant to hydrolysis. Methyl-Tertiary-butyl ether is resistant to hydrolysis because it lacks a functional group that is hydrolytically reactive and Harris (1982) identifies ether groups as generally resistant to hydrolysis. Therefore, hydrolysis will not contribute to the removal of Methyl-tert-butyl ether from the environment.
Reliability	:	(2) valid with restrictions This robust summary has a reliability of 2 because it is a technical discussion and not a study.
Flag	:	Critical study for SIDS endpoint

16.10.2007 (41) (48)

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

Type of measurement	:	concentration at contaminated site
Media	:	ground water
Concentration	:	
Method	:	
Remark	:	Site location: Old Bridge aquifer under industrial plant in South Brunswick Township, NJ. Remediation efforts with 7 extraction wells and a treatment facility reduced concentrations by 26 %.
Result	:	50 ppb
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (8)

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type	:	fugacity model level I
Media	:	other: air - biota - sediment(s) - soil - water
Air	:	% (Fugacity Model Level I)
Water	:	% (Fugacity Model Level I)
Soil	:	% (Fugacity Model Level I)
Biota	:	% (Fugacity Model Level II/III)
Soil	:	% (Fugacity Model Level II/III)
Method	:	other: Calculation according Mackay, Level I

Year :

Remark : Physicochemical data used in the calculation:

Parameter	Value w/ Units
Molecular Weight =	88.15
Temperature =	25° C
Log Kow =	0.94
Water Solubility =	51,000 g/m3
Vapor Pressure =	33,330 Pa
Melting Point =	-108.6° C

Result : Using the Mackay Level I calculation, the following distribution is predicted for methyl-tert-butyl ether:

%Distribution	Compartment
91.95	Air
7.99	Water
0.06	Soil
<0.01	Sediment
<0.01	Suspended Sediment
<0.01	Biota

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated.

Flag : Critical study for SIDS endpoint
16.10.2007 (61)

Type : fugacity model level III
Media :
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001)
Year :

Method : Level III simulation using the Mackay Multimedia Environmental Model (Mackay, 2001). Mass balances are calculated for the four bulk media of air (gas + aerosol), water (solution + suspended sediment + biota), soil, (solids + air + water), and sediment (solids + pore water). Equilibrium exists within, but not between media. Physical-chemical properties are used to quantify a chemical's behavior in an evaluative environment. Three types of chemicals are treated in this model: chemicals that partition into all media (Type 1), non volatile chemicals (Type 2), and chemicals with zero, or near-zero, solubility (Type 3). The model cannot treat ionizing or speciating substances. The Level III model assumes a simple, evaluative environment with user-defined volumes and densities for the following homogeneous environmental media (or compartments): air, water, soil, sediment, suspended sediment, fish and aerosols.

This model provides a description of a chemical's fate including the important degradation and advection losses and the intermedia transport processes. The distribution of the chemical between media depends on how the chemical enters the system, e.g. to air, to water, or to both. This mode of entry also affects persistence or residence time.

The rates of intermedia transport are controlled by a series of 12 transport velocities. Reaction half-lives are requested for all 7 media. The advective residence time selected for air also applies to aerosols and the residence

time for water applies to suspended sediment and fish. The advective residence time of aerosols, suspended sediment and fish cannot be specified independently of the air and water residence times.

Result : Output:

	Mass%	Emissions(kg/hr)
Air	21.1	1000
Water	50.5	1000
Soil	28.3	1000
Sediment	0.1	0

Test condition : Physicochemical data used in the calculation:

Parameter Value w/ Units

Molecular Weight =	88.15
Temperature =	25° C
Log Kow =	0.94
Water Solubility =	51,000 g/m3
Vapor Pressure =	33,330 Pa
Melting Point =	-108.6° C

Reaction Half Lives in hours as predicted using EPI SuiteTM:

Air (gaseous)	56.8
Water (no susp. part.)	360
Bulk Soil	720
Bulk Sediment	3240

Environmental Properties (EQC standard environment)
Dimensions (all defaults)
Densities (all defaults)
Organic carbon & Advection (all defaults)
Transport Velocities (all defaults)

Emission and Inflows (defaults used)
Air 1000 kg/hr
Water 1000 kg/hr
Soil 1000 kg/hr
Sediment 0 kg/hr

Conclusion : The majority of methyl-tert-butyl ether (MTBE) is calculated to partition into the water phase, with smaller but significant amounts into air and soil, based on the modeling parameters used in this calculation. MTBE is considered to be a Type 1 chemical with potential to partition into all environmental compartments.

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated.

Flag : Critical study for SIDS endpoint

16.10.2007 (62)

3.3.2 DISTRIBUTION

Media : water - air
Method : other (calculation)
Year :

Remark : Method: Lyman
Using a reported Henry's Law Constant of 5.87 E-4 atm.m3/mole, a t1/2 for volatilisation of MTBE, from a river 1 metre deep flowing 1 m/s with a wind velocity of 3 m/s, has been estimated to be 4.1 hour at 25 deg. C.

16.10.2007 (21)

3.4 MODE OF DEGRADATION IN ACTUAL USE

Remark : TERRESTRIAL FATE: High mobility in soil. Volatilization.
AQUATIC FATE: Volatilization.
ATMOSPHERIC FATE:Indirect Photolysis.
Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997

3.5 BIODEGRADATION

Type : aerobic
Inoculum : predominantly domestic sewage
Concentration : 2 mg/l related to Test substance
related to
Contact time :
Degradation : = 0 (±) % after 28 day(s)
Result :
Deg. product :
Method : OECD Guide-line 301 D "Ready Biodegradability: Closed Bottle Test"
Year : 1981
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

16.10.2007 (53)

Type : aerobic
Inoculum : activated sludge
Contact time :
Degradation : 1 (±) % after 21 day(s)
Result : other: biodegraded very slowly
Deg. product :
Method : other: no data
Year : 1984
GLP : no data
Test substance : no data

16.10.2007 (38)

3.6 BOD5, COD OR BOD5/COD RATIO

BOD5
Method : other
Year : 1984
Concentration : related to
BOD5 : mg/l
GLP :

Remark : Result suggest that MTBE is slowly degraded in the environment.
Result : BOD% = 1% after 21 days.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)

Exxon Chemical Europe Inc. Bruxelles
Test substance : Methyl Ter-butyl Ether.
04.11.1997 (36)

BOD5
Method : other
Year : 1987
Concentration : related to
BOD5 : mg/l
GLP :

Remark : Removal may have been affected by volatilisation or adsorption.
Result : 1) 85, 2) 94, 3) 95 % respectively- Duration not specified.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Test condition : 1) Activated sludge 2) Activated sludge + activated carbon 3) Activated sludge + activated carbon + wet water regenerated carbon.
Test substance : Methyl Ter-butyl Ether.
04.11.1997 (93)

3.7 BIOACCUMULATION

Species : other
Exposure period : at °C
Concentration :
BCF : = 1.5
Elimination :
Method : other
Year : 1984
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Remark : Not expected to bioconcentrate in aquatic species.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Test condition : Species: Japanese carp.
04.11.1997 (37)

3.8 ADDITIONAL REMARKS

Remark : MTBE may be released as a result of its use as an octane booster for unleaded gasoline and its use in the manufacture of isobutene. If released to soil, it will be subject to volatilisation and is not expected to hydrolyse. If released to water, MTBE is not expected to significantly adsorb into sediment or suspended particulate matter, bioconcentrate in aquatic organisms, hydrolyse, directly photolyse or photooxidize. It will be subject to rapid volatilisation from surface water. It may be resistant to biodegradation in environmental media based upon screening test data. If released to atmosphere, it is expected to exist almost entirely in the vapor phase.
The most probable route of general population exposure is

	via inhalation of contaminated air. Exposures through dermal contact may occur in occupational settings.	
04.11.1997		(21)

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	:	flow through
Species	:	Pimephales promelas (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 672 measured/nominal
Limit test	:	no
Analytical monitoring	:	yes
Method	:	other
Year	:	1981
GLP	:	
Test substance	:	

Remark : Four test concentrations and control analyzed by GLC.

Test condition : Fish were kepted in 7.0L tanks under flow-through conditions. Additions per day were 8.84 tank volumes.

Test Temp = 24.7 deg C
Dissolved Oxygen = 7.3 mg/l
Hardness = 47.7 mg CaCO3/l
Alkalinity = 41.3 mg CaCO3/l
pH = 7.5

Mean Fish weight = 0.193g

4 treatments and a control were prepared for the test. Two replicates per treatment.

Effect data was not recorded.

Reliability	:	(1) valid without restriction
Flag	:	Critical study for SIDS endpoint

16.10.2007 (39)

Type	:	flow through
Species	:	Pimephales promelas (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	µg/l
LC50	:	= 706000

16.10.2007 (20)

Type	:	static
Species	:	Leuciscus idus (Fish, fresh water)
Exposure period	:	48 hour(s)
Unit	:	mg/l
LC0	:	= 1000
LC100	:	= 2000
Limit test	:	
Analytical monitoring	:	no
Method	:	other
Year	:	
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

Test condition : DIN 38412 PART 15

04.11.1997 (92)

Type	:	
Species	:	other
Exposure period	:	2 day(s)
Unit	:	mg/l
LC0	:	> 1000
Limit test	:	
Analytical monitoring	:	no data
Method	:	other
Year	:	1994
GLP	:	yes
Test substance	:	
Remark	:	spezies: goldorfen
Source	:	MABANAFT GmbH hamburg ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997

Type	:	
Species	:	other: Fish
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 224 calculated
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Test condition :

Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and melting point, -108.6°C were entered into the program.

Class: Neutral organics

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

16.10.2007 (91)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/l
EC0	:	= 439
EC50	:	= 651.4
EC100	:	> 772.4
Analytical monitoring	:	yes
Method	:	other
Year	:	1989
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Method: Acute toxicity for Daphnia, EC Directive 79/831/EEC, March 1989.
Test condition	:	Because of the volatility of the compound, the study was performed in a closed system.

02.10.2007 (52)

Type	:	
Species	:	other: Daphnia
Exposure period	:	48 hour(s)
Unit	:	mg/l
EC50	:	= 231 calculated
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The

ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Result :

Calculated 48-hr LC50 for Daphnia = 231 mg/L

Test condition :

Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and melting point, -108.6°C were entered into the program.

Class: Neutral organics

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

16.10.2007 (91)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	growth rate
Exposure period	:	72 hour(s)
Unit	:	mg/l
NOEC	:	= 470
EC10	:	ca. 650
EC50	:	> 800
Limit test	:	
Analytical monitoring	:	no
Method	:	Directive 87/302/EEC, part C, p. 89 "Algal inhibition test"
Year	:	1988
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4

Test condition : Because of the volatility of the compound, the study was performed in a closed system.

Reliability : (2) valid with restrictions

Flag : Critical study for SIDS endpoint

16.10.2007 (50) (66)

Species	:	other algae: Green Alga
Endpoint	:	
Exposure period	:	96 hour(s)
Unit	:	mg/l
EC50	:	= 140 calculated
ChV	:	= 10 calculated
Limit test	:	no
Analytical monitoring	:	
Method	:	other: ECOSAR version 0.99h, US EPA
Year	:	
GLP	:	
Test substance	:	

Method : ECOSAR version 0.99h, US EPA. The structure-activity relationships (SARs) presented in this program are used to predict the aquatic toxicity of chemicals based on their similarity of structure to chemicals for which the aquatic toxicity has been previously measured. Most SAR calculations in the ECOSAR Class Program are based upon the octanol/water partition coefficient (Kow). SARs have been used by the U.S. Environmental Protection Agency since 1981 to predict the aquatic toxicity of new industrial chemicals in the absence of test data. SARs are developed for

chemical classes based on measured test data that have been submitted by industry or they are developed by other sources for chemicals with similar structures, e.g., phenols. Using the measured aquatic toxicity values and estimated Kow values, regression equations can be developed for a class of chemicals. Toxicity values for new chemicals may then be calculated by inserting the estimated Kow into the regression equation and correcting the resultant value for the molecular weight of the compound.

To date, over 150 SARs have been developed for more than 50 chemical classes. These chemical classes range from the very large, e.g., neutral organics, to the very small, e.g., aromatic diazoniums. Some chemical classes have only one SAR, such as acid chlorides, for which only a fish 96-hour LC50 has been developed. The class with the greatest number of SARs is the neutral organics, which has SARs ranging from acute and chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil. The ECOSAR Class Program is a computerized version of the ECOSAR analysis procedures as currently practiced by the Office of Pollution Prevention and Toxics (OPPT). It has been developed within the regulatory constraints of the Toxic Substances Control Act (TSCA). It is a pragmatic approach to SAR as opposed to a theoretical approach.

Result : Calculated 96-hr EC50 for a green alga = 140 mg/L
Calculated 96-hr ChV for a green alga = 10 mg/L

Test condition :

Experimental water solubility, 51,000 mg/l @ 20°C, log Kow, 0.94 and melting point, -108.6°C were entered into the program.

Class: Neutral organics

Reliability : (2) valid with restrictions
This robust summary has a reliability rating of 2 because the data are calculated and not measured.

16.10.2007 (91)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

Type : aquatic
Species : Pseudomonas putida (Bacteria)
Exposure period : 18 hour(s)
Unit : mg/l
EC10 : ca. 700
Analytical monitoring : no
Method : Directive 87/302/EEC, part C, p. 118 "Biodegradation: Activated sludge respiration inhibition test"
Year : 1991
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

02.10.2007 (51)

Type : aquatic
Species : Pseudomonas putida (Bacteria)
Exposure period : 5 hour(s)
Unit : mg/l
EC10 : > 1480
Analytical monitoring : no
Method : other
Year :
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Remark : Method: Tests for inhibition of oxygen consumption by

Pseudomonas putida (Huels method), 5-6 hours.

02.10.2007 (54)

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	= 3865.9 mg/kg bw
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	
Method	:	other
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Six groups of 10 rats (5/sex) received 1900 - 6810 mg/kg p.o. and were observed for 14 days. CNS depression reported at all levels.

02.10.2007 (74)

5.1.2 ACUTE INHALATION TOXICITY

Type	:	LC50
Value	:	120.3 - 142 mg/l
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	
Exposure time	:	4 hour(s)
Method	:	other
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	ARCO MTBE (96.2%) LC50 = 142.03 mg/l. Commercial MTBE (99.1) LC50 = 120.3 mg/l. Groups of ten male SD rats received either 70.74 to 201.12 mg/l (ARCO MTBE) or 68.11 to 230.57 mg/l (Commercial MTBE) nominally for a four-hour exposure and were observed for 14 days.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (72)

Type	:	LC50
Value	:	= 85 mg/l
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	

Doses	:	
Exposure time	:	4 hour(s)
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (83)

Type	:	LC50
Value	:	= 23576 ppm
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	
Exposure time	:	4 hour(s)
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (82)

5.1.3 ACUTE DERMAL TOXICITY

Type	:	LD50
Value	:	> 10000 mg/kg bw
Species	:	rabbit
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	
Method	:	other
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	No deaths, but irritation at application sites. Ten New Zealand white rabbits received 10 gm/kg (5 abraded/5intact) for a 24-hr exposure period and observed for 14 days. No deaths but irritation at application sites was reported.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (73)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	

Vehicle	:	
PDII	:	
Result	:	moderately irritating
Classification	:	
Method	:	OECD Guide-line 404 "Acute Dermal Irritation/Corrosion"
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Six rabbits received 24 hour applications on intact and abraided sites. ARCO MTBE (96.2%) was non irritating and commercial MTBE (99.1%),was moderately irritating to skin.

02.10.2007 (57) (74)

5.2.2 EYE IRRITATION

Species	:	rabbit
Concentration	:	
Dose	:	
Exposure time	:	
Comment	:	
Number of animals	:	
Vehicle	:	
Result	:	slightly irritating
Classification	:	
Method	:	Draize Test
Year	:	1979
GLP	:	
Test substance	:	
Remark	:	Nine rabbits received 0.1 ml in one eye (6 unwashed, 3 washed treated eyes) and were scored 24, 48, 72 hrs., and 7 days (Draize Method). Irritation completely reversed in seven days.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (7)

Species	:	rabbit
Concentration	:	
Dose	:	
Exposure time	:	
Comment	:	
Number of animals	:	
Vehicle	:	
Result	:	not irritating
Classification	:	
Method	:	OECD Guide-line 405 "Acute Eye Irritation/Corrosion"
Year	:	1981
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (58)

5.3 SENSITIZATION

Type	:	other
Species	:	guinea pig
Number of animals	:	
Vehicle	:	
Result	:	not sensitizing
Classification	:	not sensitizing
Method	:	other
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Ten male guinea pigs per group received ten intradermal induction doses (MTBE or DNCB control) before a two week rest and a challenge injection, i.e., Landsteiner Technique.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (45) (71)

5.4 REPEATED DOSE TOXICITY

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	13 weeks
Frequency of treatm.	:	6 hr/day, five days/week
Post exposure period	:	
Doses	:	250, 500, and 1000 ppm
Control group	:	yes
Method	:	other
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Groups of ten rats per sex were tested. Dose-related anaesthesia reported. No treatment related effects on hematology, clinical chemistry, and urinalysis. Apart from a slight reduction in lung weights in females exposed to 1000 ppm, there was no evidence of gross or histopathological effects.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (42)

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	9 days
Frequency of treatm.	:	6 hours per day
Post exposure period	:	
Doses	:	100, 300, 1000, and 3000 ppm
Control group	:	yes

Method	:	other
Year	:	1984
GLP	:	
Test substance	:	
Result	:	Effects seen included: elevated serum phosphorous, microscopic pathology of nasal mucousa and trachea (1000 and 3000 ppm), and increased liver weights (3000 ppm).
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (4)

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	inhalation
Exposure period	:	13 weeks
Frequency of treatm.	:	6 hours per day, 5 days per week
Post exposure period	:	none
Doses	:	2880, 14400 or 28800 mg/m3 (800, 4000 or 8000 ppm)
Control group	:	yes
NOAEL	:	= 2.88 mg/l
LOAEL	:	= 14.4 mg/l
Method	:	other
Year	:	1989
GLP	:	yes
Test substance	:	no data
Remark	:	25 animals /sex/ dose- and control group; whole body exposure. Method according to Bushy Run Research Center Protocol.
Result	:	At necropsy, there were no treatment-related gross lesions. Statistically significant and concentration-related increases in the absolute and relative mean (to body weight or brain weight), weights of liver, kidneys, and adrenal gland were observed in the male and female rats of the 4000 and 8000 ppm groups, as well as in the male rats of the 800 ppm group. However, there was no treatment-related microscopic changes in these organs, in the tissues of the nervous system, and in other visceral organs, except for a higher incidence of lymphoid hyperplasia in the lymph nodes of the male rats of the 8000 ppm group. The 8000 ppm male rats also had increases in the degree of hemosiderosis within the spleen and in the size of hyaline droplets within the renal proximal tubules. No mortalities were found. Body weight gain was significantly reduced in the 8000 pppm group. The only noteworthy clinical finding was ataxia which occured in the rats of the 8000 ppm group immediately following the daily exposure for the first 4 weeks of the study. A minor decrease in motor activity was observed in the male rats of the 8000 ppm group (week 8). At different time points during the study, neurotoxicity tests were performed: MTBE did not seem to be a neurotoxicant under test conditions. At the end of the exposure regimen, mild hematologic changes (e.g. decreased erythrocyte counts and increased reticulocyte counts) were observed in MTBE-exposed rats. Mild alterations in serum chemistry parameters for MTBE-exposed rats (primarily males) included increased calcium and protein values, decreased activities of aspartate and alanine

aminotransferases, and decreased glucose concentrations. Corticosterone levels were increased in the serum of the rats of the 8000 ppm group.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (33)

Type :
Species : rat
Sex : male/female
Strain : Fischer 344
Route of admin. : inhalation
Exposure period : 13 days
Frequency of treatm. : 6 hours per day
Post exposure period : none
Doses : 7200, 14400 or 28800 mg/m3 (2000, 4000 or 8000 ppm)
Control group : yes
NOAEL : = 7.2 mg/l
LOAEL : = 14.4 mg/l
Method : other
Year : 1989
GLP : yes
Test substance : no data

Remark : 5 animals/ sex/ dose- and control group; whole body exposure.
Method according to Bushy Run Research Center Protocol.

Result : Body weight gain was significantly reduced in the males of the 8000 ppm group.
Clinical signs of toxicity were ataxia and hypoactivity.
There were no mortalities. A few mean organ weights were different from the controls, e.g. the relative liver weights of males and females and the relative kidneys weights of the 4000 ppm group; the absolute and relative kidneys weights of males and females of the 8000 ppm group were significantly increased. There were no treatment-related macroscopic lesions.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (33)

Type :
Species : rat
Sex : male
Strain : Wistar
Route of admin. : inhalation
Exposure period : 2-15 weeks
Frequency of treatm. : 6 hours per day, 5 days per week
Post exposure period : none
Doses : 180, 360 or 1080 mg/m3 (50, 100 or 300 ppm)
Control group : yes
Method : other
Year :
GLP : yes
Test substance : no data

Result : The animals showed a dose-dependant blood- ether concentration after 2 weeks of exposure. Blood concentrations of tert-butanol also increased dose-dependently, indicating metabolic breakdown of the

ether in vivo. The MTBE blood concentrations decreased after 6 weeks of exposure in the 50 ppm group, but remained unaffected at higher dose levels, while tert-butanol concentrations increased after 6 weeks with all doses and began to decrease thereafter. Exposure caused a transient increase in UDP-glucuronosytranferase activities in liver and kidney microsomes, almost no effects on hepatic cytochrome P-450 concentrations and a minor induction of kidney microsomal cytochrome P-450 content. Exposure produced almost no effect on brain succinate dehydrogenase, creatine kinase or acetylcholinesterase activities.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (86)

Type :
Species : rat
Sex : male/female
Strain : other: Charles River
Route of admin. : inhalation
Exposure period : 2 weeks
Frequency of treatm. : 6 hours per day, 5 days per week
Post exposure period : none
Doses : 7000 or 10600 mg/m3 (average actual conc. as determined by IR spectroscopy)
Control group : yes
Method : other
Year :
GLP : no
Test substance : no data

Remark : 5 animals/ sex/ dose- and control group; whole body exposure.
Result : No mortalities. No adverse effects were noted among any test animals. Data for test animals (body weight gain, hematological, biochemical and urinary parameters) were essentially the same as data for control animals.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (89)

Type :
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : inhalation
Exposure period : 30 days
Frequency of treatm. : 5 or 10 minutes per day (see remark)
Post exposure period : none
Doses : ca. 180000 or 288000 mg/m3 (ca. 5 or 8 vol.%)
Control group : yes
NOAEL : ca. 288 mg/l
Method : other
Year : 1972
GLP : no
Test substance : other TS

Remark : 20 animals/ sex/ dose- and control groups; whole body exposure.
3 exposure groups: ca. 5 vol.%, 10 min/day

ca. 8 vol.%, 5 min/ day
ca. 8 vol.%, 10 min/day

Result : Body weight gain and food consumption were comparable to the controls. Biochemical, hematological and urinary parameters were in the range of controls as were liver function and organ weights.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Test substance : Purity: 96%
04.11.1997 (88)

Type :
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : inhalation
Exposure period : 120 days
Frequency of treatm. : 10 min/day
Post exposure period : none
Doses : ca. 180000 mg/m3 (ca. 5 vol.%)
Control group : yes
NOAEL : ca. 180 mg/l
Method : other
Year : 1972
GLP : no
Test substance : other TS

Remark : 25 animals/ sex/ dose- and control group; whole body exposure.
Result : Body weight gain and food consumption, biochemical and hematological parameters were in the range of control values. There were no significant differences in liver function or organ weights between treated and control animals.
Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles
Test substance : Purity: 99%
04.11.1997 (88)

Type :
Species : rat
Sex : male/female
Strain : Sprague-Dawley
Route of admin. : inhalation
Exposure period : 13 weeks
Frequency of treatm. : 6 hr/day, five days/week
Post exposure period :
Doses : 250, 500, and 1000 ppm
Control group : yes
Method : other
Year : 1980
GLP :
Test substance :

Remark : Groups of ten rats per sex were tested. Dose-related anaesthesia reported. No treatment related effects on hematology, clinical chemistry, and urinalysis. Apart from slighy reduction in lung weights in females exposed to 1000 ppm, there was no evidence of gross or histopathological effects.

Source	:	REPSOL PETROLEO, S.A. MADRID ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (43)

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	9 days
Frequency of treatm.	:	6 hours per day
Post exposure period	:	
Doses	:	100, 300, 1000 and 3000 ppm
Control group	:	yes
Method	:	
Year	:	1984
GLP	:	
Test substance	:	

Remark	:	Effects seen included: elevated serum phosphorous, microscopic pathology of nasal mucousa and trachea (1000 and 3000 ppm), and increased liver weights (3000 ppm).
Source	:	REPSOL PETROLEO, S.A. MADRID ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (5)

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	13 weeks
Frequency of treatm.	:	6 hr/day, five days/week
Post exposure period	:	
Doses	:	250, 500 and 1000 ppm
Control group	:	yes
Method	:	
Year	:	1980
GLP	:	
Test substance	:	

Remark	:	Groups of ten rats per sex were tested. Dose-related anaesthesia reported. No treatment related effects on hematology, clinical chemistry, and urinalysis. Apart from slight reduction in lung weights in females exposed to 1000 ppm, there was no evidence of gross or histopathological effects.
Source	:	Anonima Petroli Italiana ROMA ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (44)

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley
Route of admin.	:	gavage
Exposure period	:	90 days
Frequency of treatm.	:	daily
Post exposure period	:	none

Doses	:	100, 300, 900 or 1200 mg/kg bw d
Control group	:	yes
NOAEL	:	< 100 mg/kg bw
LOAEL	:	= 100 mg/kg bw
Method	:	other
Year	:	1990
GLP	:	no data
Test substance	:	other TS

Remark : 10 animals/ sex/ dose- and control group

Result : At 300 mg/kg and above, relative kidney weights of females were significantly increased. In males, absolute and relative kidney weights were increased at 900 mg/kg and above, and relative lung weight was increased at 1200 mg/kg. In male rats, chronic nephropathy was common in both control and the high-dose rats; however, tubular degenerative changes that characterize nephropathy were graded more severe in treated rats. All the males of the 1200 mg/kg group exhibited slightly increased numbers of cytoplasmic hyaline droplets in proximal tubular epithelial cells. These changes are compatible with alpha-2u-nephropathy and were considered to have little toxicologic significance for humans.
Dose-dependently reduced body weight gain (significantly only in the 1200 mg/kg group). Diarrhea in all treated animals. A daily dose of 1200 mg/kg induced narcosis.
Mortality: By the end of the study, 11 animals (7 females, 4 males) had died. Early deaths among females included 4 animals of the 1200 mg/kg dose group and 2 rats at the 900 mg/kg level. A female receiving 300 mg/kg also died on the test. Of the males, 1 early death occurred in the 1200 mg/kg, 2 in the 900 mg/kg and 1 in the 100 mg/kg treatment group. No control animals died.
There were slight differences in hematologic parameters of the 1200 mg/kg females, and 300 and 1200 mg/kg males when compared to the controls. Mean blood-urea nitrogen concentrations were reduced in males and females of all treatment groups. In males, the creatinine level was significantly reduced in all dosed animals.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

Test substance : No impurities > 0.05 %

04.11.1997 (85)

Type	:	
Species	:	rat
Sex	:	male
Strain	:	Wistar
Route of admin.	:	i.p.
Exposure period	:	15 days
Frequency of treatm.	:	daily
Post exposure period	:	none
Doses	:	185 mg/kg bw d
Control group	:	yes
Method	:	other
Year	:	1972
GLP	:	no
Test substance	:	no data

Remark : 10 animals/ dose- and control group

Result : No death observed. Body weight gain was depressed; urinary

parameters and organ weights at the end of the study were in the range of control values. No treatment-related macroscopic findings.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (87)

Type	:	
Species	:	mouse
Sex	:	male/female
Strain	:	CD-1
Route of admin.	:	inhalation
Exposure period	:	13 days
Frequency of treatm.	:	6 hours per day
Post exposure period	:	none
Doses	:	7200, 14400 or 28800 mg/m3 (2000, 4000 or 8000 ppm)
Control group	:	yes
NOAEL	:	= 7.2 mg/l
LOAEL	:	= 14.4 mg/l
Method	:	other
Year	:	1989
GLP	:	yes
Test substance	:	other TS

Remark : 5 animals/ sex/ dose- and control group; whole body exposure.

Result : No mortalities observed. Body weight gain of treated and control animals was not significantly different. Signs of toxicity included ataxia, hypoactivity, and periocular irritation. Both absolute and relative liver weights were increased in females of all 3 treatment groups and in males of the 8000 ppm group (only relative liver weights). No treatment-related macroscopic lesions were observed in animals sacrified at the end of the exposure period.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

Test substance : Purity: 99%

04.11.1997 (32)

Type	:	
Species	:	mouse
Sex	:	male
Strain	:	Swiss
Route of admin.	:	inhalation
Exposure period	:	30 days
Frequency of treatm.	:	5 or 10 min/day (see remark)
Post exposure period	:	none
Doses	:	ca. 180000 and 288000 mg/m3 (ca. 5 and 8 vol.%)
Control group	:	yes
Method	:	other
Year	:	1972
GLP	:	no
Test substance	:	other TS

Remark : 30 animals/ sex/ dose- and control group; whole body exposure.
3 exposure groups: - ca. 5 vol.%, 10 min/day
- ca. 8 vol.%, 5 min/day
- ca. 8 vol.%, 10 min/day

Result : Treated animals survived without any signs of toxicity.

		Phenobarbitol induced sleeping time, spontaneous motility (activity cage test), motoractivity and coordination of treated animals were not different from controls (evaluation at 8-10 hours after exposure on study days 15 and 30 as well as prior to the study initiation).
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles
Test substance	:	Purity: 96 %

04.11.1997 (88)

Type	:	
Species	:	monkey
Sex	:	male/female
Strain	:	other: Macacus rhesus
Route of admin.	:	inhalation
Exposure period	:	5 days
Frequency of treatm.	:	see remark
Post exposure period	:	none
Doses	:	12400- 341000 mg/m3
Control group	:	no
NOAEL	:	= 14.7 mg/l
LOAEL	:	= 30.2 - mg/l
Method	:	other
Year	:	1970
GLP	:	no
Test substance	:	no data
Remark	:	2 animals (1 male, 1 female) were exposed to increasing MTBE concentrations (5 days, 80 min, 6 hr/day).
Result	:	12400 and 17400 mg/m3 for 6 hr: no symptoms from 30200 mg/m3: ataxia from 68400 mg/m3: emesis, prostration, unconsciousness from 110000 mg/m3: tremor, bradypnoe from 341000 mg/m3: apnoe after 85 min
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (90)

5.5 GENETIC TOXICITY 'IN VITRO'

Type	:	Ames test
System of testing	:	
Test concentration	:	0.01 to 10.0 ul
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	5 strains of Salmonella typhimuria and D4 Saccharomyces cerevisiae tested.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (70)

Type	:	Sister chromatid exchange assay
System of testing	:	SCE and Chromosomal Aberration in Chinese hamster ovary cells.
Test concentration	:	0.004 to 5.0 ul/l
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	
Year	:	1980
GLP	:	
Test substance	:	

Remark : Results with and without metabolic activation of MTBE did not induce an increase in SCEs (Ambiguous at high concentration). MTBE was not clastogenic.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (70)

Type	:	Ames test
System of testing	:	
Test concentration	:	
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other
Year	:	1978
GLP	:	
Test substance	:	

Remark : Ames test using Salmonella and Saccharomyces indicator organisms.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (79)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537, TA 1538
Test concentration	:	up to 5000 ug/plate
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	Directive 84/449/EEC, B.14
Year	:	1984
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (49)

Type	:	Ames test
System of testing	:	
Test concentration	:	
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other
Year	:	1978
GLP	:	

Test substance	:	
Remark	:	Ames test using Salmonella and Saccharomyces indicator organisms.
Source	:	Anonima Petroli Italiana ROMA ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (80)

Type	:	Ames test
System of testing	:	
Test concentration	:	
Cycotoxic concentr.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other
Year	:	1978
GLP	:	
Test substance	:	
Remark	:	Ames test using Salmonella and Saccharomyces indicator organisms.
Source	:	Statoil København K ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (81)

5.6 GENETIC TOXICITY 'IN VIVO'

Type	:	Cytogenetic assay
Species	:	rat
Sex	:	
Strain	:	
Route of admin.	:	gavage
Exposure period	:	Acute and Sub-acute (up to five days)
Doses	:	0.04, 0.13, and 0.4 ml/kg
Result	:	
Method	:	
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Bone marrow from groups of eight male rats was evaluated at 6, 24, or 48 hrs. after dosing. MTBE did not induce any effect on chromosomal material in this in vivo assay.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (70)

Type	:	Cytogenetic assay
Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	inhalation
Exposure period	:	6 hours/day for five days
Doses	:	0, 800, 4000, and 8000 ppm (major)
Result	:	
Method	:	

Year	:	1989
GLP	:	
Test substance	:	
Remark	:	8000 ppm was selected as the high exposure level based on fifty percent of the lower explosive limit (LEL) for MTBE.¿
Result	:	MTBE did not produce increased numbers of chromosomal aberrations in bone marrow cells and was not considered clastogenic in Fischer 344 rats.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (67)

Type	:	Cytogenetic assay
Species	:	rat
Sex	:	male
Strain	:	Sprague-Dawley
Route of admin.	:	gavage
Exposure period	:	once and five consecutive days
Doses	:	0.04, 0.13, and 0.4 ml/kg and controls
Result	:	
Method	:	
Year	:	1980
GLP	:	
Test substance	:	
Remark	:	Methods: TBME 99% was administered orally either once (acute) or five consecutive days (subchronic) at 0.04, 0.13, or 0.4 ml/kg to male Sprague-Dawley rats. Bone marrow from groups of eight male rats was evaluated at 6, 24, or 48 hrs. after dosing. MTBE did not induce any effect on chromosomal material in this in vivo assay.
Result	:	TBME 99% was not clastogenetic. The repeat confirmed the negative results in the first assay.

02.10.2007 (76) (78)

Type	:	Cytogenetic assay
Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	inhalation
Exposure period	:	6 hours/day for five days
Doses	:	0, 800, 4000 and 8000 ppm (major)
Result	:	
Method	:	
Year	:	1989
GLP	:	
Test substance	:	
Remark	:	8000 ppm was selected as the high exposure level based on fifty percent of the lower explosive limit (LEL) fpr MTBE.
Result	:	MTBE did not produce increased numbers of chromosomal aberrations in bone marrow cells and was not considered clastogenic in Fischer 344 rats.
Source	:	Anonima Petroli Italiana ROMA ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (68)

Type	:	Drosophila SLRL test

Species	:	Drosophila melanogaster
Sex	:	
Strain	:	
Route of admin.	:	
Exposure period	:	
Doses	:	0.03, 0.15, and 0.3% and solvent control (5%sucrose)
Result	:	
Method	:	
Year	:	1989
GLP	:	yes
Test substance	:	

Result	:	Toxicity and fertility tests were conducted for dose selection. MTBE was evaluated as non-mutagenic in Drosophilia Melanogaster Sex-Linked Recessive Lethal Test.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (2)

5.7 CARCINOGENICITY

Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	inhalation
Exposure period	:	24 months
Frequency of treatm.	:	six hours per day, 5 days per week
Post exposure period	:	
Doses	:	400, 3000, and 8000 ppm.
Result	:	
Control group	:	yes
Method	:	other
Year	:	1992
GLP	:	yes
Test substance	:	

Remark	:	Protocol followed was US EPA TSCA Health Effects Testing Guideline 798.3300 (50 rats/sex/dose).
Result	:	Monitors for toxic effects included clinical observations, body and organ weights, hematologic and corticosterone evaluations, and gross microscopic necropsy evaluations. Mortality and toxicity was seen at 3000 and 8000 ppm. Increased incidence of nephropathy in males, even at 400 ppm, and an increased number of kidney adenomas and carcinomas in males at 3000 and 8000 ppm were seen. With the exception of this unique male rat lesion, 400 ppm could be considered a NOEL. For females, NOEL for toxicity = 400 ppm, and the NOEL for oncogenicity was greater than 8000 ppm.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (31) (77)

Species	:	mouse
Sex	:	male/female
Strain	:	CD-1
Route of admin.	:	inhalation
Exposure period	:	18 months

Frequency of treatm.	:	six hours per day/five days per week
Post exposure period	:	
Doses	:	400, 3000, 8000 ppm
Result	:	
Control group	:	yes
Method	:	other
Year	:	1992
GLP	:	yes
Test substance	:	

Remark	:	Protocol followed was US EPA TSCA Health Effects Testing Guideline 798.3300 (50 mice/sex/dose).
Result	:	Monitors for toxic effects included clinical observations, body and organ weights, water consumption, hemotologic and corticosterone evaluations, urine chemistry and urinalysis evaluations and gross microscopic necropsy evaluations. Minimal signs of toxicity were seen at 3000 and 8000 ppm (NOEL for toxicity = 400 ppm). An increased number of liver adenomas and carinomas were seen at 8000 ppm (NOEL for oncogenicity = 3000 ppm).
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (34) (75)

5.8.1 TOXICITY TO FERTILITY

Type	:	Fertility
Species	:	rat
Sex	:	male/female
Strain	:	no data
Route of admin.	:	unspecified
Exposure period	:	Female: during mating and gestation period Male:During mating period.
Frequency of treatm.	:	6 hr/day, 5 days/week.
Premating exposure period		
Male	:	12 weeks
Female	:	3 weeks
Duration of test	:	
No. of generation studies	:	
Doses	:	300,1300,3400 ppm
Control group	:	yes
Method	:	other: no data
Year	:	1987
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4

Remark	:	The mating indices and fertility indices were not significantly different from controls. The only remarkable finding was an increased incidence of dilated renal pelves in the low- and high- dose females.
Source	:	REPSOL PETROLEO, S.A. MADRID ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (19)

Type	:	One generation study
Species	:	rat
Sex	:	male/female
Strain	:	Sprague-Dawley

Route of admin.	:	inhalation
Exposure period	:	
Frequency of treatm.	:	6 hours/day; 5 days/week during premating, daily thereafter
Premating exposure period		
Male	:	exposed six hours/day; 5 days/week
Female	:	exposed six hours/day; 5 days/week
Duration of test	:	Males (15/group) had 12 week pre- and post-mating exposures. Females (30/group) had 3 week premating period, and exposures during mating period, days 0-20 of gestation and days 5-21 of lactation after two litters.
No. of generation studies	:	
Doses	:	250, 1000, and 2500 ppm (15 males/group) (30 females/group)
Control group	:	yes
Method	:	other
Year	:	1984
GLP	:	
Test substance	:	
Result	:	No parental effects on weight data, in-life physical observations, mating or fertility indices, or reproduction (gestation length, litter size and survival indices). No clear effects on pregnancy rates for two litters. No effects on organ weights or histopathology. Differences in pup body weights and pup survival indices were not significant. No effects on gross external and internal examinations of pups.
Source	:	ARCO CHEMIE NEDERLANDS LTD Rotterdam ECB - Existing Chemicals Ispra (VA) Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (6)

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

Species	:	rat
Sex	:	female
Strain	:	other
Route of admin.	:	inhalation
Exposure period	:	6 hrs./day
Frequency of treatm.	:	gestation days 6-15
Duration of test	:	10 days
Doses	:	250, 1000, 2500 ppm
Control group	:	yes
Method	:	other
Year	:	1982
GLP	:	
Test substance	:	
Remark	:	Strain: CD (Sprague-Dawley derived). NOEL, Mat.: 2500 ppm NOEL, Terat.: 2500 ppm Pregnant female rats were exposed 6 hours a day to MTBE (up to 2500 ppm/dose). MTBE was not considered to be maternally toxic, embryotoxic, or teratogenic. (Draft Report Only)
Reliability	:	(1) valid without restriction
Flag	:	Critical study for SIDS endpoint

16.10.2007 (11) (22)

Species	:	mouse
Sex	:	female
Strain	:	CD-1

Route of admin.	:	inhalation
Exposure period	:	gestation days 6 - 15
Frequency of treatm.	:	six hours per day
Duration of test	:	gestation day 18
Doses	:	1000, 4000, and 8000 ppm
Control group	:	yes
Method	:	other
Year	:	1989
GLP	:	yes
Test substance	:	
Remark	:	NOEL Maternal: = 1000 ppm. NOEL Terat.: = 1000 ppm. EPA consent Order Test.
Reliability	:	(1) valid without restriction

16.10.2007 (18) (28)

Species	:	mouse
Sex	:	female
Strain	:	CD-1
Route of admin.	:	inhalation
Exposure period	:	gestation days 6-15
Frequency of treatm.	:	six hours per day
Duration of test	:	gestation day 18
Doses	:	250, 1000, and 2500 ppm.
Control group	:	yes
Method	:	other
Year	:	1984
GLP	:	
Test substance	:	
Result	:	Not considered maternally toxic, embryotoxic, or teratogenic.
Reliability	:	(1) valid without restriction

16.10.2007 (10) (22)

Species	:	rabbit
Sex	:	female
Strain	:	New Zealand white
Route of admin.	:	inhalation
Exposure period	:	Gestation days 6 - 18
Frequency of treatm.	:	6 hours per day
Duration of test	:	gestation day 29
Doses	:	1000, 4000, and 8000 ppm
Control group	:	yes
Method	:	other
Year	:	1989
GLP	:	yes
Test substance	:	
Remark	:	NOEL Maternal: = 1000 ppm NOEL Terat.: > 8000 ppm EPA Consent Ordered Test.
Reliability	:	(1) valid without restriction

16.10.2007 (18) (29)

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

Type : Metabolism

Remark : Type: Metabolism, In-Vitro.
A preliminary in-vitro metabolic study of TBME was perfomred in the mouse lymphoma mutation assay. Good evidence was obtained for the production of tertiary butyl alcohol from TBME, but conclusive evidence for the concomitant production of either methanol or formaldehyde was not obtained.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (59)

Type : Neurotoxicity

Remark : A single six hour inhalation exposure of Fischer-344 rats to MTBE resulted in changes in the functional observation battery at 4000 and 8000 ppm, with clear motor activity changes at 8000 ppm, indicative of transient CNS sedation. (DRAFT REPORT).

Reliability : (1) valid without restriction

16.10.2007 (40) (69)

Type : Toxicokinetics

Remark : Groups of CD rats (3/sex/group) received a single i.p. injection of C-14 MTBE. During the 48-hour period, >90% of dose was expired MTBE, 7% was expired CO2 and 3% was formic acid in liver and feces.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (63)

Type : Toxicokinetics

Remark : The pharmokinetics of MTBE and TBA were determined in male and female Fischer 344 rats after i.v., oral, and dermal single administrations of MTBE (40 or 400 mg/kg). MTBE cleared by exhalation, faster by i.v. than orally, and showed similar kinetics by all routes, forming TBA from MTBE. Dermal absorption of MTBE was limited.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (3)

Type : Toxicokinetics

Remark : The mass balance and biotransformation of C-14 MTBE was determined in male and female Fischer 344 rats after, i.v.,

oral, and dermal single applications (4mg/ml or 40 mg/ml). C-14 MTBE cleared rapidly through lungs and kidneys with limited metabolism. Elimination was slowest after dermal exposure.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (1)

Type : Toxicokinetics

Remark : The pharmacokinetics of MTBE and TBA were determined in male and female Fischer-344 rats after single 6 hour exposures (400 and 8000 ppm) or 15 daily 6 hour exposures (400 ppm) to MTBE by inhalation. Plasma concentration of MTBE and TBA were rapidly achieved with slight gender differences. Elimination kinetics were similar with saturation of MTBE metabolizing enzymes suggested at 8000 ppm.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (84)

Type : Toxicokinetics

Remark : The disposition of MTBE was determined in male and female Fischer-344 rats after single 6 hour (400 and 8000 ppm) or 15 daily 6 hours (400 ppm) inhalation exposures to MTBE. Rapid eliminations in the urine after the low dose and no expired air at the high dose with no apparent accumulation were observed. Metabolites were TBA followed by 2-methyl-1,2-propanediol and alpha-hydroxyisobutyric acid.

Source : ARCO CHEMIE NEDERLANDS LTD Rotterdam
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (30)

Type : Toxicokinetics

Remark : Groups of CD rats (3/sex/group) received a single i.p. injection of c-14 MTBE. During the 48-hour period, >90% of dose was expired MTBE, 7% was expired CO2 and 3% was formic acid in liver and feces.

Source : REPSOL PETROLEO, S.A. MADRID
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (64)

Type : Toxicokinetics

Remark : Groups of CD rats (3/sex/group) received a single i.p. injection of C-14 MTBE. During the 48-hour period, >90% of dose was expired MTBE, 7% was expired CO2 and 3% was formic acid in liver and feces.

Source : Anonima Petroli Italiana ROMA
ECB - Existing Chemicals Ispra (VA)
Exxon Chemical Europe Inc. Bruxelles

04.11.1997 (65)

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) "Mass Balance of Radioactivity and Metabilism of Methyl tert-Butyl Ether (MTBE) in Male and Female Fischer 344 Rats After Intravenous, Oral and Dermal Administration of "C-MTBE". Bio-Research Laboratories, Ltd. (Report No. 38843) June 30, 1990.

(2) "Mutagenicity Test on Methyl Tertiary Butyl Etehr Drosphilia Melanogaster Sex-Linked Recessive Lethal Test"; Hazleton Laboratories America, Inc., (Hazleton Study Number: 10484-0-461); April 5, 1989.

(3) "Pharmokinetics of Methyl tert-Butyl Ether (MTBE) and tert-Butyl Alcohol (TBA) in Male and Female Fischer-344 Rats After Administration of MTBE by the Intravenous, Oral and Dermal Routes." BioSearch Laboratories Ltd. (Report No. 38842). June 30, 1990.

(4) A Nine Day Inhalation Toxicity Study of Methyl tert-Butyl Ether in the Rat. Bio/Dynamics, Inc., Project Number: 80-7452. March 30, 1984.

(5) A nine day inhalation toxicity study of methyl tert-butyl ether in the rat. Bio/Dynamics, Inc., Project number: 80-7452. March 30, 1984.

(6) A Single Generation Inhalation Reproduction/Fertility Study in Rats with Methyl t-Butyl Ether (MTBE). Bio/Dynamics, Inc. (Project Number 80-7453); March 30, 1984.

(7) Acute Eye Irritation Study in Rabbits: tert-Butyl Methyl Ether (95% Pure). Hazleton Laboratories (Project Number: 2024-132). January 24, 1979.

(8) Althoff WF, et al., Groundwater (1981), 19:495-504. As cited in Hazardous Substances Data Base (HSDB), 1994.

(9) Ambrose D, et al. , J Chem Thermodyn (1976).

(10) An Inhalation Teratology Study in Mice with Methyl tert-Butyl Ether (MTBE). Bio/Dynamics. (Project No.: 80-2516) March 30, 1984.

(11) An Inhalation Teratology Study in Rats with MTBE, Draft Report; (Bio/Dynamics, Inc., Project No. 80-2515; Nov. 30, 1982) for API.

(12) ARCO Chemical Company, Methyl Tertiary Butyl Ether Product

(13) ARCO Chemical Company, Methyl Tertiary Butyl Ether Product Safety Bulletin (June 1993), p1-2.

(14) Atkinson R, (1990): Atmos. Environ. 24A, 1-41.

(15) Bennett PJ, Kerr JA (1990): J. Atmos. Chem. 10, 29-38.

(16) Bennett PJ, Kerr JA, J Atmos Chem (1990), 10:29-38. As cited in Hazardous Substances Data Base (HSDB), 1994.

(17) Bennett, G.M., W.G. Philip (1928). J. Chem. Soc. pp. 1930-7.

(18) Bevan C, Tyl R, Neeper-Bradley T,Fisher L, Panson R, Douglas J and Andrews L (1997). Developmental toxicity evaluation of methyl tertiary-butyl ether (MTBE) by inhalation in mice and rabbits. J Appl Toxicol 17:S21-S29.

(19) Biles RW et al; Toxicol Ind Health 3 (4):519-34 (1987)

(20) Bishop, W.E., et al. Aquatic Toxicology and Hazard Assessment: 6th Symp., ASTM STP 802, Philadelphia, PA: 90-97, as cited in AQUIRE, the Aquatic Information Retrieval Database.

(21) Cited in Hazardous Substances Data Base (HSDB), 1994.

(22) Conaway CC, Schroeder RE & Snyder NK (1985). Teratology evaluation of methyl tertiary butyl ether in rats and mice. JournaL of Toxicology and Environmental Health, 16, 797-809.

(23) CONCAWE report nº. 2/87 "the health experience of workers in the petroleum manufacturing and distribution industry"

(24) CONCAWE report nº. 2/87 "the health experience of workers in the petroleum manufacturing and distribution industry"

(25) Cox RA, Goldstone A, (1982): Comm. Eur, Communities 7624, 112-119.

(26) Daubert T and Danner R (1989). Physical and thermodynamic properties of pure chemicals: Data compilation. Design Institute for Physical Property Data, American Institute of Chemical Engineers. Hemisphere Publishing Corp., New York, NY, USA.

(27) Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As cited in EnviroFate database, 1994.

(28) Developmental Toxicity Study of Inhaled Methyl tert-Butyl Ether in CD-1 Mice. Bushy Run Research Center (Project Report Number: 52-526). July 20, 1989.

(29) Developmental Toxicity Study of Inhaled Methyl Tertiary Butyl Ether in New Zealand White Rabbits. Bushy Run Research Center (Project Number: 51-628). May 12, 1989.

(30) Disposition of Radioactivity and Metabolism of Methyl t-Butyl Ether (MTBE) in Male and Female Fischer-344 Rats after Nose-Only Inhalation Exposures to C-14 MTBE. Bio-Research Laboratories, Ltd. (Report No. 38845) June 30, 1990.

(31) Dodd DE, (1990): Union Carbide Corp., Bushy Run Research Center Project No. 87-73-35008, NTIS/OTS 0528035.

(32) Dodd DE, Kintigh WJ (1989): Union Carbide Corp., Bushy Run Research Center Project No. 52-507, NTIS/OTS 0528043.

(33) Dodd DE, Kintigh WJ, (1989): Union Carbide Corp., Bushy Run Research Center Project No. 52-507, NTIS/OTS 0528043.

(34) Dodd, DE (1990): Union Carbide Corp., Bushy Run Research Center Project No. 87-73-35008, NTIS/OTS 0528035.

(35) EXXON Occupational Exposure Limits for Chemical Contaminants, 1993-1994, Exxon Biomedical Sciences Inc.,NY, USA

(36) Fujiwara Y, et al., Yukagaku (1984), 33:111-114, as cited in Hazardous Substances Data Base (HSDB), 1994.

(37) Fujiwara Y, Yukagaku (1984), 33:111-114. As cited in EnviroFate database, 1994.

(38) Fujiwara,Y et al; Yukagaku 33: 111-4 (1984).

(39) Geiger, et al. (1988)
Acute Toxicities of Organic Chemicals to Fathead Minnows.
Volume IV. Center for Lake Superior Environmental
Studies,University of Wisconsin-Superior.

(40) Gill M (1989). Methyl Tertiary Butyl Ether Single Exposure Vapor Inhalation Neurotoxicity Study in Rats. Export, Pennsylvania: Bushy Run Research Center

(41) Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt, Reinhart and Winston, New York, NY, USA.

(42) Greenough et al (Inveresk Research International, 1980)
Methyl Tertiary Butyl Ether (Driveron) Three Month
Inhalation Toxicity in Rats (IRI Project No. 413038)

(43) Greenough et al (Inveresk Research International, 1980)
Methyl Tertiary Butyl Ether (Driveron) Three Month
Inhalation Toxicity in Rats (IRI Project Nº 413038).

(44) Greenough et al (inveresk Research International, 1980)
Methyl tertiary Butyl Ether (Driveron) Three Montyh
Inalation Toxicity in Rats (IRI project No. 413038)

(45) Guinea Pig Sensitization Study: TBME-99. Litton Bionetics, Inc., (LBI Project Number: 22011, September 1980).

(46) Hanch C, et al., J Org Chem (1968), 33:347.
Fugiwara Y, et al., Yukagaku (1984), 33:111-114.
As cited in EnviroFate database, 1994.

(47) Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(48) Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.

(49) Huels AG report No. AM-91/13, 1991 (unpublished).

(50) Huels AG report No. AW-221, 1991 (unpublished).

(51) Huels AG report No. BK-91/4, 1991 (unpublished).

(52) Huels AG report No. DK-476, 1991 (unpublished).

(53) Huels AG report No. GF-211, 1991 (unpublished).

(54) Huels AG report No. SK-91/11, 1991 (unpublished).

(55) Huels AG Safety DAta Sheet, 04/10/1993.

(56) Huels AG Safety Data Sheet, 04/10/1993.

(57) Huels report No. 0375, 1985 (unpublished).

(58) Huels report No. 0376, 1985 (unpublished).

(59) In-Vitro Metabolism study of TBME in the mouse lymphoma mutation test; Litton Bionetics, Inc. (Project 21079); October 1979.

(60) Lide D, et al. (eds.) (1998-1999). CRC Handbook of Chemistry and Physics. 79th Edition. CRC Press, New York, NY, USA.

(61) Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(62) Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre, Trent University, Ontario, Canada.

(63) Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an Acute Intraperitoneal Injection. Bio/Dynamics, Inc., Bio/Dynamics Project No.: 800891, March 30, 1984.

(64) Metabolic Fate of methyl t-butyl ether (MTBE) following an Acute Intraperitoneal Injection. Bio/Dynamics, Inc., Bio/Dynamics Project Nº: 800891, March 30, 1984.

(65) Metabolic Fate of Methyl t-Butyl Ether (MTBE) following an Acute Intraperitoneal Injection. Bio/Dynamics, Inc., Bio/Dynamics Project No.: 800891, March 30,1984

(66) Method: actually 88/302/EEC.

(67) Methyl Tertiary Butyl Ether Repeated Exposure Vapor Inhalation Study in Rats: In-Vivo Cytogentic Evaluation. Bushy Run Research Center (Bushy Run Research Center Project Number: 51-635); May 10, 1989.

(68) Methyl Tertiary Butyl Ether Repeated Exposure Vapor Inhalation Study in Rats: In-Vivo Cytogenetic Evaluation. Bushy Run Research Center (Bushy Run research Center Project Number: 51-635); May 10, 1989

(69) Methyl Tertiary Butyl Ether Single Exposure Vapor Inhalation Neurotoxicity Study in Rats. Bushy Run Research Center (Project No: 52-533) Draft -- no date.

(70) Methyl Tertiary Butyl Ether: Acute Toxicological Studies ARCO Chemical Company (1980).

(71) Methyl Tertiary Butyl Ether: Acute Toxicological Studies ARCO Chemical Company (1980).

(72) Methyl Tertiary Butyl Ether: Acute Toxicological Studies. ARCO Chemical Company (1980).

(73) Methyl Tertiary Butyl Ether: Acute Toxicological Studies. ARCO Chemical Company (1980).

(74) Methyl Tertiary Butyl Ether: Acute Toxicological Studies. ARCO Chemical Company (1980).

(75) Methyl Tertiary Butyl Ether: Vapor Inhalation Oncogenicity Study in CD-1 Mice. Bushy Run Research Center. (Project ID 91N0013). May 1, 1992. (Draft Report).

(76) Methyl tertiary butyl ether: Acute Toxicological Studies ARCO Chemical Company (1980).

(77) Methyl Tertiary Butyl Ethr: Vapor Inhalation Oncogenicity Study in Fischer 344 Rats. Bushy Run Research Center. (Project ID 91N0013B). November 13, 1992.

(78) Mutagenicity Evaluation of TBME 99% in the Rat Bone Marrow Cytogenetic Analysis. Litton Bionetics, Inc., (Litton Bionetics, Inc., Project Number: 21078); August 1979.

(79) Mutagenicity Evaluation of TBME-95 in the Ames Salmonella/Microsome Plate Test. Litton Bionetics, Inc., (Litton Bionetics, Inc., Project Number: 20838); June 1978.

(80) Mutagenicity Evaluation of TBME-95 in the Ames Salmonella/microsome Plate Test. Litton Bionetics, Inc., (Litton Bionetics, inc., Project Number: 20838); June 1978

(81) Mutagenicity Evaluation of TBME-95 in the Ames Salmonella/Microsome Plate Test. Litton Bionetics, Inc., (Litton Bionetics, Inc., Project Number: 20838); June 1978.

(82) National Technical Information Service [PB87-174603], as cited in the Registry of Toxic Effects of Chemical Substances.

(83) Patty's Industrial Hygiene and Toxicology. 3rd Ed. Vol. 2A, 2B, 2C. (1981-1982) pg. 2503., as cited in Hazardous Substance Data Bank.

(84) Pharmacokinetics of Methyl tert-Butyl Ether (MTBE) and tert-Butyl Alcohol (TBA) in Male and Female Fischer 344 Rats After Single and Repeated Inhalation Nose-Only Exposures to MTBE. BioResearch Laboratories, Ltd. (Report No. 38844) June 30, 1990.

(85) Robinson M et al. (1990): J. Am. Coll. Toxicol. 9, 525-540.

(86) Savolainen H et al., (1985): Arch. Toxicol. 57, 285-288.

(87) Snamprogetti (1972): MTBE toxicological data book I/1, NTIS/OTS 0514422.

(88) Snamprogetti (1972): MTBE toxicological data book III, NTIS/OTS 0514422.

(89) Sun Oil Company (1970): Industrial Bio-test Laboratories Inc. No. N8969, NTIS/OTS 0513076.

(90) Sun Oil Company (1970): Industrial Bio-test Laboratories Inc. No. N8971, NTIS/OTS 0513067.

(91) U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM, Estimation Program Interface Suite, v3.12. U.S. EPA, Washington, DC, USA.

(92) Unpublished report from Huels AG

(93) Van Luin AB, Teurlinckx LVM, Manage Haz Toxic Wastes, Proc Int Congr (1987), p476-485. As cited in Hazardous Substances Data Base (HSDB), 1994.

(94) Wallington TJ et al., (1989): Int. J. Chem. Kinet. 21, 993-1001.

(95) Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous environment. Environ Sci Technol 11, 359-366.

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT

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C Column 6-80: Blockname  / Fieldvalue
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B052 DS_COMPONENT_JOIN_TAB
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F004 2
F005 2
F006 17-10-2007
F007 17-10-2007
EOR
F001 543
F002 0
F003 4.1
F004 1
F005 1
F006 18-10-2007
F007 18-10-2007
EOR
F001 543
F002 0
F003 4.2
F004 1
F005 1
F006 18-10-2007
F007 18-10-2007
EOR
F001 543
F002 0
F003 4.3
F004 1
F005 1
F006 18-10-2007
F007 18-10-2007
EOR
F001 543
F002 0
F003 5.1.2
F004 1
F005 1
F006 18-10-2007
F007 18-10-2007
EOB
C
B053 DS_REC_MARK_TAB
F001 543
F002 2.1

F003 1
F004 A37-009
EOR
F001 543
F002 2.2
F003 1
F004 A37-009
EOR
F001 543
F002 2.3
F003 1
F004 A37-009
EOR
F001 543
F002 2.4
F003 1
F004 A37-009
EOR
F001 543
F002 2.5
F003 1
F004 A37-009
EOR
F001 543
F002 2.6.1
F003 1
F004 A37-009
EOR
F001 543
F002 3.1.1
F003 2
F004 A37-009
EOR
F001 543
F002 3.1.2
F003 1
F004 A37-009
EOR
F001 543
F002 3.3.1
F003 1
F004 A37-009
EOR
F001 543
F002 3.3.1
F003 2
F004 A37-009
EOR
F001 543
F002 4.1
F003 1
F004 A37-009

EOR
F001 543
F002 4.2
F003 1
F004 A37-009
EOR
F001 543
F002 4.3
F003 1
F004 A37-009
EOR
F001 543
F002 5.1.2
F003 1
F004 A37-009
EOB
C
B051 DS_COMPONENT_TAB
F001 543
F002 0
F003 6795-87-5
F012 N
F010 17-10-2007
F004 12032693
F005 17-10-2007
F006 12032693
F007 17-10-2007
F008 U.S. EPA - HPV Challenge Program
F009 A35-01
EOB
C
B101 GI_GENERAL_INFORM_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F010 A04-04
F011 A19-01
EOB
C
B201 PC_MELTING_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F015 A36-003
F007 A02-03
F008 -100
F012 P01-03: calculated
EOB
C
B202 PC_BOILING_TAB

F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F016 A36-003
F007 A02-03
F008 65
F010 1012
F011 P02-01
F013 P03-03: calculated
EOB
C
B203 PC_DENSITY_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F016 A36-003
F007 P05-02
F008 A02-03
F009 .742
F011 P18-01
F012 20
F013 P04-03: not specified
EOB
C
B204 PC_VAPOUR_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F015 A36-003
F007 A02-03
F008 277.3
F010 P02-01
F011 25
F012 P06-04
F014 A03-02
EOB
C
B205 PC_PARTITION_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F014 A36-003
F007 A02-03
F008 1.47
F010 25
F011 P07-04
F020 C15-001
EOB

C
B206 PC_WATER_SOL_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F023 A36-003
F007 A02-03
F008 P08-02
F009 16400
F011 25
F020 P09-03: not specified
F022 A03-02
F030 C14-001
EOB
C
B301 EN_PHOTODEGRADATION_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F045 A36-003
F008 F01-04
EOR
F001 543
F002 2
F003 17-10-2007
F004 RADAVI
F045 A36-003
F008 F01-01
F009 F02-05: Calculated values using AOPWIN version 1.92, a subroutine of the
* computer program EPI SuiteTM version 3.20
F011 F03-01
F034 F06-03
F035 1500000
F036 F07-02
F044 A02-03
F037 .0000000000001687
F038 A02-03
F040 50
F041 7.6
F042 F05-02
EOB
C
B302 EN_STABILITY_IN_WATER_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F040 A36-003
F008 F08-01
F009 F09-03: Technical Discussion

EOB
C
B305 EN_TRANSPORT_TAB
F001 543
F002 1
F003 17-10-2007
F004 RADAVI
F011 A36-003
F007 F20-05
F008 F22-01: air - biota - sediment(s) - soil - water
F009 F21-01: Calculation according Mackay, Level I
EOR
F001 543
F002 2
F003 17-10-2007
F004 RADAVI
F011 A36-003
F007 F20-07
F009 F21-01: Level III simulation using the Mackay Multimedia Environmental
* Model (Mackay, 2001)
EOB
C
B401 EC_FISHTOX_TAB
F001 543
F002 1
F003 18-10-2007
F004 RADAVI
F033 A36-003
F009 E02-0161: Fish
F010 E03-05: ECOSAR version 0.99h, US EPA
F012 96
F013 E04-02
F014 E05-02
F021 A02-03
F022 206
F045 E35-01
EOB
C
B402 EC_DAPHNIATOX_TAB
F001 543
F002 1
F003 18-10-2007
F004 RADAVI
F032 A36-003
F008 E06-0034: Daphnia
F009 E07-04: ECOSAR version 0.99h, US EPA
F011 48
F012 E04-02
F013 E05-02
F020 A02-03
F021 213
F045 E35-01

EOB
C
B403 EC_ALGAETOX_TAB
F001 543
F002 1
F003 18-10-2007
F004 RADAVI
F036 A36-003
F008 E08-0063: Green Alga
F009 E09-04: ECOSAR version 0.99h, US EPA
F012 96
F013 E04-02
F014 E05-02
F027 A02-03
F028 129
F030 ChV
F031 A02-03
F032 9.5
F050 E35-01
F051 E35-01
EOB
C
B502 TO_ACUTE_INHAL_TAB
F001 543
F002 1
F003 18-10-2007
F004 RADAVI
F019 A36-003
F008 T05-03
F009 T02-18
F010 T06-03: not specified
F011 1950
F012 A02-03
F013 141000
F015 T07-03
F018 A03-01
F025 141 gm/m3/15M
EOB
C
B601 TEXT_TAB
F002 543
F010 2.1
F004 1
F005 ME
F006 Melting Point is calculated by the MPBPWIN, version 1.42, a subroutine of
* the computer program EPI SuiteTM, version 3.20, (2000) which is based on
* the average result of the methods of K. Joback and Gold and Ogle.
**
** Joback's Method is describ
F007 Melting Point is calculated by the MPBPWIN, version 1.42, a subroutine of
* the computer program EPI SuiteTM, version 3.20, (2000) which is based on
* the average result of the methods of K. Joback and Gold and Ogle.

**
** Joback's Method is described in Joback K (1982). A Unified Approach to
* Physical Property Estimation Using Multivariate Statistical Techniques.
* In The Properties of Gases and Liquids. Fourth Edition. (1987). R Reid, J
* Prausnitz and B Poling, Eds.
**
** The Gold and Ogle Method simply uses the formula
** Tm = 0.5839Tb, where Tm is the melting point in Kelvin and Tb is the
* boiling point in Kelvin.
F020 269101
EOR
F002 543
F010 2.1
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269109
EOR
F002 543
F010 2.1
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F020 269108
EOR
F002 543
F010 2.1
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269102
EOR
F002 543
F010 2.2
F004 1
F005 ME
F006 Calculated values using MPBPWIN version 1.42, a subroutine of the
* computer program EPIWIN version 3.20
F007 Calculated values using MPBPWIN version 1.42, a subroutine of the
* computer program EPIWIN version 3.20
F020 269113
EOR
F002 543

F010 2.2
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269110
EOR
F002 543
F010 2.2
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F020 269114
EOR
F002 543
F010 2.2
F004 1
F005 TC
F006 Boiling Point is calculated by the MPBPWIN subroutine, which is based on
* the method of S. Stein and R. Brown in "Estimation of Normal Boiling
* Points from Group Contributions". 1994. J. Chem. Inf. Comput. Sci. 34:
* 581-587.
F007 Boiling Point is calculated by the MPBPWIN subroutine, which is based on
* the method of S. Stein and R. Brown in "Estimation of Normal Boiling
* Points from Group Contributions". 1994. J. Chem. Inf. Comput. Sci. 34:
* 581-587.
F020 269112
EOR
F002 543
F010 2.2
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269103
EOR
F002 543
F010 2.3
F004 1
F005 RE
F006 Aldrich Handbook (2003-2004). Fine Chemicals and Laboratory Equipment.
F007 Aldrich Handbook (2003-2004). Fine Chemicals and Laboratory Equipment.
F020 269116
EOR
F002 543

F010 2.3
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F007 This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical procedure.
F020 269117
EOR
F002 543
F010 2.3
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269104
EOR
F002 543
F010 2.4
F004 1
F005 RE
F006 Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As
F007 Daubert TE, Danner Rp, Am Inst Chem Eng (1985), p450. As
F020 269118
EOR
F002 543
F010 2.4
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F020 269120
EOR
F002 543
F010 2.4
F004 1
F005 RM
F006 This vapor pressure indicates that MSBE is highly volatile.
F007 This vapor pressure indicates that MSBE is highly volatile.
F020 269119
EOR
F002 543
F010 2.4
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269105

EOR
F002 543
F010 2.5
F004 1
F005 ME
F006 Calculated values using KOWWIN version 1.67, a subroutine of the computer
* program EPIWIN version 3.20
F007 Calculated values using KOWWIN version 1.67, a subroutine of the computer
* program EPIWIN version 3.20
F020 269121
EOR
F002 543
F010 2.5
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269111
EOR
F002 543
F010 2.5
F004 1
F005 RL
F006 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by EPI
* SuiteTM. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F020 269115
EOR
F002 543
F010 2.5
F004 1
F005 TC
F006 Octanol / Water Partition Coefficient is calculated by the KOWWIN
* subroutine, which is based on an atom/fragment contribution method of W.
* Meylan and P. Howard in "Atom/fragment contribution method for estimating
* octanol-water partition coe
F007 Octanol / Water Partition Coefficient is calculated by the KOWWIN
* subroutine, which is based on an atom/fragment contribution method of W.
* Meylan and P. Howard in "Atom/fragment contribution method for estimating
* octanol-water partition coefficients". 1995. J. Pharm. Sci. 84:83-92.
F020 269122
EOR
F002 543
F010 2.5
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether

F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269106
EOR
F002 543
F010 2.6.1
F004 1
F005 RE
F006 Wakita, K., M. Yoshimoto, S. Miyamoto and H. Watanabe. (1986). A method
* for calculation of the aqueous solubility of organic compounds by using
* new fragment solubility constants. Chem. Pharm. Bull. 34:4663-4681.
F007 Wakita, K., M. Yoshimoto, S. Miyamoto and H. Watanabe. (1986). A method
* for calculation of the aqueous solubility of organic compounds by using
* new fragment solubility constants. Chem. Pharm. Bull. 34:4663-4681.
F020 269124
EOR
F002 543
F010 2.6.1
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F007 This robust summary has a reliability rating of 2 because the data were
* not reviewed for quality. However, the data source is a peer reviewed
* publication.
F020 269123
EOR
F002 543
F010 2.6.1
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269107
EOR
F002 543
F010 3.1.1
F004 1
F005 ME
F006 Technical Discussion
F007 Technical Discussion
F020 269125
EOR
F002 543
F010 3.1.1
F004 1
F005 RE
F006 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
* Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and
* DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Aqueous Photolysis. In: Handbook of Chemical
* Property Estimation Methods. Chapter 8. Edited by WJ Lyman, WF Reehl and

* DH Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 269128
EOR
F002 543
F010 3.1.1
F004 1
F005 RE
F006 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
* environment. Environ Sci Technol 11, 359-366.
F007 Zepp R and Cline D (1977). Rates of direct photolysis in the aqueous
* environment. Environ Sci Technol 11, 359-366.
F020 269129
EOR
F002 543
F010 3.1.1
F004 1
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F020 269127
EOR
F002 543
F010 3.1.1
F004 1
F005 RM
F006 Direct photochemical degradation occurs through the absorbance of solar
* radiation by a chemical substance in aqueous solution. If the absorbed
* energy is high enough, then the resultant excited state of the chemical
* may undergo a transformat
F007 Direct photochemical degradation occurs through the absorbance of solar
* radiation by a chemical substance in aqueous solution. If the absorbed
* energy is high enough, then the resultant excited state of the chemical
* may undergo a transformation. A prerequisite for direct photodegradation
* is the ability of one or more bonds within a chemical to absorb
* ultraviolet (UV)/visible light in the 290 to 750 nm range. Light
* wavelengths longer than 750 nm do not contain sufficient energy to break
* chemical bonds, and wavelengths below 290 nm are shielded from the earth
* by the stratospheric ozone layer (Harris, 1982).
**
** An approach to assessing the potential for a substance to undergo
* photochemical degradation is to assume that degradation will occur in
* proportion to the amount of light wavelengths >290 nm absorbed by
* constituent molecules (Zepp and Cline, 1977). The oxygen non-bonding
* electrons in ethers do not give rise to absorption above 160 nm, which is
* why pure ether solvents can be used in spectroscopic studies.
* Consequently, methyl-sec-butyl ether is not subject to photolytic
* processes in the aqueous environment.
F020 269126
EOR
F002 543

F010 3.1.1
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269134
EOR
F002 543
F010 3.1.1
F004 2
F005 ME
F006 Calculated values using AOPWIN version 1.92, a subroutine of the computer
* program EPI SuiteTM version 3.20
**
** Indirect photodegradation, or atmospheric oxidation potential, is based
* on the structure-activity relationship methods developed by
F007 Calculated values using AOPWIN version 1.92, a subroutine of the computer
* program EPI SuiteTM version 3.20
**
** Indirect photodegradation, or atmospheric oxidation potential, is based
* on the structure-activity relationship methods developed by R. Atkinson
* under the following conditions:
** Temperature: 25°C
** Sensitizer: OH- radical
** Concentration of Sensitizer: 1.5E6 OH- radicals/cm
F020 269130
EOR
F002 543
F010 3.1.1
F004 2
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269135
EOR
F002 543
F010 3.1.1
F004 2
F005 RL
F006 The value was calculated based on chemical structure as modeled by
* EPIWIN. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F007 The value was calculated based on chemical structure as modeled by
* EPIWIN. This robust summary has a reliability rating of 2 because the
* data are calculated and not measured.
F020 269132
EOR
F002 543
F010 3.1.1
F004 2

F005 RM
F006 Methyl-sec-butyl ether has the potential to volatilize to air, based on a
* relatively high vapor pressure, where it is subject to atmospheric
* oxidation. In air, methyl-sec-butyl ether can react with photosensitized
* oxygen in the form of hydr
F007 Methyl-sec-butyl ether has the potential to volatilize to air, based on a
* relatively high vapor pressure, where it is subject to atmospheric
* oxidation. In air, methyl-sec-butyl ether can react with photosensitized
* oxygen in the form of hydroxyl radicals (OH-). The computer program
* AOPWIN (atmospheric oxidation program for Microsoft Windows) (EPI
* SuiteTM, 2000) calculates a chemical half-life for a 12-hour day (the
* 12-hour day half-life value normalizes degradation to a standard day
* light period during which hydroxyl radicals needed for degradation are
* generated), based on an OH- reaction rate constant and a defined OH-
* concentration.
**
** Based on a 12-hour day, a rate constant of 16.87 E-12 cm3/molecule*sec,
* and an OH- concentration of 1.5 E6 OH-/cm3, methyl-sec-butyl ether has a
* calculated half-life in air of 0.63 days or 7.6 hours of daylight.
F020 269131
EOR
F002 543
F010 3.1.1
F004 2
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269133
EOR
F002 543
F010 3.1.2
F004 1
F005 RE
F006 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
* Reinhart and Winston, New York, NY, USA.
F007 Gould E (1959). Mechanism and Structure in Organic Chemistry. Holt,
* Reinhart and Winston, New York, NY, USA.
F020 269139
EOR
F002 543
F010 3.1.2
F004 1
F005 RE
F006 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
* Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
* Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F007 Harris J (1982). Rate of Hydrolysis. In: Handbook of Chemical Property
* Estimation Methods. Chapter 7. Edited by WJ Lyman, WF Reehl and DH
* Rosenblatt. McGraw-Hill Book Company, New York, NY, USA.
F020 269140
EOR
F002 543

F010 3.1.2
F004 1
F005 RL
F006 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F007 This robust summary has a reliability of 2 because it is a technical
* discussion and not a study.
F020 269138
EOR
F002 543
F010 3.1.2
F004 1
F005 RS
F006 Hydrolysis of an organic chemical is the transformation process in which
* a water molecule or hydroxide ion reacts to form a new carbon-oxygen
* bond. Chemicals with leaving groups that have a potential to hydrolyze
* include alkyl halides, amid
F007 Hydrolysis of an organic chemical is the transformation process in which
* a water molecule or hydroxide ion reacts to form a new carbon-oxygen
* bond. Chemicals with leaving groups that have a potential to hydrolyze
* include alkyl halides, amides, carbamates, carboxylic acid esters and
* lactones, epoxides, phosphate esters, and sulfonic acid esters (Gould,
* 1959). The lack of a suitable leaving group renders a compound resistant
* to hydrolysis. Methyl-sec-butyl ether is resistant to hydrolysis because
* it lacks a functional group that is hydrolytically reactive and Harris
* (1982) identifies ether groups as generally resistant to hydrolysis.
* Therefore, hydrolysis will not contribute to the removal of
* Methyl-sec-butyl ether from the environment.
F020 269137
EOR
F002 543
F010 3.1.2
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269136
EOR
F002 543
F010 3.3.1
F004 1
F005 RE
F006 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F007 Mackay D (1998). Level I Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F020 269146
EOR
F002 543
F010 3.3.1

F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated.
F020 269145
EOR
F002 543
F010 3.3.1
F004 1
F005 RM
F006 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 1.47
** Water S 16,400 g/m3
** Vapor P 27,730 Pa
** Melting Point = -100.0° C
F007 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 1.47
** Water S 16,400 g/m3
** Vapor P 27,730 Pa
** Melting Point = -100.0° C
F020 269143
EOR
F002 543
F010 3.3.1
F004 1
F005 RS
F006 Using the Mackay Level I calculation, the following
** distribution is predicted for methyl-sec-butyl ether:
**
** %Dis Compartment
** 96.7 Air
** 3.22 Water
** 0.08 Soil
** <0.01 Sediment
** <0.01 Suspended Sediment
** <0.01 Biota
F007 Using the Mackay Level I calculation, the following

** %Dis

**		96.7	Air
**		3.22	Water
**		0.08	Soil
**	<0.01		Sediment
**	<0.01		Suspended Sediment
**	<0.01		Biota

F020 269144
EOR
F002 543
F010 3.3.1
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269141
EOR
F002 543
F010 3.3.1
F004 2
F005 CL
F006 The majority of methyl-sec-butyl ether (MSBE) is calculated to partition
* into the water phase, with smaller but significant amounts into air and
* soil, based on the modeling parameters used in this calculation. MSBE is
* considered to be a Typ
F007 The majority of methyl-sec-butyl ether (MSBE) is calculated to partition
* into the water phase, with smaller but significant amounts into air and
* soil, based on the modeling parameters used in this calculation. MSBE is
* considered to be a Type 1 chemical with potential to partition into all
* environmental compartments.
F020 269151
EOR
F002 543
F010 3.3.1
F004 2
F005 ME
F006 Level III simulation using the Mackay Multimedia Environmental Model
* (Mackay, 2001). Mass balances are calculated for the four bulk media of
* air (gas + aerosol), water (solution + suspended sediment + biota), soil,
* (solids + air + water), a
F007 Level III simulation using the Mackay Multimedia Environmental Model
* (Mackay, 2001). Mass balances are calculated for the four bulk media of
* air (gas + aerosol), water (solution + suspended sediment + biota), soil,
* (solids + air + water), and sediment (solids + pore water). Equilibrium
* exists within, but not between media. Physical-chemical properties are
* used to quantify a chemical's behavior in an evaluative environment.
* Three types of chemicals are treated in this model: chemicals that
* partition into all media (Type 1), non volatile chemicals (Type 2), and
* chemicals with zero, or near-zero, solubility (Type 3). The model cannot
* treat ionizing or speciating substances. The Level III model assumes a
* simple, evaluative environment with user-defined volumes and densities
* for the following homogeneous environmental media (or compartments): air,
* water, soil, sediment, suspended sediment, fish and aerosols.

**
** This model provides a description of a chemical's fate including the
* important degradation and advection losses and the intermedia transport
* processes. The distribution of the chemical between media depends on how
* the chemical enters the system, e.g. to air, to water, or to both. This
* mode of entry also affects persistence or residence time.
**
** The rates of intermedia transport are controlled by a series of 12
* transport velocities. Reaction half-lives are requested for all 7 media.
* The advective residence time selected for air also applies to aerosols
* and the residence time for water applies to suspended sediment and fish.
* The advective residence time of aerosols, suspended sediment and fish
* cannot be specified independently of the air and water residence times.
F020 269148
EOR
F002 543
F010 3.3.1
F004 2
F005 RE
F006 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F007 Mackay D (1998). Level III Fugacity-Based Environmental Equilibrium
* Partitioning Model, Version 2.1 (16-bit). Environmental Modelling Centre,
* Trent University, Ontario, Canada.
F020 269147
EOR
F002 543
F010 3.3.1
F004 2
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated.
F020 269152
EOR
F002 543
F010 3.3.1
F004 2
F005 RS
F006 Output:

		Mass%	Emissions(kg/hr)
** Air		7.3	1000
** Water		64.8	1000
** Soil		27.8	1000
** Sedime	0.2	0	

F007 Output:

	Mass%	Emissions(kg/hr)
** Air	7.3	1000
** Water	64.8	1000
** Soil	27.8	1000

** Sedime 0.2 0
F020 269149
EOR
F002 543
F010 3.3.1
F004 2
F005 TC
F006 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 1.47
** Water S 16,400 g/m3
** Vapor P 27,730 Pa
** Melting Point = -100.0° C
**
** Reaction Ha
F007 Physicochemical data used in the calculation:
**
** Parameter Value w/ Units
**
** Molecu 88.15
** Temperature = 25° C
** Log Kow = 1.47
** Water S 16,400 g/m3
** Vapor P 27,730 Pa
** Melting Point = -100.0° C
**
** Reaction Half Lives in hours as predicted using EPI SuiteTM:
**
** Air (gaseous) 7.6
** Water (360
** Bulk Soil 720
** Bulk Sediment 3240
**
** Environmental Properties (EQC standard environment)
** Dimensions (all defaults)
** Densities (all defaults)
** Organic carbon & Advection (all defaults)
** Transport Velocities (all defaults)
**
** Emission and Inflows (defaults used)
** Air 1000 kg/hr
** Water 1000 kg/hr
** Soil 1000 kg/hr
** Sediment 0 kg/hr
F020 269150
EOR
F002 543
F010 3.3.1

F004 2
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269142
EOR
F002 543
F010 4.1
F004 1
F005 ME
F006 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity h
F007 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity has been previously measured. Most SAR
* calculations in the ECOSAR Class Program are based upon the octanol/water
* partition coefficient (Kow). SARs have been used by the U.S.
* Environmental Protection Agency since 1981 to predict the aquatic
* toxicity of new industrial chemicals in the absence of test data. SARs
* are developed for chemical classes based on measured test data that have
* been submitted by industry or they are developed by other sources for
* chemicals with similar structures, e.g., phenols. Using the measured
* aquatic toxicity values and estimated Kow values, regression equations
* can be developed for a class of chemicals. Toxicity values for new
* chemicals may then be calculated by inserting the estimated Kow into the
* regression equation and correcting the resultant value for the molecular
* weight of the compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral
* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
* The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269164
EOR
F002 543
F010 4.1
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,

* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269173
EOR
F002 543
F010 4.1
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269170
EOR
F002 543
F010 4.1
F004 1
F005 TC
F006 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.
**
** Class: Neutral organics
F007 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.
**
** Class: Neutral organics
F020 269167
EOR
F002 543
F010 4.1
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269161
EOR
F002 543
F010 4.2
F004 1
F005 ME
F006 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity h
F007 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity has been previously measured. Most SAR
* calculations in the ECOSAR Class Program are based upon the octanol/water
* partition coefficient (Kow). SARs have been used by the U.S.
* Environmental Protection Agency since 1981 to predict the aquatic
* toxicity of new industrial chemicals in the absence of test data. SARs
* are developed for chemical classes based on measured test data that have

* been submitted by industry or they are developed by other sources for
* chemicals with similar structures, e.g., phenols. Using the measured
* aquatic toxicity values and estimated Kow values, regression equations
* can be developed for a class of chemicals. Toxicity values for new
* chemicals may then be calculated by inserting the estimated Kow into the
* regression equation and correcting the resultant value for the molecular
* weight of the compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral
* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
* The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269165
EOR
F002 543
F010 4.2
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269174
EOR
F002 543
F010 4.2
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269171
EOR
F002 543
F010 4.2
F004 1
F005 TC
F006 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.
**
** Class: Neutral organics
F007 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.

**
** Class: Neutral organics
F020 269168
EOR
F002 543
F010 4.2
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269162
EOR
F002 543
F010 4.3
F004 1
F005 ME
F006 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity h
F007 ECOSAR version 0.99h, U.S. EPA. The structure-activity relationships
* (SARs) presented in this program are used to predict the aquatic toxicity
* of chemicals based on their similarity of structure to chemicals for
* which the aquatic toxicity has been previously measured. Most SAR
* calculations in the ECOSAR Class Program are based upon the octanol/water
* partition coefficient (Kow). SARs have been used by the U.S.
* Environmental Protection Agency since 1981 to predict the aquatic
* toxicity of new industrial chemicals in the absence of test data. SARs
* are developed for chemical classes based on measured test data that have
* been submitted by industry or they are developed by other sources for
* chemicals with similar structures, e.g., phenols. Using the measured
* aquatic toxicity values and estimated Kow values, regression equations
* can be developed for a class of chemicals. Toxicity values for new
* chemicals may then be calculated by inserting the estimated Kow into the
* regression equation and correcting the resultant value for the molecular
* weight of the compound.
**
** To date, over 150 SARs have been developed for more than 50 chemical
* classes. These chemical classes range from the very large, e.g., neutral
* organics, to the very small, e.g., aromatic diazoniums. Some chemical
* classes have only one SAR, such as acid chlorides, for which only a fish
* 96-hour LC50 has been developed. The class with the greatest number of
* SARs is the neutral organics, which has SARs ranging from acute and
* chronic SARs for fish to a 14-day LC50 for earthworms in artificial soil.
*   The ECOSAR Class Program is a computerized version of the ECOSAR
* analysis procedures as currently practiced by the Office of Pollution
* Prevention and Toxics (OPPT). It has been developed within the
* regulatory constraints of the Toxic Substances Control Act (TSCA). It is
* a pragmatic approach to SAR as opposed to a theoretical approach.
F020 269166
EOR
F002 543

F010 4.3
F004 1
F005 RE
F006 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F007 U.S. Environmental Protection Agency (U.S. EPA) (2000). EPI SuiteTM,
* Estimation Program Interface Suite, v3.20. U.S. EPA, Washington, DC, USA.
F020 269175
EOR
F002 543
F010 4.3
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F007 This robust summary has a reliability rating of 2 because the data are
* calculated and not measured.
F020 269172
EOR
F002 543
F010 4.3
F004 1
F005 TC
F006 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.
**
** Class: Neutral organics
F007 Experimental water solubility, 16,400 mg/l @ 20°C, log Kow, 1.47 and
* melting point, -100.0°C were entered into the program.
**
** Class: Neutral organics
F020 269169
EOR
F002 543
F010 4.3
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269163
EOR
F002 543
F010 5.1.2
F004 1
F005 RE
F006 Marsh DF, Leake CD (1950). The comparative anesthetic activity of the
* aliphatic ethers. Anesthesiology 11: 455-463.
F007 Marsh DF, Leake CD (1950). The comparative anesthetic activity of the
* aliphatic ethers. Anesthesiology 11: 455-463.
F020 269178
EOR
F002 543

F010 5.1.2
F004 1
F005 RL
F006 This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical
* procedure. However, the data comes from a peer-reviewed source.
F007 This robust summary has a reliability rating of 2 because there is
* insufficient information available on the method and analytical
* procedure. However, the data comes from a peer-reviewed source.
F020 269179
EOR
F002 543
F010 5.1.2
F004 1
F005 RM
F006 Other effects reported as: General anesthetic
F007 Other effects reported as: General anesthetic
F020 269177
EOR
F002 543
F010 5.1.2
F004 1
F005 TS
F006 CAS #6795-87-5; methyl-sec-butyl ether
F007 CAS #6795-87-5; methyl-sec-butyl ether
F020 269176
EOB
C
X