Rule 57 Aquatic Values Data Sheet

1/25/2010

Chemical or product name: Methyl ethyl ketone
Manufacturer (WTAs): -----
C.A.S #: 78-93-3

Developed by: Christopher Hull *FAV*: 40,000 ug/l* *(Tier: II)*
Approved by: D. Bush *AMV*: 20,000 ug/l* *(Tier: II)*
Approval date: 1/28/2010 *FCV*: 2,200 ug/l* *(Tier: II)*
CAS: 11/23/09; AQUIRE: 11/12/09; QSAR: 12/11/(*Acute CF: ----* *Chronic CF: ----*
Clearinghouse search date: -----

ACUTE DATA

Species	Endpoint (EC or LC50)	Duration (hours)	Test Type (FT,M, etc.)	Hardness mg/L	Test Chemical	LC50/EC50 ug/L	SMAV ug/L	GMAV ug/L	Rank	Reference
Water Flea *(Daphnia magna)*	LC50	48	S,U	173	-----	>520,000	>520,000	>520,000	1	1
Fathead Minnow	EC50	96	FT,M	47.7	-----	3,220,000 [1]	3,220,000	3,220,000	2	2
(Pimephales promelas)	LC50	96	FT,M	47.7	-----	3,220,000 [1]				2
	LC50	96	FT,M	56.3	-----	3,200,000 [1]				3
	LC50	96	FT,M	45.5	-----	3,200,000 [1]				4

*Value rounded to 2 significant figures.

[1] These data are all considered to be from the same study; therefore, the EC50 was used to calculate the SMAV, since EC50 is preferred over LC50 from the same test.

CHRONIC DATA

Species	Test type (ELS, etc.)	Duration (days)	Study Conditions (FT,M etc.)	Hardness mg/L	Test Chemical	MATC ug/L	SMCV ug/L	GMCV ug/L	Rank	Reference

NO SUITABLE DATA WERE FOUND.

Min. Data Req. met	Acute Factor
2	13
3	8
4	7
5	6.1
6	5.2
7	4.3

RULE 57 AQUATIC VALUES WORK SHEET-ACUTE

Chemical Name: **Methyl ethyl ketone**
CAS #: **78-93-3**
Developed by: **Christopher Hull**
Date: **1/25/10**

AQUATIC MAXIMUM VALUE CALCULATIONS

A. Minimum 8-species requirement for Tier I is **not** met (Tier II): **Yes**.

1. Minimum requirements met = 2 (iii, iv).

2. Minimum requirements missing for Tier I = 6 (i, ii, v, vi, vii, viii).

3. Acute Factor = 13.

4. Toxicity is **not** dependent upon a water quality characteristic: **Yes**.

   a. FAV calculation: Tier II FAV = Lowest GMAV / Acute Factor = 520,000 ug/l / 13 = **40,000 ug/l**.

5. Toxicity is dependent upon a water quality characteristic: **No**.

   a. Slope = _____ (Table_____).

   b. FAV equation: Tier II FAV = _____ = _____ = _____.

6. Go to C.

B. Minimum 8-species requirement is met (Tier I): **No**.

1. Toxicity is **not** dependent upon a water quality characteristic: _____.

   a. Tier I FAV calculation: _____ (_____).

2. Toxicity is dependent upon a water quality characteristic: _____.

   a. Slope = _____ (Table_____).

   b. Ranked genus mean acute intercepts: Table _____.

   c. Final acute intercept = _____ (_____).

   ln of final acute intercept = _____.

   d. FAV equation: Tier I FAV = _____ = _____ = _____.

C. Aquatic Maximum Value (AMV) calculation: Tier II AMV = Tier II FAV / 2 = 40,000 ug/l / 2 = **20,000 ug/l**.

RULE 57 AQUATIC VALUES WORK SHEET-CHRONIC

Chemical Name: **Methyl ethyl ketone**
CAS #: **78-93-3**
Developed by: **Christopher Hull**
Date: **1/25/10**

FINAL CHRONIC VALUE CALCULATIONS

A. Minimum 8-species requirement for GMCV-based Tier I is not met: **Yes**.

1. Minimum requirements met = 0.

2. Minimum requirements missing = 8.

B. Minimum 8-species requirement for GMCV-based Tier I is met: **No**.

1. Toxicity is not dependent upon a water quality characteristic: _____.

   a. Tier I FCV = _____ (Fig. _____).

2. Toxicity is dependent upon a water quality characteristic: _____.

   a. Slope = _____ (Table_____).

   b. Ranked Genus Mean Chronic Intercepts: Table _____.

   c. Final Chronic Intercept = _____ (Fig. _____).

   d. ln of Final Chronic Intercept = _____.

   e. FCV equation = Tier I FCV = _____ = _____ = _____.

C. Acute-to-Chronic-Ratio method: **Yes**.

1. Acute-to-Chronic Ratio:

   a. Number of ACRs meeting minimum data requirements = 0 (Table-----).

   b. Tier II Acute-to-Chronic Ratio = Default Value = Xg(18, 18, 18) = **18**.

2. Toxicity is not dependent upon a water quality characteristic: **Yes**.

   Tier II FCV = Tier II FAV / Tier II ACR = 40,000 ug/l / 18 = **2,222.2222 ug/l**.

3. Toxicity is dependent upon a water quality characteristic: **No**.

   a. Slope = _____ (Table_____).

   b. Aquatic Chronic Intercept = _____ (Table _____).

   c. ln of Aquatic Chronic Intercept = _____.

   d. FCV equation = Tier _____ FCV = _____ = _____ = _____.

METHYL ETHYL KETONE REFERENCES, 1/10

References Used:

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2. #QL 638 .C94 A27 v.1: Brooke, L. T., Call, D. J., Geiger, D. L., and Northcott, C. E., 1984. Acute toxicities of organic chemicals to Fathead Minnows (*Pimephales promelas*), Vol. 1 . Center for Lake Superior Environmental Studies, University of Wisconsin.
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4. #007358: Veith, G. D. , Call, D. J., and Brooke, L. T. 1983. Structure-toxicity relationships for the Fathead Minnow, *Pimephales promelas*: narcotic industrial chemicals. Can. J. Fish. Aquat. Sci. 40(6): 743-8.

References Reviewed, but Not Used*:

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-REJECT: No useable endpoint: Test organisms not suitable.
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-REJECT (TM/CU: test water highly turbid, and aerated).

*For abbreviations used, see Appendix, attached.

APPENDIX: REFERENCE ABBREVIATIONS USED, 1/10

AMD = ambient monitoring data.
BCF = bioconcentration factor.
D = data (as a suffix to other abbreviations listed here).
DEP = depuration data.
DO = data only (as a suffix to other abbreviations listed here).
EF = environmental fate.
GWD = groundwater data.
IITM/C = insufficient information on test methods / conditions.
ISD = *in situ* data.
LD = leachate data.
LSER = Linear Solvation Energy Relationship.
MCD = microcosm data.
MIX = mixture (not chemical-specific) test data.
MED = model ecosystem data.
MET = metabolism
MOD = model (theoretical) data / analysis.
NA = not available at this time.
ND = no data (on this chemical).
NIL = not in (MDEQ) Library.
NR = not reviewed.
NUE = no useable endpoint.
O = only (as a suffix to other abbreviations listed here).
PD = phytotoxicity data.
PHYS = physiological data.
QSAR = Quantitative Structure-Activity Relationship.
RWD = receiving water data.
SD = secondary data.
SED = sediment data or testing.
SW = saltwater.
TATO = test animals too old.
TDI = test duration inappropriate.
TM/CU = test methods / conditions unacceptable.
TONNA = test organisms not North American.
TONS = test organisms not suitable.
TTD = time-toxicity data.
UD or UP = uptake data.
WET = whole-effluent testing.