

**40 CFR Part 799****(OPTS-42050A, (FRL-2975-2(a)))****Certain Chlorinated Benzenes; Final Test Rule****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

**SUMMARY:** This rule promulgates EPA's decision to require manufacturers and processors of 1,2,3-trichlorobenzene (CAS No. 87-61-8) to conduct environmental effects testing and for manufacturers and processors of 1,2- and 1,4-dichlorobenzene (CAS Nos. 95-50-1, 106-46-7, respectively) to conduct chemical fate testing. Manufacturers and processors of 1,2,4-trichlorobenzene (CAS No. 120-82-1) are required to conduct both chemical fate and environmental effects testing. This action is necessary to comply with the designation of these substances by the Interagency Testing Committee for priority testing consideration under the Toxic Substance Control Act (TSCA).

**DATES:** In accordance with 40 CFR 23.4 (50 FR 7271; February 21, 1985), this rule shall be promulgated for purposes of judicial review at 1 p.m. eastern ["daylight" or "standard" as appropriate] time on April 21, 1986. This rule shall become effective on May 21, 1986.

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**SUPPLEMENTARY INFORMATION:** EPA is requiring chemical fate and environmental effects testing of certain chlorinated benzenes as designated in this final rule.

**I. Introduction**

This notice is part of the overall implementation of section 4 of the Toxic Substances Control Act (TSCA, Pub. L. 94-469; 90 Stat. 2006 *et seq.*; 15 U.S.C. 2603 *et seq.*), which contains authority for EPA to require development of data relevant to the assessment of the risks to health and the environment posed by exposure to particular chemical substances or mixtures.

Under section 4(a)(1) of TSCA, EPA must require testing of a chemical substance to develop health or environmental data if the Administrator finds that:

(A)(i) the manufacture, distribution in commerce, processing, use, or disposal

of a chemical substance or mixture, or that any combination of such activities, may present an unreasonable risk of injury to health or the environment,

(ii) there are insufficient data and experience upon which the effects of such manufacture, distribution in commerce, processing, use, or disposal of such substance or mixture or of any combination of such activities in health or the environment can reasonably be determined or predicted, and

(iii) testing of such substance or mixture with respect to such effects is necessary to develop such data: or

(B)(i) a chemical substance or mixture is or will be produced in substantial quantities, and (I) it enters or may reasonably be anticipated to enter the environment in substantial quantities or (II) there is or may be significant or substantial human exposure to such substance or mixture,

(ii) there are insufficient data and experience upon which the effects of the manufacture, distribution in commerce, processing, use, or disposal of such substance or mixture or of any combination of such activities on health or the environment can reasonably be determined or predicted, and

(iii) testing of such substance or mixture with respect to such effects is necessary to develop such data.

For a more complete understanding of the statutory section 4 findings, the reader is directed to the Agency's first proposed test rule package [chloromethane and chlorinated benzenes, published in the *Federal Register* of July 18, 1980, (45 CFR 48510)] and to the second package [dichloromethane, nitrobenzene, and 1,1,1-trichloroethane, published in the *Federal Register* of June 5, 1981; (46 FR 30300)] for in-depth discussions of the general issues applicable to this action.

**II. Background****A. Profile**

EPA issued a proposed rulemaking, published in the *Federal Register* of January 13, 1984 (49 FR 1760) which proposed that certain chemical fate and environmental effects tests be conducted with monochlorobenzene, 1,2- and 1,4-dichlorobenzenes and 1,2,4- and 1,2,3-trichlorobenzenes.

The proposed rule, appearing in 40 CFR Part 799 as "§ 799.2900 Monochlorobenzene; 1,2-dichlorobenzene; 1,4-dichlorobenzene; 1,2,4-trichlorobenzene and 1,2,3-trichlorobenzene." is now recodified as "§ 799.1050 Chlorinated benzenes."

The principal uses of these chlorobenzenes are summarized in Table 1.

TABLE 1.—PRINCIPAL USES OF SPECIFIC CHLOROBENZENES<sup>1</sup>

Chlorinated benzene	CAS No.	Principal uses
Monochlorobenzene	108-90-7	Intermediates in dye and herbicide manufacture; solvent in pesticide <sup>1</sup> and degreasing formulations.
1,2-Dichlorobenzene	95-69-1	Production of 2,4-dichlorobenzene; intermediate in manufacture of herbicides, dyes, polyethers, and epoxy resin; organic solvent.
1,4-Dichlorobenzene	106-46-7	Space deodorants and moth-control <sup>1</sup>
Trichlorobenzenes: 1,2,3-Trichlorobenzene	87-61-6	Organic intermediates; solvents; dye carriers; transformer and dielectric fluids.
1,2,4-Trichlorobenzene	120-82-1	Do.

<sup>1</sup> Use of chlorinated benzenes as pesticide products or as solvents in such pesticides is regulated under the Federal Insecticide Fungicide and Rodenticide Act and was not considered in this tabulation.

The ranges of production in and/or import into the United States of these chlorinated benzenes are presented in Table 2.

TABLE 2.—UNITED STATES PRODUCTION AND/OR IMPORT OF CERTAIN CHLORINATED BENZENES

Chlorinated benzene	Production and/or import volume (lb/year) <sup>a</sup>
Monochlorobenzene	195,000,000 to 264,000,000.
1,2-Dichlorobenzene	40,300,000 to 47,300,000.
1,4-Dichlorobenzene	62,300,000.
1,2,3-Trichlorobenzene	51,300 to 163,000.
1,2,4-Trichlorobenzene	2,750,000 to 6,070,000.

<sup>a</sup> Data were derived from information reported under the TSCA section 8(a) Preliminary Assessment Information Rule published on June 22, 1982 (47 FR 26992), the techniques for aggregating data described in 46 FR 27041 (June 13, 1981), and EPA communications with the chlorobenzene manufacturers and rounded off to three significant figures.

### B. ITC Recommendations

Section 4(e) of TSCA established an Interagency Testing Committee (ITC) to recommend to EPA a list of chemicals to be considered for testing under section 4(a) of the Act.

The ITC designated the chlorinated benzenes for priority consideration in its Initial (mono- and dichlorinated benzenes), and Third (tri-, tetra-, and pentachlorinated benzenes) Reports, published in the *Federal Register* of October 12, 1977 (42 FR 55038) and October 30, 1978 (43 FR 50630), respectively. The ITC recommended that mono-, di-, tri-, tetra-, and pentachlorinated benzenes be considered for health and environmental effects testing. EPA's response to the ITC's health effects testing recommendations for these chlorinated

benzenes was published in the *Federal Register* of July 18, 1980 (45 FR 48524).

The ITC's testing recommendations for mono- and dichlorinated benzenes were based on the reported large U.S. production volumes of these compounds. The ITC's Initial Report stated that the U.S. production of monochlorobenzene was over 300 million pounds/year. Production of 1,2- and 1,4-dichlorobenzene was estimated by the ITC at 50 million pounds each. In addition, the ITC was concerned that the manufacture of mono- and dichlorobenzene and their use alone and in products could present an environmental hazard, particularly in light of the high release rate of mono- and dichlorobenzene and their anticipated persistence in the environment.

The ITC's recommendations for tri-, tetra-, and pentachlorinated benzenes were based on reports of contamination of air, water, soil and food chains by chlorinated benzene compounds. The ITC cited several possible sources of contamination, which included the use of chlorinated benzenes as chemical intermediates, as solvents in the manufacture of dyes, as lubricants and pesticides, and as transformer oils. The ITC also speculated that a reduction in the use of polychlorinated biphenyls may result in increased use of trichlorobenzenes as transformer oils.

### C. Proposed Rule

In the *Federal Register* of January 13, 1984 (49 FR 1760), EPA issued a proposed rule which would require chemical fate and environmental effects testing for various chlorinated benzenes.

1. TSCA section 4(a)(1)(B). EPA based its proposed testing of monochlorobenzene, 1,2- and 1,4-dichlorobenzene and 1,2,4-trichlorobenzene on the authority of section 4(a)(1)(B) of TSCA. EPA concluded that monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene are produced in substantial quantities, and may enter the environment in substantial quantities. Furthermore, EPA concluded that there are insufficient data available to either reasonably determine or predict the results of this exposure in the areas of chemical fate and environmental effects and that testing is necessary to develop such data.

EPA reached these conclusions for the following reasons:

a. Available information indicates that the annual United States production and/or import volumes for

monochlorobenzene, 1,2- and 1,4-dichlorobenzene and 1,2,4-trichlorobenzene are substantial (see Table 2).

b. Available information indicates that there are substantial amounts of monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene released to the environment each year via manufacturing, processing and/or use activities. Environmental release estimates of chlorinated benzenes resulting from their manufacture are presented in Table 3.

TABLE 3.—ANNUAL ENVIRONMENTAL RELEASE ESTIMATES DURING THE MANUFACTURE OF FOUR CHLORINATED BENZENES

Chlorinated benzene	Annual release estimate in pounds <sup>1</sup>
Monochlorobenzene	420,000-605,300
1,2-Dichlorobenzene	65,800
1,4-Dichlorobenzene	365,000-592,000
1,2,4-Trichlorobenzene	801-2,033

<sup>1</sup> Aggregated environmental release estimates from TSCA section 8(a) Preliminary Assessment Information Rule 47 FR 26992 and rounded off to three significant figures.

In addition, available data indicate that the uses of these chlorinated benzenes may result in substantial release of monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene into the environment (see Table 4).

TABLE 4.—ESTIMATED RELEASES OF CERTAIN CHLORINATED BENZENES TO THE ENVIRONMENT FROM USES<sup>1</sup>

Chlorinated benzene	Million pounds to air	Million pounds to water	Million pounds to land
Monochlorobenzene	2	70	
1,2-Dichlorobenzene	<0.1	9.1	<0.1
1,4-Dichlorobenzene	15.7	11.8	0.6
1,2,4-Trichlorobenzene		3.2	

<sup>1</sup> (Refs. 1 and 2)

c. EPA concluded that there are insufficient data on the chemical fates and environmental effects of monochlorobenzene, 1,2- and 1,4-dichlorobenzene and 1,2,4-trichlorobenzene to reasonably determine or predict the results of their environmental releases, and that testing is necessary to develop such data.

2. TSCA section 4(a)(1)(A). EPA based its proposed testing of 1,2,3-trichlorobenzene on the authority of TSCA section 4(a)(1)(A), because EPA concluded that 1,2,3-trichlorobenzene may present an unreasonable risk of injury to organisms in the aquatic environment. EPA reached this conclusion for the following reasons:

a. Existing toxicity data indicate that among the mono-, di-, and trichlorobenzenes, 1,2,3-trichlorobenzene is the most toxic to aquatic organisms (Ref. 3). Toxicity measurements include reported 48-hour LC50's of 0.71 mg/L and 3.1 mg/L for rainbow trout and zebra danios, respectively, and a 24-hour daphnid LC50 of 0.35 mg/L (Ref. 3). In addition, chronic toxicity data on daphnids show significant effects at concentrations as low as 0.1 mg/L (Ref. 3).

b. Available information indicates that the manufacture and uses of 1,2,3-trichlorobenzene (dye carrier, organic solvent, intermediate and dielectric fluid) are the principal sources of its environmental release. Ware and West (1977) reported levels of 0.021 to 0.046 mg/L of 1,2,3-trichlorobenzene in municipal discharges (Ref. 5). Using these measured levels of 1,2,3-

trichlorobenzene and its potential bioconcentration factor in fish of 1200-2600X (Ref. 4), the potential concentration of 1,2,3-trichlorobenzene in fish is in the range of 25 to 120 mg/L (measured levels in water X BCF's for rainbow trout = potential concentration of 1,2,3-trichlorobenzene in fish). Due to this potential bioconcentration of 1,2,3-trichlorobenzene, and its reported LC50 of 0.71 mg/L for rainbow trout, the Agency has determined that 1,2,3-trichlorobenzene may present an unreasonable risk to aquatic organisms.

c. EPA concluded that there are insufficient data on the environmental effects of 1,2,3-trichlorobenzene to reasonably determine or predict the effects of its environmental release and that testing is necessary to develop such data.

On the basis of these findings, the Agency proposed the test requirements summarized in Table 5.

TABLE 5—PROPOSED TESTING REQUIREMENTS FOR MONO-, 1,2-DI-, 1,4-DI-, AND 1,2,4-TRICHLORINATED BENZENES

Chlorinated benzene	Proposed testing requirements
Monochlorobenzene	Chemical fate: Atmospheric oxidation via hydroxyl radical. Environmental effects: Seed germination, root elongation, and early seedling growth in terrestrial macrophytes.
1,2- and 1,4-Dichlorobenzene	Chemical fate: Atmospheric oxidation via hydroxyl radical; and soil adsorption coefficient. Environmental effects: Seed germination, root elongation, and early seedling growth in terrestrial macrophytes.
1,2,4-Trichlorobenzene	Chemical fate: Atmospheric oxidation via hydroxyl radical; soil adsorption coefficient. Environmental effects: Acute and chronic toxicity to mysid shrimp, acute toxicity to the aquatic macrophyte <i>Lemna gibba</i> , seed germination, root elongation, and early seedling growth in terrestrial macrophytes.
1,2,3-Trichlorobenzene	Environmental effects: 96-hour LC50 for fathead minnow, 96-hour EC50 for one species of <i>Gammarus</i> , acute toxicity to the aquatic macrophyte <i>Lemna gibba</i> , acute toxicity to mysid shrimp and silverfishes, chronic toxicity to mysid shrimp if mysid shrimp LC50 is < 1 ppm.

For 1,3-dichlorobenzene, the Agency concluded that no further testing should be proposed at this time. Existing data for 1,3-dichlorobenzene adequately characterize its toxicity to aquatic organisms and available information provides no basis for believing that 1,3-dichlorobenzene may present an unreasonable risk to the terrestrial environment.

For 1,3,5-trichlorobenzene, the Agency concluded that no further testing should be proposed under either TSCA sections 4(a)(1) (A) or (B) at this time. That conclusion was based primarily on the fact that data submitted under TSCA section 8(a) indicate that 1,3,5-trichlorobenzene is not currently produced in the United States and that the primary uses of 1,3,5-trichlorobenzene, for which it is imported into the United States, are expected to result in low environmental releases and exposures. The anticipated low level of exposure and the limited

data on the chemical fate and environmental effects of 1,3,5-trichlorobenzene do not support a finding that this compound may pose an unreasonable risk of injury to organisms in the aquatic or terrestrial environments.

For pentachlorobenzene, the Agency concluded that no additional testing should be proposed at this time. That conclusion was based on the fact that pentachlorobenzene is neither produced in nor imported into the United States at this time. The only former U.S. pentachlorobenzene manufacturer and/or importer notified EPA that it no longer manufactures and/or imports pentachlorobenzene.

With regard to the tetrachlorobenzenes, the Chlorobenzenes Proposed Rule (January 13, 1984, 49 FR 1760) also contained an Advance Notice of Proposed Rulemaking. In reviewing information related to the manufacture of the

various chlorinated benzenes, the Agency determined that 1,2,4,5- and 1,2,3,5-tetrachlorobenzenes were neither produced in nor imported into the United States and therefore EPA initially decided not to propose environmental effects testing for these two chemicals. However, in September 1983, EPA was informed that a chlorinated benzene manufacturer in the United States had received and accepted an order for a mixture of tri- and tetrachlorinated benzenes to be used as a substitute for polychlorinated biphenyls (PCBs) in transformers. EPA believes that the use of tetrachlorobenzenes in transformers may result in environmental release and exposure similar to that demonstrated with PCBs. It was EPA's belief that an ANPR would be an appropriate mechanism to obtain information on the potential production, use, and environmental release of tetrachlorobenzenes as a PCB substitute.

### III. Response to Public Comments

The only comments received by the Agency in response to the January 13, 1984, Chlorobenzenes Proposed Rule were from the Chlorobenzene Producers Association (CPA) (Ref. 6). The major issues identified during the comment period are discussed below in Unit III., A. through C.

#### A. Production, Usage, and Environmental Release

The Chlorobenzene Producers Association (CPA) submitted comments regarding EPA's estimates and consequent 4(a)(1)(B) findings that substantial quantities of monochlorobenzene (MCB), 1,2-dichlorobenzene (1,2-DCB), 1,4-dichlorobenzene (1,4-DCB), and 1,2,4-trichlorobenzene (1,2,4-TCB) are released to water, and smaller quantities of MCB, 1,2-DCB, and 1,4-DCB are released to air.

The CPA stated that the agency's proposed rule is based on outdated information that does not reflect current usage and releases of the chlorobenzenes and used MCB as an example. They stated that EPA has relied principally on a materials balance report from 1979 (Ref. 1), and not the more current data by Hull and Company (Refs. 8 and 9) submitted by the CPA.

Aside from these general claims, the CPA discussed briefly the uses and possible releases of only MCB.

EPA's review of the industry comments and the existing data, however, indicates that the Agency did consider the Hull survey and that the production and release levels of

monochlorobenzene are most likely similar to those stated by the Agency in the proposed rule (Ref. 7). Further, the CPA has not submitted any technical arguments or new data that reduces our concerns regarding the other chlorinated benzenes and the Agency sees no reason to question its original conclusions regarding the uses and releases of these compounds.

Data still indicate that monochlorobenzene is present in the environment. In the proposed rule the Agency stated that in a ranking of organic chemicals by frequency of reported detectable levels in finished (treated) surface drinking water (SRI, NOMS, and NORS data bases), the frequencies of 1,4-dichlorobenzene and 1,3,4-trichlorobenzene in surface water were 12.5 percent and 11.5 percent, respectively. In groundwater, 1,4-dichlorobenzene was found to occur in 12.95 percent of all samples, and monochlorobenzene occurred in 7.1 percent of the samples (Ref. 11).

Since the publication of the proposed rule, the Agency had identified data that indicate monochlorobenzene has been detected in sediments of the Buffalo and Niagara Rivers of New York at a level of 30.97 mg/kg dry weight (Ref. 12).

#### B. Photodegradation and Soil Adsorption

The CPA commented that EPA is proposing studies of atmospheric oxidation by hydroxyl radical for MCB, 1,2-dichlorobenzene (1,2-DCB), 1,4-dichlorobenzene (1,4-DCB), and 1,2,4-trichlorobenzene (1,2,4-TCB). Data from Monsanto studies on MCB were submitted to EPA in 1983 (Ref. 13), under TSCA section 8(d). The atmospheric oxidation half-life for MCB was found to be less than 8 days. Based upon limited data with chlorinated alkanes, the CPA anticipates that hydroxyl radical oxidation rates would decrease as chlorination increases.

The CPA concludes that it is unnecessary to require testing of both DCB's and 1,2,4-TCB. They state that the hydroxyl radical oxidation rates of these chlorinated benzenes could be adequately characterized if 1,2,4-TCB were studied and if the results of MCB and TCB are used to estimate the rates for the DCB's.

The EPA acknowledges the monochlorobenzene atmospheric oxidation data submitted by Monsanto and the Agency has also identified atmospheric oxidation data (Refs. 16 and 17) for 1,2- and 1,4-dichlorobenzene and 1,2,4-trichlorobenzene. Therefore, the Agency is not requiring any testing for atmospheric oxidation via the

hydroxyl radical for any of the chlorobenzenes in this final rule.

The CPA also notes that the Agency has proposed soil adsorption testing (Ref. 10) for DCB's and 1,2,4-TCB. The CPA comments that the support document presents reasonable evidence that soil partition coefficients can be adequately predicted from aqueous solubility. In addition, measured soil partition coefficients for 1,2-dichlorobenzene have been reported and do agree with the calculated value (Ref. 14). Predicted soil partition coefficients are comparatively low ( $1 \times 10^2$  to  $7 \times 10^2$ ), which indicates that chlorobenzenes do not partition strongly to soil. Therefore, the CPA concluded that EPA's proposed soil adsorption testing is not scientifically justified for these materials.

The CPA maintains that the soil adsorption coefficients ( $K_{oc}$ ) and rates of atmospheric oxidation for some of the CB's can be estimated from experimental data that already exist for other chlorinated benzene congeners. Although the experimentally determined value of  $K_{oc}$  for 1,4-dichlorobenzene is in good agreement with the estimated value, this does not necessarily mean that the values for higher congeners will be within acceptable limits (a factor of 10) of experimental values. In fact, properties like  $K_{oc}$  become more difficult to predict as more substituents are added to the base molecule. Thus, for higher members in a series, estimated values may deviate from experimentally determined values by factors of 100 or greater. Such deviations are considered too great for conducting risk assessments, particularly for compounds such as 1,2,4-trichlorobenzene which appears to be one of the more toxic chlorinated benzenes.

In conclusion, EPA believes that testing is justified on the basis of lack of experimental data on the  $K_{oc}$ . The Agency also sees the need for soil adsorption coefficient testing for monochlorobenzene but neglected to propose these studies. Therefore, EPA will perform this testing.

#### C. Aquatic Toxicity Testing

The CPA notes that EPA has proposed acute and chronic toxicity testing for mysid shrimp with 1,2,4- and 1,2,3-TCB and acute toxicity testing of 1,2,3-TCB for fathead minnows, silversides, and *Gammarus*.

The CPA has stated that much of the testing on 1,2,3-trichlorobenzene is not justified. No comments were submitted on the proposed testing for the remaining mono-, di-, and trichlorobenzenes.

1. The CPA comments that because of the low production volume and only moderate acute toxicity to fish, algae and invertebrates, chronic toxicity testing of 1,2,3-TCB is not justified. They state that existing fish and *Daphnia* data cited by EPA should be sufficient to characterize the effects of 1,2,3-TCB (Ref. 6). They note that acute toxicity testing with mysid shrimp may be appropriate. However, CPA comments that as long as both acute and chronic testing is done with 1,2,4-TCB on mysid shrimp, there is no need to perform both acute and chronic testing with 1,2,3-TCB on mysids. Acute testing alone would be adequate to establish their relative toxicities. They state that a chronic toxicity estimate for 1,2,3-TCB can be obtained by applying the acute toxicity ratio to the 1,2,4-TCB chronic end point. If these data indicate comparable or lower toxicity of TCB's to mysid shrimp than to *Daphnia*, chronic testing with mysid should not be required. Unless widespread TCB levels in nature approached the LC50 level for *Daphnia* (0.35 mg/L), adjusted to allow a safety factor, then chronic testing would not be justified.

The testing for 1,2,3-trichlorobenzene was proposed under section 4(a)(1)(A) of TSCA, based on potential unreasonable risk, and not significant environmental release. The CPA has not submitted any new data that would dissuade this concern. The Agency notes that 1,2,3-TCB is the most toxic of the mono-, di-, and trichlorinated benzenes, with LC/EC50 values below 1 mg/L for fish, aquatic invertebrates, and algae. The Agency does not consider such values as only "moderate acute toxicity".

EPA disagrees that acute data on 1,2,3-TCB are sufficient for comparing toxicity with 1,2,4-TCB, even with chronic toxicity data on the latter. Data presented by Calamari et al. (Ref. 3), show that relative toxicity of the various chlorobenzenes is inconsistent to the extent that estimating chronic toxicity for the most toxic of the mono-, di-, and trichlorinated benzenes from acute toxicity of a less toxic isomer is inappropriate. In conducting 48-hour static bioassays of a number of the chlorobenzenes using rainbow trout and zebra fish, Calamari reported that the amount of chemical required to elicit an LD50 response decreased with increasing chlorine substitution (from mono- to trichlorobenzene). 1,2,3-TCB was the most toxic of the compounds tested, with more than twice the amount of 1,2,4-TCB required to produce the same effect.

In addition, since 1,2,3-TCB appears to be the most toxic of these chlorobenzenes based on existing acute toxicity data, it is particularly relevant to have chronic toxicity data on this isomer. It should be further noted that chronic toxicity testing with 1,2,3-TCB on mysid shrimp is only required if the acute toxicity to mysids is less than 1 mg/L.

2. The CPA comments that the acute toxicity testing of 1,2,3-TCB in *Gammarus* appears scientifically inappropriate. The CPA states that there are apparently few, if any, chlorobenzene studies reported for this species. Therefore, the test results with *Gammarus* would not be as useful in making comparisons among the chlorobenzenes as test results with other species. They add that acute tests with *Daphnia* or midge and Sheepshead minnow would be more appropriate. Such test results could then be compared with results from other chlorobenzenes.

EPA considers that testing *Gammarus* with 1,2,3-TCB is quite appropriate. The purpose of such testing is not to compare toxicity of the various chlorobenzenes, but rather to develop a sound basis for evaluating the hazard and risk of this chemical. When the aquatic LC50 of a chemical is less than 1 mg/L, then a search for other sensitive species is warranted. Additional testing with *Gammarus* will ascertain if the high sensitivity of daphnids (0.35 mg/L, Ref. 15) is unusual or if it is comparable with other freshwater invertebrates.

The Agency proposed testing of both 1,2,3-TCB and 1,2,4-TCB on the aquatic macrophyte *Lemna gibba*. EPA believes that information concerning macrophytes is useful and, through a testing program conducted by EPA, will develop data to determine comparative toxicological profiles between the aquatic macrophyte *Lemna gibba* and the aquatic algae *Selenastrum capricornutum*, for which the Agency already has toxicity data concerning 1,2,3-TCB and 1,2,4-TCB.

The Agency also is not requiring the seed germination, root elongation and early seedling growth testing in terrestrial macrophytes. Although these tests were included in the proposed rule for MCB, 1,2-DCB, 1,4-DCB and 1,2,4-TCB, after reevaluating the release patterns, the Agency does not believe there will be widespread exposure to terrestrial plants from soils contaminated with the chlorinated benzenes.

#### IV. Final Test Rule for Monochlorobenzene, 1,2- and 1,4-Dichlorobenzene, 1,2,3- and 1,2,4-Trichlorobenzene

##### A. Findings

1. TSCA section 4(a)(1)(B). The EPA is basing the testing of monochlorobenzene, 1,2- and 1,4-dichlorobenzene and 1,2,4-trichlorobenzene on the authority of section 4(a)(1)(B) of TSCA. EPA has concluded that these chemicals are produced in substantial quantities, and may enter the environment in substantial quantities. Furthermore, EPA has concluded that there are insufficient data available to either reasonably determine or predict the results of these exposures in the areas of chemical fate and environmental effects and that testing is necessary to develop such data.

EPA has reached these conclusions for the following reasons:

a. Available information indicates that the annual United States production and/or import volumes for monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene are substantial (see Table 2).

b. Available information indicates that there are substantial amounts of monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene released to the environment each year via manufacturing, processing and/or use activities (see Tables 3 and 4).

c. The EPA had concluded that there are insufficient data on the chemical fates and environmental effects of monochlorobenzene, 1,2- and 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene to reasonably determine or predict the results of their environmental releases, and that testing is necessary to develop such data.

2. TSCA section 4(a)(1)(A). The EPA is basing the testing of 1,2,3-trichlorobenzene on the authority of TSCA section 4(a)(1)(A), because EPA has concluded that 1,2,3-trichlorobenzene may present an unreasonable risk of injury to organisms in the aquatic environment. EPA has reached this conclusion for the following reasons:

a. Existing toxicity data indicate that among the mono-, di-, and trichlorobenzenes, 1,2,3-trichlorobenzene is the chlorinated benzene most toxic to aquatic organisms (Ref. 3).

b. Available information indicates that the manufacture and uses of 1,2,3-trichlorobenzene are the principal sources of its environmental release. Ware and West reported levels of 0.021

to 0.046 mg/L of 1,2,3-trichlorobenzene in municipal discharges (Ref. 5). Considering these measured levels, of 0.021 to 0.046 mg/L, an estimated 10 to 100 fold dilution by a receiving stream (Ref. 7), and 1,2,3-trichlorobenzene's reported bioconcentration factor in fish of 1,200-2,600X (Ref. 4), the potential concentration in fish is in the range of 0.25 mg/kg to 12.0 mg/kg (measured levels in municipal discharges X estimated dilution factors X BCF's for rainbow trout = potential concentration of 1,2,3-TCB in fish). Due to this potential bioconcentration of 1,2,3-trichlorobenzene, and its reported LC50 of 0.71 ml/L for rainbow trout, the Agency has determined that 1,2,3-trichlorobenzene may present an unreasonable risk to aquatic organisms.

c. EPA has concluded that there are insufficient data on the environmental effects of 1,2,3-trichlorobenzene to reasonably determine or predict the result of its environmental release and that testing is necessary to develop such data.

##### B. Required Testing

On the basis of these findings, the Agency is requiring the testing summarized in Table 9 to be conducted in order to determine the chemical fate and/or environmental effects of 1,2- and 1,4-dichlorobenzene, 1,2,4-trichlorobenzene and 1,2,3-trichlorobenzene.

##### C. Test Substances

EPA is requiring that chlorinated benzenes of 99 percent purity, available commercially, be used as the test substances for the chemical fate and environmental effects testing. This stipulation increases the likelihood that any toxic effects observed are related to the chlorinated benzenes and not to any impurities.

##### D. Person Required to Test

Section 4(b)(3)(B) of TSCA specifies that the activities for which the Agency makes section 4(a) findings (manufacture, processing, distribution, use and/or disposal) determine who bears the responsibility for testing. Manufacturers are required to test if the findings are based on manufacturing ("manufacture" is defined in section 3(7) of TSCA to include "import"). Processors are required to test if the findings are based on processing. Both manufacturers and processors are required to test if the exposures giving rise to the potential risk occur during use, distribution, or disposal.

EPA has found that (1) mono-, 1,2, di-, 1,4 di-, and 1,2,4-trichlorinated benzene

are produced in substantial quantities and that their manufacture, processing, and use are likely to result in significant or substantial exposure to the environment, and that there are insufficient data and experience

regarding these activities to reasonably predict the effects on the environment, (2) for 1,2,3-trichlorobenzene, manufacture, processing and use may lead to unreasonable risks to organisms in the aquatic environment and that

there are insufficient data and experience upon which the effects of the manufacture, processing and use of 1,2,3-TCB on the environment can reasonably be determined or predicted.

TABLE 6—TESTING REQUIREMENTS FOR MONO-, 1,2-DI-, 1,4-DI- AND 1,2,4-TRICHLORINATED BENZENES

Chlorinated benzene	EPA proposal	Final testing requirements
Monochlorobenzenes	Chemical fate: Atmospheric oxidation via hydroxyl radical. Environmental effects: seed germination, root elongation and early seedling growth in terrestrial macrophytes.	No industry testing required. (1) Atmospheric oxidation testing eliminated. <sup>1</sup> (2) Soil adsorption coefficient test added. <sup>2</sup> (3) Environmental effects testing eliminated. <sup>3</sup>
1,2- and 1,4-Dichlorobenzenes	Chemical fate: Atmospheric oxidation via hydroxyl radical and soil adsorption coefficient. Environmental effects: seed germination, root elongation and early seedling growth in terrestrial macrophytes.	As proposed, with exceptions: (1) Atmospheric oxidation testing eliminated. <sup>1</sup> (2) Environmental effects testing eliminated. <sup>3</sup>
1,2,4-Trichlorobenzenes	Chemical fate: Atmospheric oxidation via hydroxyl radical, and soil adsorption coefficient. Environmental effects: Acute and chronic toxicity to mysid shrimp ( <i>Mysidopsis bahae</i> ); acute toxicity to the aquatic macrophyte <i>Lemna gibba</i> ; seed germination, root elongation and early seedling growth in terrestrial macrophytes.	As proposed, with exceptions: (1) Atmospheric oxidation testing eliminated. <sup>1</sup> (2) <i>Lemna gibba</i> eliminated. <sup>4</sup> (3) Terrestrial macrophyte testing eliminated. <sup>2</sup>
1,2,3-Trichlorobenzene	Environmental effects: 96-hour LC50 for fathead minnow ( <i>Pimephales promelas</i> ); 96-hour EC50 for one species of <i>Gammarus</i> ; acute toxicity to the aquatic macrophyte <i>Lemna gibba</i> ; acute toxicity to mysid shrimp ( <i>Mysidopsis bahae</i> ) and silverfishes ( <i>Alemdia menidia</i> ); chronic toxicity to mysid shrimp ( <i>Mysidopsis bahae</i> ) if LC50 is <1 ppm.	As proposed, with exception: (1) <i>Lemna gibba</i> eliminated. <sup>4</sup>
1,3-Dichlorobenzene		No testing required.
1,3,5-Trichlorobenzene		No testing required.
Pentachlorobenzenes		No testing required.
Tetrachlorobenzenes		To be addressed in a forthcoming notice.

- <sup>1</sup> Atmospheric oxidation data received by EPA satisfy this requirement.  
<sup>2</sup> This testing was not proposed by the Agency; will be conducted by EPA.  
<sup>3</sup> Agency does not believe there is additional exposure to terrestrial plants.  
<sup>4</sup> Federal testing will be conducted.

Thus, EPA is requiring that persons who manufacture or process, or who intend to manufacture or process these chemicals, at any time from the effective date of this test rule to the end of the reimbursement period, be subject to the rule. The end of the reimbursement period will be 5 years after the mysid shrimp chronic toxicity test final report is submitted. As discussed in the Agency's test rule and exemption procedures (40 CFR Part 790), EPA expects that manufacturers will conduct testing and that processors will ordinarily be exempted from testing.

EPA is, however, exempting from these testing requirements those manufacturers and processors which produce and process chlorinated benzenes only as an impurity. "Impurity" is defined in 40 CFR 790.3 to mean "a chemical substance which is unintentionally present with another chemical substance." The Agency is exempting those manufacturers and processors because the EPA's findings under section 4(a)(1) (A) and (B) are based on exposures to chlorinated benzenes which are a result of intentional processing, distribution in commerce and use, and which represent a potential unreasonable risk. The Agency would find it difficult to apply

both the exemption and reimbursement processes to those who manufacture and/or process chlorinated benzenes solely as an impurity. In fact, the Agency's reimbursement regulations issued pursuant to section 4(c) state that those who manufacture or process chemical substances as impurities will not be subject to test requirements unless the rule specifically states otherwise (40 CFR 791.48(b)).

Because TSCA contains provisions to avoid duplicative testing, not every person subject to this rule must individually conduct testing. Section 4(b)(3)(A) of TSCA provides that EPA may permit two or more manufacturers or processors who are subject to a test rule to designate one such person or a qualified third person to conduct the tests and submit data on their behalf. Section 4(c) provides that any person required to test may apply to EPA for an exemption from that requirement. The Agency anticipates that the current manufacturers of chlorinated benzenes will form a reimbursement pool and sponsor the testing required. Manufacturers and processors who are subject to the testing requirements of this rule must comply with the test rule and exemption procedures in 40 CFR Part 790. EPA is not requiring the

submission of equivalence data as a condition for exemption from the required testing. As noted in Unit IV. B, EPA is interested in evaluating the effects attributable to the chlorinated benzenes themselves and has specified relatively pure substances for testing.

#### E. Test Rule Development and Exemptions

Elsewhere in this issue of the Federal Register, the Agency is proposing that certain TSCA test guidelines be utilized as test standards for the development of data under this rule for chlorinated benzenes. As discussed in that notice and in previous notices (50 FR 20652), EPA has reviewed the method for development of test rules and has decided that for most section 4 rulemakings, the Agency will utilize single-phase rulemaking. In light of this decision, EPA has reevaluated the process for developing test standards for section 4 rulemakings initiated under a two-phase process and has determined that for certain of these two-phase rules, TSCA test guidelines are available for promulgation as relevant test standards. EPA has decided that where TSCA or other appropriate test guidelines are available, the Agency in most cases will

propose the relevant guidelines as the test standards for those rules.

EPA believes that, in line with its commitment to expedite the section 4 rulemaking process, it is appropriate to propose the applicable TSCA test guidelines as test standards at the same time a Phase I final test rule is issued. With regard to the rulemaking for chlorinated benzenes, TSCA test guidelines are available for all the testing requirements included in this Phase I final rule. Thus, in the accompanying notice, the Agency is proposing these TSCA test guidelines as test standards.

The public, including the manufacturers and processors subject to the Phase I rule, will have an opportunity to comment on the use of the TSCA test guidelines. The Agency will review the submitted comments and will modify the TSCA guidelines, where appropriate, when the test standards are promulgated.

During the development of a test rule under the two-phase process, persons subject to the Phase I final rule are normally required to submit proposed study plans within 90 days after the effective date of the Phase I rulemaking (40 CFR 790.30(a)(2)). However, because EPA is proposing applicable TSCA test guidelines as the test standards for the studies required by this Phase I final rule, persons subject to the rule, i.e., manufacturers and processors of chlorinated benzenes, are not required to submit proposed study plans for the required testing at this time. Persons subject to this rule, however, are still required to submit notices of intent to test or exemption applications in accordance with 40 CFR 790.25. Once the test standards are promulgated, persons who have notified EPA of their intent to test must submit study plans which adhere to the promulgated test standards, no later than 30 days before the initiation of each required test.

Processors of chlorinated benzenes subject to this rule, unless they are also manufacturers, will not be required to submit letters of intent, exemption applications or study plans (before testing is initiated) unless manufacturers fail to sponsor the required tests. The basis for this decision is that manufacturers are expected to pass an appropriate portion of the testing costs on to processors through the pricing of products containing chlorinated benzenes.

EPA's final regulations for the issuance of exemptions from testing requirements are in 40 CFR Part 790. In accordance with those regulations, any manufacturer or processor subject to this Phase I test rule may submit an

application to EPA for an exemption from conducting any or all of the tests required under this rule. If manufacturers perform all the required testing, processors will be granted exemptions automatically without having to file applications.

Because persons subject to this rule for chlorinated benzenes are not required to submit proposed study plans for approval, EPA will grant conditional exemptions under this rule. These exemptions will be granted following EPA's receipt of a letter of intent to conduct the required tests rather than after receipt and approval of a study plan. Notice of EPA's adoption of the proposed test standards and deadlines will be announced in a final Phase II test rule.

In an accompanying document published elsewhere in this issue of the Federal Register, EPA is proposing deadlines for the submission of test data. Such deadlines are required under section 4(b)(1)(C) of TSCA. These proposed data submission deadlines are open for public comment and may be modified, where appropriate, when the final Phase II test rule is promulgated.

#### F. Reporting Requirements

EPA is requiring that all data developed under this rule be reported in accordance with the TSCA Good Laboratory Practice (GLP) standards which appear at 40 CFR Part 792.

EPA is required by TSCA section 4(b)(1)(C) to specify the time period during which persons subject to a test rule must submit test data. The Agency is proposing these deadlines elsewhere in this issue of the Federal Register.

TSCA section 12(b) requires that persons who export or intend to export to a foreign country any chlorinated benzenes subject to the testing requirements of this rule notify EPA of such exportation or intent to export. While the results of required testing may not be available for some time, a notice to the foreign government that these exported substances are subject to test rules serves to alert them to the Agency's concern about the substances. It gives these governments the opportunity to request such data that the Agency may currently possess plus whatever data may become available as a result of testing activities. Thus, upon the effective date of this rule, persons who export or intend to export any of the chlorinated benzenes subject to this rule must submit notices to the Agency pursuant to TSCA section 12(b)(1) and 40 CFR Part 707. For additional information, see the Federal Register of November 19, 1984 (49 FR 45561).

TSCA section 14(b) governs Agency disclosure of all test data submitted pursuant to section 4 of TSCA. Upon receipt of data required by this rule, the Agency will announce the receipt within 15 days in the Federal Register as required by section 4(d). Test data received pursuant to this rule will be made available for public inspection by any person except in those cases where the Agency determines that confidential treatment must be accorded pursuant to section 14(b) of TSCA.

#### G. Enforcement Provisions

The Agency considers failure to comply with any aspect of a section 4 rule to be a violation of section 15 of TSCA. Section 15(1) of TSCA makes it unlawful for any person to fail or refuse to comply with any rule or order issued under section 4. Section 15(3) of TSCA makes it unlawful for any person to fail or refuse to: (1) Establish or maintain records, (2) submit reports, notices, or other information, or (3) permit access to or copying of records required by the Act or any regulation issued under TSCA.

Additionally, TSCA section 15(4) makes it unlawful for any person to fail or refuse to permit entry or inspection as required by section 11. Section 11 applies to any "establishment, facility, or other premises in which chemical substances or mixtures are manufactured, processed, stored, or held before or after their distribution in commerce. . . ." The Agency considers a testing facility to be a place where the chemical is held or stored and, therefore, subject to inspection. Laboratory audits/inspections will be conducted periodically in accordance with the procedures outlined in TSCA section 11 by designated representatives of the EPA for the purpose of determining compliance with the final rule for chlorinated benzenes. These inspections may be conducted for purposes which include verification that testing has begun, that schedules are being met, that reports accurately reflect the underlying raw data and interpretations and evaluations thereof, and that the studies are being conducted according to the TSCA GLP standards and the test standards proposed rule of this rulemaking.

EPA's authority to inspect a testing facility also derives from section 4(b)(1) of TSCA, which directs EPA to promulgate standards for the development of test data.

These standards are defined in section 3(12)(B) of TSCA to include those requirements necessary to assure that data developed under testing rules



are reliable and adequate, and such other requirements as are necessary to provide such assurance. The Agency maintains that laboratory inspections are necessary to provide this assurance.

Violators of TSCA are subject to criminal and civil liability. Persons who submit materially misleading or false information in connection with the requirement of any provision of this rule may be subject to penalties calculated as if they had never submitted their data. Under the penalty provision of section 16 of TSCA, any person who violates section 15 could be subject to a civil penalty of up to \$25,000 per day for each violation with each day of operation in violation constituting a separate violation. This provision would be applicable to manufacturers or processors who will fail to submit a letter of intent or an exemption request and who continue manufacturing or processing after the deadlines for such submissions. International violations could lead to the imposition of criminal penalties of up to \$25,000 for each day of violation and imprisonment of up to 1 year. In determining the amount of penalty, EPA will take into account the seriousness of the violation and the degree of culpability of the violator as well as the other factors listed in section 16. Other remedies are available to EPA under sections 7 and 17 of TSCA, such as seeking an injunction to restrain violations of TSCA section 4.

Individuals as well as corporations could be subject to enforcement actions. Sections 15 and 16 of TSCA apply to "any person" who violates various provisions of TSCA.

EPA may, at its discretion, proceed against individuals as well as companies themselves. In particular, this includes individuals who report false information or who cause it to be reported. In addition, the submission of false, fictitious, or fraudulent statements is a violation under 18 U.S.C. 1001.

#### V. Economic Analysis of Final Rule

To assess the potential economic impact of this rule, EPA has prepared an economic analysis (Ref. 2) that evaluates the potential for significant economic impacts on the industry as a result of the required testing. The economic analysis estimates the costs of conducting the required testing and evaluates the potential for significant adverse economic impact as a result of these test costs by examining four market characteristics of these chlorinated benzenes: (1) Price sensitivity of demand, (2) industry cost characteristics, (3) industry structure, and (4) market expectations. If these indications are negative, no further

economic analysis will be performed; however, if the first level of analysis indicates a potential for significant economic impact, a more comprehensive and detailed analysis is conducted which more precisely predicts the magnitude and distribution of the expected impact.

Total testing costs for the final rule for the dichlorobenzenes are estimated to range from \$4,742 to \$6,410 and for the trichlorobenzenes are estimated to range from \$24,437 to \$32,339. The annualized test costs (using a cost of capital of 25 percent over a period of 15 years) range from \$1,242 to \$1,660 for the dichlorobenzenes and from \$6,330 to \$8,380 for the trichlorobenzenes. Based on the 1984 estimated production volumes of 134.3 million pounds for dichlorobenzenes and 17.05 million pounds for trichlorobenzenes, the unit costs range from 0.001 to 0.012 cents per pound for the dichlorobenzenes, and 0.04 to 0.05 cents per pound (adjusted for upstream testing costs) for the trichlorobenzenes. These costs, relative to 1985 selling prices, are 0.0025 to 0.0033 percent for dichlorobenzenes. For the trichlorobenzenes, these costs represent 0.07 to 0.08 percent of price.

Based on these costs and the uses of these chlorinated benzenes, the economic analysis indicates that the potential for significant adverse economic impact as a result of this test rule is extremely low. This conclusion is based on the following observations:

1. The annual unit cost of the testing required in this rule is extremely low; and

2. Since chlorobenzenes are primarily used as intermediates, these test cost will contribute a very small part of the total cost of the final products.

Refer to the economic analysis (Ref. 2) for a complete discussion of test cost estimation and the potential for economic impact resulting from these costs.

#### VI. Availability of Test Facilities and Personnel

Section 4(b)(1) of TSCA requires EPA to consider "the reasonably foreseeable availability of the facilities and personnel needed to perform the testing required under the rule." Therefore, EPA conducted a study to assess the availability of test facilities and personnel to handle the additional demand for testing services created by section 4 test rules. Copies of the study, "Chemical Testing Industry: Profile of Toxicological Testing," October, 1981, can be obtained through the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161 (PB 82-140773).

On the basis of this study, the Agency believes that there will be available test facilities and personnel to perform the testing required in this test rule.

#### VII. Public Record

EPA has established a record for this rulemaking (docket number OPTS-42050A). This record includes the basic information the Agency considered in developing this rule, and appropriate Federal Register notices. The Agency will supplement the record with additional information as it is received.

This record includes the following information:

##### A. Supporting Documentation

(1) Federal Register notices pertaining to this rule consisting of:

(a) Notice of chemical fate and environmental effects final rule on chlorinated benzenes.

(b) Notice of proposed rule on chlorinated benzenes (January 13, 1984, 49 FR 1760).

(c) Notices containing the ITC designation of chlorinated benzenes to the Priority list, October 12, 1977 (42 FR 55026) and October 30, 1978 (43 FR 50630).

(d) Notice of final rule on EPA's TSCA Good Laboratory Practice Standards (November 29, 1983, 48 FR 53922).

(e) Notice of final rule on test rule development and exemption procedures (October 10, 1984, 49 FR 39774).

(f) Interim final rule for Test Rule Development and Exemption Procedures (May 17, 1985, 50 FR 20652).

(g) Notice of final rule concerning data reimbursement (July 11, 1983, 48 FR 31786).

(2) Support documents consisting of:

(a) Chlorinated benzenes technical support document for proposed test rule.

(b) Economic impact analysis of final test rule for chlorinated benzenes.

(3) Communications consisting of:

(a) Written public comments.

(b) Summaries of telephone conversations.

(c) Meeting summaries including transcript of public meeting on proposed test rule.

(d) Reports—published and unpublished factual materials, including contractors' reports.

##### B. References

(1) Johnston, P., Hodge, V., and Slimak, K. Materials Balance- Task #4-Chlorobenzenes. Prepared by J.R.B. Associates, Inc., for Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. Report 560/13-80-001. (December 31, 1979).



(2) Mathtech, Inc. Draft Report Level I Economic Evaluation Chlorobenzenes. Prepared for Economics and Technology Division, Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Contract No. 68-01-6630. (1983).

(3) Calamari, D., Galassi, S., Setti, F., and Vighi, M. "Toxicity of selected chlorobenzenes to aquatic organisms." *Chemosphere* 12(2):253-262. (1983).

(4) Oliver, B.G., and Niimi, A. "Bioconcentration of chlorobenzenes from water by rainbow trout: Correlations with partition coefficients and environmental residues." *Environmental Science Technology* 17(5):287-291. (1983).

(5) Ware, S.A., and West, W.L. "Investigation of selected potential environmental contaminants: halogenated benzenes." Report 560/2-77-004. U.S. Environmental Protection Agency, Office of Toxic Substances. (1977).

(6) Cleary, Gottlieb, Steen and Hamilton. Comments Filed by the Chlorobenzene Producers Association in Response to the Mono-, Di-, Trichlorinated Benzenes Proposed Environmental Effects Test Rule (January 13, 1984). (March 13, 1984).

(7) USEPA. Memorandum from Dave Price to the file. Chlorobenzene Producers Association comments on production and usage of chlorinated benzenes. (December 12, 1985).

(8) Hull and Company. "Employee exposure to chlorobenzene products." (February, 1980).

(9) Hull and Company. "Investigation of National Hazard Survey (NOHS) survey procedures as they affect employee exposure reported for mono- and di-chlorobenzene." (April 14, 1980).

(10) USEPA. "Assessment of environmental testing needs: Mono-, di-, tri-, tetra, and penta-chlorinated benzenes." Technical Support Document. (January 13, 1984).

(11) Coniglio, W.A., Miller, K. and MacKeever, D. "The occurrence of volatile organics in drinking water." Briefing Document. Criteria and Standards Division. USEPA, Washington, DC. (1980).

(12) USEPA. 1981 Buffalo, New York Area Sediments Survey. EPA 905/3-84-001. (April 1984).

(3) Monsanto. Atmospheric photochemistry of monochlorobenzene: Reaction with hydroxyl radical." Report ES-80-SS-40. (Submitted January 18, 1983).

(14) Chion, C.T., Peters, L.J., and Freed, V.H. "A physical concept of soil water equilibria for nonionic organic compounds." *Science* 206: 331-332. (1979).

(15) Gilford, J. Memoranda from J. Gilford (HERD) to D. Delarco (ECAD/TRDB). (1983).

(16) Wahner, A. and Zetzsch, C. "Rate constants for the addition of OH to aromatics and the unimolecular decay of the adduct." Kinetics into a Quasi-Equilibrium. *Journal of Physical Chemistry* 87: 4945-4951. (1983).

(17) Atkinson, R. "Kinetics and mechanisms of gas phase reactions of the hydroxyl radical with organic compounds under atmospheric conditions." Statewide Air Pollution Research Center, University of California, Riverside. (May 19, 1985.)

Confidential Business Information (CBI), while part of the record, is not available for public review. A public version of the record, from which CBI has been deleted, is available for inspection from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays, in Rm. E-107, 401 M St., SW., Washington, DC.

## VIII. Other Regulatory Requirements

### A. Classification of Rule

Under Executive Order 12291, EPA must judge whether a regulation is "major" and, therefore, subject to the requirement of a Regulatory Impact Analysis. The regulation for these chemical substances is not major because it does not meet any of the criteria set forth in section 1(b) of the order. First, the annual costs of testing are expected to range from \$26,000 to \$54,000 over the expected market life of these chlorinated benzenes (Ref. 2). Second, because the cost of the required testing will be distributed over a large production volume, the rule will have only very minor effects on producers' costs or users' prices for these chemical substances. Finally, taking into account the nature of the market for these substances, the low level of costs involved, and the expected nature of the mechanisms for sharing the costs of the required testing, EPA concludes that there will be no significant adverse economic impact of any type as a result of this rule.

This regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291. Any written comments from OMB to EPA, and any EPA response to those comments, are included in the public record.

### B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, (15 U.S.C. 601 *et seq.*, Pub. L. 96-354, September 19, 1980), EPA certifies that this test rule will not have a significant

impact on a substantial number of small businesses for the following reasons:

1. There are no small manufacturers of chlorinated benzenes.

2. Small processors are not expected to perform testing themselves, or to participate in the organization of the testing effort.

3. Small processors will experience only minor costs if any in securing exemption from testing requirements.

4. Small processors are unlikely to be affected by reimbursement requirements.

EPA concludes that there will be no significant adverse economic impact of any type as a result of this rule.

### C. Paperwork Reduction Act

The information collection requirements contained in this rule have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, and have been assigned OMB control number 2070-0033. Submit comments on these requirements to the Office of Information and Regulatory Affairs: OMB; 726 Jackson Place, NW.; Washington, DC 20503 marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements.

### List of Subjects in 40 CFR Part 799

Testing, Environmental protection, Hazardous substances, Chemicals, Recordkeeping and reporting requirements.

Dated: March 27, 1986.

J.A. Moore,

Assistant Administrator for Pesticides and Toxic Substances.

### PART 799—[AMENDED]

Therefore, 40 CFR Part 799 is amended as follows:

1. The authority citation for Part 799 continues to read as follows:

Authority: 15 U.S.C. 2603, 2611, 2625.

2. By adding § 799.1052 to read as follows:

#### § 799.1052 Dichlorobenzenes.

(a) *Identification of test substances.*  
(1) 1,2- and 1,4-dichlorobenzenes, CAS Numbers 95-50-1 and 106-48-7 respectively, shall be tested in accordance with this section.

(2) The substances identified in paragraph (a)(1) of this section shall be 99 percent pure and shall be used as the test substances in each of the tests specified.

**(b) Persons required to submit study plans, conduct tests, and submit data.**

(1) All persons who manufacture or process substances identified in paragraph (a)(1) of this section, other than as an impurity, from May 21, 1986, to the end of the reimbursement period, shall submit letters of intent to test or exemption applications and shall conduct tests, in accordance with Part 792 of this Chapter, and submit data as specified in this section, Subpart A of this Part and Part 790 of this Chapter for two-phase rulemaking.

(2) Persons subject to this section are not subject to the requirements of § 790.30(a)(2), (5), (6) and (b) and § 790.87(a)(1)(ii) of this Chapter.

(3) Persons who notify EPA of their intent to conduct tests in compliance with the requirements of this section must submit plans for those tests no later than 30 days before the initiation of each of those tests.

(4) In addition to the requirements of § 790.87(a) (2) and (3) of this chapter, EPA will conditionally approve exemption applications for this rule if EPA has received a letter of intent to conduct the testing from which exemption is sought and EPA has adopted test standards and schedules in a final Phase II test rule.

(c) **Chemical fate testing.** 1,2- and 1,4-dichlorobenzene shall each be tested for chemical fate in accordance with this section.

(1) **Soil adsorption coefficient test—(i) Required testing.** Testing, using a system that controls for evaporation of the test substance, shall be conducted for 1,2- and 1,4-dichlorobenzene to develop data on the absorption of the above chlorobenzenes to sediments.

(ii) [Reserved]

(2) [Reserved]

3. By adding § 799.1053 to read as follows:

**§ 799.1053 Trichlorobenzenes.****(a) Identification of testing substance.**

(1) 1,2,3- and 1,2,4-trichlorobenzenes, CAS Numbers 87-61-8 and 120-82-1 respectively, shall be tested in accordance with this section.

(2) The substances identified in paragraph (a)(1) of this section shall be 99 percent pure and shall be used as the test substances in each of the tests specified.

**(b) Persons required to submit study plans, conduct tests, and submit data.**

(1) All persons who manufacture or process substances identified in paragraph (a)(1) of this section, other than an impurity, from May 21, 1986, to the end of the reimbursement period, shall submit a letter of intent to test or exemption applications and shall

conduct tests, in accordance with Part 792 of this Chapter, and submit data as specified in this section, Subpart A of this Part and part 790 of this Chapter for two-phase rulemaking.

(2) Persons subject to this section are not subject to the requirements of § 790.30(a)(2), (5), (6) and (b) and § 790.87(a)(1)(ii) of this Chapter.

(3) Persons who notify EPA of their intent to conduct tests in compliance with the requirements of this section must submit plans for those tests no later than 30 days before the initiation of each of those tests.

(4) In addition to the requirements of § 790.87(a) (2) and (3) of this chapter, EPA will conditionally approve exemption applications for this rule if EPA has received a letter of intent to conduct the testing from which exemption is sought and EPA has adopted test standards and schedules in a final Phase II test rule.

(c) **Chemical fate testing.** 1,2,4-trichlorobenzene shall be tested for chemical fate in accordance with this section.

(1) **Soil absorption coefficient test—(i) Required testing.** Testing, using a system that controls for evaporation of the test substance, shall be conducted for 1,2,4-trichlorobenzene to develop data on the absorption of the above chlorobenzene to sediments.

(ii) [Reserved]

(2) [Reserved]

(2) **Environmental effects testing.** 1,2,3- and 1,2,4-trichlorobenzenes shall be tested in accordance with this section.

(1) **Marine invertebrate acute toxicity testing—(i) Required testing.** Testing using measured concentrations, flow through or static renewal systems, and systems that control for evaporation of the test substance, shall be conducted for 1,2,3- and 1,2,4-trichlorobenzenes. Testing shall be conducted with mysid shrimp (*Mysidopsis bahia*) to develop data on the acute toxicity of the above chlorobenzene isomers to marine invertebrates.

(ii) [Reserved]

(2) **Marine fish acute toxicity testing—(1) Required testing.** Testing using measured concentrations, flow through systems, and systems that control for evaporation of the test substance shall be conducted for 1,2,3-trichlorobenzene. Testing shall be conducted with Silversides (*Menidia menidia*) to develop data on the acute toxicity of 1,2,3-trichlorobenzene to saltwater fish.

(ii) [Reserved]

(3) **Freshwater fish acute toxicity testing—(i) Required testing.** Testing using measured concentrations, flow

through systems, and systems that control evaporation of the test substance shall be conducted for 1,2,3-trichlorobenzene. A 96-hour LC50 test shall be conducted with the fathead minnow (*Pimephales promelas*) to develop data on the acute toxicity of 1,2,3-trichlorobenzene to freshwater fish.

(ii) [Reserved]

(4) **Freshwater invertebrate acute toxicity testing—(i) Required testing.** Testing using measured concentrations, flow through or static renewal systems, and systems that control for evaporation of the test substance shall be conducted for 1,2,3-trichlorobenzene. A 96-hour EC50 shall be conducted for one species of *Grammarus* to develop data on the acute toxicity of 1,2,3-trichlorobenzene to aquatic freshwater invertebrates.

(ii) [Reserved]

(5) **Mysid shrimp chronic toxicity testing—(i) Required testing.** Testing using measured concentrations, flow through or static renewal systems, and systems that control for evaporation of the test substance shall be conducted for 1,2,4-trichlorobenzene. Testing shall be conducted with mysid shrimp (*Mysidopsis bahia*) to develop data on the chronic toxicity of 1,2,4-trichlorobenzene, should the acute LC50 of this chemical to mysid shrimp be determined to be less than 1 ppm.

(ii) [Reserved]

(Information collection requirements have been approved by the Office of Management and Budget under control number 2070-0033)

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