

Federal Register

Wednesday
May 20, 1987

Part II

Environmental Protection Agency

**Interagency Testing Committee; Receipt
of Report and Request for Comments
Regarding Priority List of Chemicals;
Notice**

**40 CFR Parts 712 and 716
Preliminary Assessment Information and
Health and Safety Data Reporting;
Addition of Chemicals; Final Rule**

**ENVIRONMENTAL PROTECTION
AGENCY**
[OPTS-41027; FRL, 3203-9]
**Twentieth Report of the Interagency
Testing Committee to the
Administrator; Receipt of Report and
Request for Comments Regarding
Priority List of Chemicals**
AGENCY: Environmental Protection
Agency (EPA).

ACTION: Notice.

SUMMARY: The Interagency Testing Committee (ITC), established under section 4(e) of the Toxic Substances Control Act (TSCA), transmitted its Twentieth Report to the Administrator of EPA on May 1, 1987. This report, which revises and updates the Committee's priority list of chemicals, adds four chemicals to the list for priority consideration by EPA in the promulgation of test rules under section 4(a) of the Act. The new chemicals are ethylbenzene; acetamide, N-[5-bis[2-(acetyloxy)ethyl]amino]-2-[2-bromo-4, 6-dinitro-phenyl]azo]-4-methoxy phenyl]; acetamide, N-[5-[2-(acetyl-oxo ethyl)amino-2-[(2-chloro-4, 6-dinitrophenyl)azo]-4-methoxy phenyl]; acetamide, N-[5-bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4, 6-dinitrophenyl)azo]-4-ethoxy phenyl]. These chemicals are not designated for response within 12 months.

Two substances previously recommended with intent to designate, isopropanol and methyl *tert* butyl ether (51 FR 41417), are now designated for response within 12 months. The Twentieth Report is included in this notice. The Agency invites interested persons to submit written comments on the Report, and to attend a Focus Meeting to help narrow and focus the issues raised by the ITC's recommendations. Members of the public are also invited to inform EPA if they wish to be notified of subsequent public meetings on these chemicals. Additionally, EPA is soliciting interest in public participation in the consent agreement process for ethylbenzene.

DATES: Written comments should be submitted by June 19, 1987.

A Focus Meeting on ethylbenzene will be held on June 25, 1987. Submit written notice of interest in being designated an "interested party" in triplicate by June 19, 1987.

ADDRESSES: Send written submissions to: TSCA Public Information Office (TS-793), Office of Pesticides and Toxic Substances, Environmental Protection Agency, Room NE G-004, 401 M Street, SW., Washington, DC 20460.

Submissions should bear the document control number (OPTS-41027).

The public record supporting this action, including comments, is available for public inspection in Rm. G-004 at the address noted above from 8 a.m. to 4 p.m. Monday through Friday, except legal holidays. The Focus Meeting will be held at EPA Headquarters, Rm. 103 NE Mall, 401 M St., SW., Washington, DC. Persons planning to attend the Focus Meeting and/or seeking to be informed of subsequent public meetings on these chemicals, should notify the TSCA Assistance Office at the address listed below. To ensure seating accommodations at the Focus Meeting, persons interested in attending are asked to notify EPA at least one week ahead of the scheduled date.

FOR FURTHER INFORMATION CONTACT:

Edward A. Klein, Director, TSCA Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, 401 M Street, SW., Washington, DC. 20460 (202-554-1404).

SUPPLEMENTARY INFORMATION: EPA has received the report of the TSCA Interagency Testing Committee to the Administrator.

I. Background

TSCA (Pub. L. 94-469, 90 Stat. 2003 *et seq.*; 15 U.S.C. 2601 *et seq.*) authorizes the Administrator of EPA to promulgate regulations under section 4(a) requiring testing of chemical substances and mixtures in order to develop data relevant to determining the risks that such chemical substances and mixtures may present to health and the environment.

Section 49(e) of TSCA established an Interagency Testing Committee to make recommendations to the Administrator of EPA on chemical substances and mixtures to be given priority consideration in proposing test rules under section 4(a). Section 4(e) directs the Committee to revise its list of recommendations at least every 6 months as necessary. The ITC may "designate" up to 50 substances and mixtures at any one time for priority consideration by the Agency. For such designations, the Agency must within 12 months either initiate rulemaking or issue in the **Federal Register** its reasons for not doing so. The ITC's Twentieth Report was received by the Administrator on May 1, 1987, and follows this Notice. The Report adds four substances to the TSCA section 4(e) priority list.

**II. Written and Oral Comments and
Public Meetings**

EPA invites interested persons to submit detailed comments on the ITC's new recommendations. The Agency is interested in receiving information concerning additional or ongoing health and safety studies on the subject chemicals as well as information relating to the human and environmental exposure to these chemicals. A notice is published elsewhere in today's **Federal Register** adding the substances recommended in the ITC's Twentieth Report to the TSCA section 8(d) Health and Safety Data Reporting Rule (40 CFR Part 716). The section 8(d) rule requires the reporting of unpublished health and safety studies on the listed chemicals. These chemicals will also be added to the TSCA section 8(a) Preliminary Assessment Information Rule (40 CFR Part 712) published elsewhere in this issue. The section 8(a) rule requires the reporting of production volume, use, exposure, and release information on the listed chemicals.

A Focus Meeting will be held to discuss relevant issues pertaining to ethylbenzene and to narrow the range of issues/effects which will be the focus of the Agency's subsequent activities in responding to the ITC recommendations. The Focus Meeting will be held on June 25, 1987 at 1 p.m. at EPA Headquarters, Rm. 103 NE Mall, 401 M St., SW., Washington, DC. This meeting is intended to supplement and expand upon written comments submitted in response to this notice. This notice serves to invite persons interested in participating in or monitoring negotiations for the development of a consent agreement to notify EPA at the address no later than June 19, 1987. The procedures for these negotiations are described in 40 CFR 790.22.

Persons wishing to attend this meeting or subsequent meetings on these chemicals should call the TSCA Assistance Office at the toll free number listed above at least one week in advance.

All written submissions should bear the identifying docket number (OPTS-41027).

III. Status of List

In addition to adding the four recommendations to the priority list, the ITC's Twentieth Report notes that isopropanol and methyl *tert* butyl ether, which were originally recommended with intent to designate (51 FR 41417, November 14, 1986), have now been designated for response within 12 months by the ITC.

The current list contains five designated substances, one chemical recommended with intent-to-designate, and seven recommended substances.

Authority: 15 U.S.C. 2603.

Dated: May 12, 1987.

Frank D. Kover,
Acting Director, Existing Chemical
Assessment Division.

**Twentieth Report of the TSCA
Interagency Testing Committee to the
Administrators, Environmental
Protection Agency**

Summary

Section 4 of the Toxic Substances Control Act of 1976 (TSCA, Pub. L. 94-469) provides for the testing of chemicals in commerce that may present an unreasonable risk of injury to health or the environment. It also provides for the establishment of a Committee (ITC), composed of representatives from eight designated Federal agencies, to recommend chemical substances and mixtures (chemicals) to which the Administrator of the U.S. Environmental Protection Agency (EPA) should give priority consideration for the promulgation of testing rules.

Section 4(e)(1)(A) of TSCA directs the Committee to recommend to the EPA Administrator chemicals to which the Administrator should give priority consideration for the promulgation of testing rules pursuant to section 4(a). The Committee is required to designate those chemicals, from among its recommendations, to which the Administrator should respond within 12 months by either initiating a rulemaking proceeding under section 4(a) or publishing the Administrator's reason for not initiating such a proceeding. At least every 6 months, the Committee makes those revisions in the TSCA section 4(e) Priority List that it determines to be necessary and transmits them to the EPA Administrator.

As a result of its deliberations, the Committee is revising the TSCA section 4(e) Priority List by the addition of four chemicals. The Committee also is designating two chemicals that had been recommended with intent-to-designate in the nineteenth report.

The Priority List is divided into three parts: Part A contains those recommended chemicals and groups

designated for priority consideration and response by the EPA Administrator within 12 months. Part B contains chemicals and groups of chemicals recommended with intent-to-designate. This category was established by the Committee in its seventeenth report (50 FR 47603; November 19, 1985) to take advantage of rules promulgating automatic reporting requirements for non-designated ITC recommendations under the section 8(a) Preliminary Assessment rule and the TSCA section 8(d) Health and Safety Data Reporting rule. Information received following recommendation with intent-to-designate may influence the Committee to either designate or not designate the chemicals or groups of chemicals in a subsequent report to the Administrator. Part C contains chemicals and groups of chemicals that have been recommended for priority consideration by EPA without being designated for response within 12 months. The changes to the Priority List are presented, together with the types of testing recommended, in the following Table 1:

TABLE 1.—ADDITIONS TO THE SECTION 4(E) PRIORITY LIST, MAY 1987

Chemical/Group	Recommended studies
A. Designated for response within 12 months:	
Isopropanol ¹ (CAS No. 67-63-0).....	Health Effects: Genotoxicity, including tests for mutagenicity in mammalian systems and clastogenicity; chronic toxicity including oncogenicity.
Methyl <i>tert</i> -butyl ether ² (CAS No. 1634-04-4).....	Health Effects: Chronic inhalation toxicity including neurotoxic, hematologic and oncogenic effects. Chemical Fate: Monitoring at representative gasoline terminals and service stations.
NOTE.—Isopropanol and methyl <i>tert</i> -butyl ether were recommended with intent-to-designate by the Committee in the nineteenth report (51 FR 41417; Nov. 14, 1986).	
B. Recommended with Intent-to-designate:	
Ethylbenzene ³ (CAS No. 100-41-4).....	Ecological Effects: Acute toxicity to freshwater algae and aquatic invertebrates. Acute toxicity to saltwater algae, aquatic invertebrates and fish.
C. Recommended Without Being Designated for Response Within 12 Months:	
Acetamide, N-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-methoxy phenyl]- (9CI) (CAS No. 3618-72-2):	Health Effects: Subchronic toxicity; absorption and chemical disposition. Chemical Fate: Solubility in water; biodegradation under aerobic and anaerobic conditions and the identification of any relatively persistent biodegradation intermediates.
Acetamide, N-[15-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-methoxy phenyl]- (9CI) (CAS No. 3618-73-3); and	Ecological Effects: Acute toxicity to fish, aquatic invertebrates, algae and benthic organisms (including filter feeders); bioconcentration in fish; chronic effects on aquatic and benthic biota, if the acute studies show toxicity at low mg/L concentration or if the dye does bioconcentrate.
Acetamide, N-[5-[bis[2-(acetyloxyethyl)amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-ethoxy phenyl]- (9CI) (CAS No. 21429-43-6).	

CA Index Names (9CI)

- 2-Propanol.
- Propane, 2-methoxy-2-methyl-
- Benzene, ethyl.

TSCA Interagency Testing Committee*Statutory Member Agencies and Their Representatives***Council on Environmental Quality**Carroll Curtis, Member¹**Department of Commerce**Patrick D. Cosslett, Member
Raimundo Prat, Alternate²**Environmental Protection Agency**John D. Walker, Member and Vice
Chairperson

Laurence S. Rosenstein, Alternate

National Cancer Institute

Richard Adamson, Member

Elizabeth K. Weisburger, Alternate

National Institute of Environmental

Health Sciences

James K. Selkirk, Member and
Chairperson**National Institute for Occupational**

Safety and Health

Bryan D. Hardin, Member³Rodger L. Tatken, Alternate⁴**National Science Foundation**

Rodger W. Baier, Member

Jarvis L. Moyers, Alternate

Occupational Safety and Health

Administration

Joseph Jarvis, Member

Stephen Mallinger, Alternate

*Liaison Agencies and Their**Representatives***Consumer Product Safety Commission**

Lakshmi C. Mishra

Department of Agriculture

Richard M. Parry, Jr.

Elise A. B. Brown

Department of Defense

Edmund Cummings

Department of the Interior

Ronald Eisler

Food and Drug Administration

Arnold Borsetti

National Library of Medicine

Vera Hudson

National Toxicology Program

Dorothy Canter

Committee Staff

Robert H. Brink, Executive Secretary

Norma Williams, ITC Coordinator

*Support Staff*Alan Carpien—Office of the General
Counsel, EPA*Notes*

(1) Appointed on October 6, 1986.

(2) Appointed on April 8, 1987.

(3) Appointed on March 10, 1987.

(4) Appointed on March 10, 1987.

The Committee acknowledges and is grateful for the assistance and support given the ITC by the staff of Dynamac Corporation (technical support contractor) and personnel of the EPA Office of Toxic Substances.

Chapter 1—Introduction

1.1 Background. The TSCA Interagency Testing Committee (Committee) was established under section 4(e) of the Toxic Substances Control Act of 1976 (TSCA, Pub. L. 94-469). The specific mandate of the Committee is to recommend to the Administrator of the U.S. Environmental Protection Agency (EPA) chemical substances and mixtures in commerce that should be given priority consideration for the promulgation of testing rules to determine their potential hazard to human health and/or the environment. TSCA specifies that the Committee's recommendations shall be in the form of a Priority List, which is to be published in the *Federal Register*. The Committee is directed by section 4(e)(1)(A) of TSCA to designate those chemicals on the Priority List to which the EPA Administrator should respond within 12 months by either initiating a rulemaking proceeding under section 4(a) or publishing the Administrator's reason for not initiating such a proceeding. There is no statutory time limit for EPA response regarding chemicals that ITC has recommended but not designated for response within 12 months.

At least every 6 months, the Committee makes those revisions in the section 4(e) Priority List that it determines to be necessary and transmits them to the EPA Administrator.

The Committee is composed of representatives from eight statutory member agencies and seven liaison agencies. The specific representatives and their affiliations are named in the front of this report. The Committee's chemical review procedures and priority recommendations are described in previous reports (Refs. 1 through 4).

1.2 Committee's previous reports. Nineteen previous reports to the EPA Administrator have been issued by the Committee and published in the *Federal Register* (Refs. 1 through 4). Ninety-four entries (chemicals and groups of chemicals) were recommended for priority consideration by the EPA Administrator and designated for response within 12 months. In addition, six chemicals and one group of chemicals were recommended without being so designated.

1.3 Committee's activities during this reporting period. Between October 1, 1986 and April 17, 1987, the Committee continued to review chemicals from its fourth and fifth scoring exercises, and from nominations by Member Agencies, Liaison Agencies and State Agencies.

The Committee contacted chemical manufacturers and trade associations to

request information that would be of value in its deliberations. Most of those contacted provided unpublished information on current production, exposure, uses, and effects of chemicals under study by the Committee.

During this reporting period, the Committee reviewed available information on 23 chemicals and 5 classes of chemicals. Four were selected for addition to the section 4(e) Priority List, and five were deferred indefinitely. The remaining chemicals are still under study.

In January 1987, the Committee completed its sixth scoring exercise and selected 42 chemicals for detailed reviews. A list of the selected chemicals and a request for information was published in a *Federal Register* notice on April 1, 1987 (52 FR 10409). The Committee will hold a public meeting to describe the chemical scoring and selection process and to receive comments and information on the chemicals selected for review on June 18, 1987, in Washington, DC. Details on the meeting time and location are provided in the *Federal Register* notice cited above.

1.4 The TSCA section 4(e) Priority List. Section 4(e)(1)(B) of TSCA directs the Committee to: "... make such revisions in the [priority] list as it determines to be necessary and ... transmit them to the Administrator together with the Committee's reasons for the revisions." Under this authority, the Committee is revising the Priority List by adding four chemicals: Ethylbenzene; *N*-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide; *N*-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[2-chloro-4,6-dinitrophenyl)azo]-4-methoxyphenyl]-acetamide; and *N*-[5-bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-ethoxy phenyl]-acetamide. None of these chemicals is designated for response within 12 months but the Committee intends to designate ethylbenzene unless information received following recommendation influences the Committee to withhold designation. In addition, the Committee is designating for response within 12 months two chemicals that were recommended with intent-to-designate in the nineteenth report. The designated chemicals are isopropanol and methyl *tert*-butyl ether. The testing recommended for these chemicals and the rationales for the recommendations are presented in Chapter 2 of this report.

No chemicals are being removed from the Priority List at this time. Removal of

92 entries was noted in previous reports (Refs. 1 through 4).

Within the four recommendations noted in this report, thirteen entries now appear on the section 4(e) Priority List. The Priority List is divided in the following Table 2 into three parts; namely, A. Chemicals and Groups of Chemicals Designated for Response Within 12 Months, B. Chemicals and Groups of Chemicals Recommended with Intent-to-Designate, and C. Chemicals and Groups of Chemicals Recommended Without Being Designated for Response Within 12 Months. Table 2 follows:

TABLE 2.—THE TSCA SECTION 4(e) PRIORITY LIST, MAY 1987

A. Chemicals and Groups of Chemicals Recommended and Designated for Response Within 12 Months

Entry	Date of designation
1. Cyclohexane.....	May 1986.
2. 2,6-Di- <i>tert</i> -butylphenol.....	May 1986.
3. Tributyl phosphate.....	Nov. 1986.
4. Isopropanol.....	May 1987.
5. Methyl <i>tert</i> -butyl ether.....	May 1987.

B. Chemicals and Groups of Chemicals Recommended with Intent-to-Designate

Entry	Date of recommendation
1. Ethylbenzene.....	May 1987.

C. Chemicals and Groups of Chemicals Recommended Without Being Designated for Response Within 12 Months

Entry	Date of recommendation
1. 3,4-Dichlorobenzotrifluoride.....	May 1984.
2. Diisodecyl phenyl phosphite.....	Nov. 1985.
3. C.I. Disperse Blue 79.....	Nov. 1986.
4. Methyl ethyl ketoxime.....	Do.
5. <i>N</i> -[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide.	May 1987.
6. <i>N</i> -[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide.	May 1987.

C. Chemicals and Groups of Chemicals Recommended Without Being Designated for Response Within 12 Months—Continued

Entry	Date of recommendation
7. <i>N</i> -[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-ethoxy phenyl]-acetamide.	May 1987.

References

(1) Sixteenth Report of the TSCA Interagency Testing Committee to the Administrator, Environmental Protection Agency. TSCA Interagency Testing Committee, May 21, 1985, 50 FR 20930-20939. Includes references to Reports 1 through 15 and an annotative list of removals.

(2) Seventeenth Report of the TSCA Interagency Testing Committee to the Administrator, Environmental Protection Agency. TSCA Interagency Testing Committee, November 19, 1985, 50 FR 47603-47612.

(3) Eighteenth Report of the TSCA Interagency Testing Committee to the Administrator, Environmental Protection Agency. TSCA Interagency Testing Committee, May 19, 1986, 51 FR 18368-18375.

(4) Nineteenth Report of the TSCA Interagency Testing Committee to the Administrator, Environmental Protection Agency. TSCA Interagency Testing Committee, November 14, 1986, 51 FR 41417-41432.

Chapter 2—Recommendations of the Committee

2.1 *Chemicals recommended for priority consideration by the EPA Administrator.* As provided by section 4(e)(1)(B) of TSCA, the Committee is adding the following chemical substances to the section 4(e) Priority List: Ethylbenzene; *N*-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide; *N*-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide; and *N*-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-ethoxy phenyl]-acetamide. The recommendation of these chemicals is being made after considering the factors identified in section 4(e)(1)(A) and other relevant information, as well as the professional judgment of Committee members. In

addition, the Committee is designating for response within 12 months two chemical substances that were recommended with intent-to-designate in the nineteenth report. The designated chemicals are isopropanol and methyl *tert*-butyl ether.

2.2 *Chemicals designated for response within 12 months—2.2.a Isopropanol.* In the nineteenth report to the Administrator of EPA (51 FR 41417), isopropanol was recommended with intent-to-designate. The rationale for that recommendation appears in the nineteenth report. Information reviewed by the Committee in response to the nineteenth report includes any public comments on the Committee's recommendations; production volume, use, exposure and release information reported by manufacturers of isopropanol under the TSCA section 8(a) Preliminary Assessment rule; health and safety studies submitted under the TSCA section 8(d) Health and Safety Data Report rule; and any unpublished and published data available to the Committee.

After reviewing the information, the Committee concluded that data are still lacking on genotoxicity and chronic toxicity. For these reasons and for the reasons previously presented (51 FR 41417) the Committee is now designating isopropanol for response within 12 months and recommending that it be tested for the following:

1. *Health effects.* Genotoxicity, including tests for mutagenicity in mammalian systems and clastogenicity; chronic toxicity including oncogenicity.

2. *Ecological effects.* None.

3. *Chemical fate.* None.

2.2.b *Methyl tert-butyl ether.* In the nineteenth report to the Administrator of EPA (51 FR 41417), methyl *tert*-butyl ether was recommended with intent-to-designate. The rationale for that recommendation appears in the nineteenth report. Information reviewed by the Committee in response to the nineteenth report includes any public comments on the Committee's recommendations; production volume, use, exposure and release information reported by manufacturers of methyl *tert*-butyl ether under the TSCA section 8(a) Preliminary Assessment rule; health and safety studies submitted under the TSCA section 8(d) Health and Safety Data Report rule; and any unpublished and published data available to the Committee.

After reviewing the information, the Committee concluded that data are still lacking on chronic toxicity and chemical fate. For these reasons and for the reasons previously presented (51 FR

41417) the Committee is now designating methyl *tert*-butyl ether for response within 12 months and recommending that it be tested for the following:

1. *Health effects.* Chronic inhalation toxicity including neurotoxic, hematologic and oncogenic effects.

2. *Ecological effects.* None.

3. *Chemical fate.* Monitoring at representative gasoline terminals and service stations.

2.3 *Chemicals recommended with intent-to-designate—*

2.3.a *Ethylbenzene—Summary of recommended studies.* It is recommended that ethylbenzene be tested for the following:

1. *Chemical fate.* None.

2. *Health effects.* None.

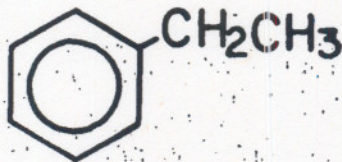
3. *Ecological effects:* Acute toxicity to freshwater algae and aquatic invertebrates. Acute toxicity to saltwater algae, aquatic invertebrates, and fish.

Physical and Chemical Information

CAS Number: 100-41-4

Synonyms: Phenylethane; ethylbenzol; benzene ethyl (9CI)

Structural Formula:



Empirical Formula: C_8H_{10}

Molecular Weight: 106.16

Melting Point: -95°C (Ref. 28, NRC, 1981)

Boiling Point: 136°C (Ref. 28, NRC, 1981)

Vapor Pressure: 9.57 mmHg at 25°C (Ref. 28, NRC, 1981)

Solubility in Water: 161 mg/L at 25°C (distilled water) (Ref. 28, NRC, 1981); 111 mg/L at 25°C (seawater) (Ref. 28, NRC, 1981)

Solubility in Organic Solvents: Miscible with common solvents (Ref. 26, Merck, 1983); soluble in alcohol, benzene, ether, and carbon tetrachloride (Ref. 16, Hawley, 1981)

Specific Gravity: 0.867 at $20/4^\circ\text{C}$ (Ref. 37, Verschueren, 1983)

Log Octanol/Water Partition Coefficient (log P): 3.15 (Ref. 23, Leo et al., 1971)

Henry's Law Constant: 8.43×10^{-3} atm m^3/mol at 25°C (experimental) (Ref. 24, Mackay et al., 1979)

Description of Chemical: Colorless liquid (Ref. 28, NRC, 1981)

Rationale for Recommendations

I. *Exposure information—A.*

Production/use. An estimated 7.6 billion

pounds (3.4 billion kg) of ethylbenzene were produced domestically in 1986 (Ref. 25, Mannsville, 1987). Domestic production capacity in 1986 was estimated to be 9.2 to 9.7 billion pounds (4.2 to 4.4 billion kg) (Ref. 33, SRI International, 1986; Ref. 25, Mannsville, 1987). Exports of the compound in 1986 were estimated to total 75 million pounds (Ref. 25, Mannsville, 1987). Ethylbenzene is produced commercially mainly by the catalytic alkylation of benzene with ethylene (Ref. 14, CEH, 1985). Ethylbenzene is also present at a 17–20 percent concentration in the C_8 aromatic catalytic reformat ("mixed xylene") stream produced by petroleum-reforming processes; and in pyrolysis gasoline produced as a byproduct of alkene production (Ref. 28, NRC, 1981).

Almost all of the domestic production of ethylbenzene is consumed captively, by the manufacturers of ethylbenzene, in the production of styrene (Ref. 14, CEH, 1985). In 1986, consumption of ethylbenzene in the production of styrene monomer was estimated to account for 99 percent of the 7.5 billion pound (3.4 billion kg) demand for the compound. The remaining 1 percent was consumed in solvent and miscellaneous chemical intermediate applications (Ref. 25, Mannsville, 1987). The mixed xylene and pyrolysis gasoline streams containing ethylbenzene are used as blending stocks for gasoline. Mixed xylenes are also used as solvents for paints and adhesives, and as diluents for pesticide sprays (Ref. 28, NRC, 1981).

B. *Environmental release.*

Ethylbenzene has been detected in ambient air, surface waters, ground water, drinking water, rain and human milk (Ref. 28, NRC, 1981). The U.S. Environmental Protection Agency issued a Water Quality Advisory on ethylbenzene in September 1986 (Ref. 36, USEPA, 1986).

Alkylbenzenes are released mainly to the atmosphere from a number of point and nonpoint sources, including petrochemical manufacturing and processing operations, solvent uses, and fuel evaporation. Evaporation from fuel and solvent uses is probably the major source of alkylbenzenes in ambient air (Ref. 28, NRC, 1981). Smaller amounts of alkylbenzenes also may be released to water and land in oil spills, solvent discharges, landfill leachates, runoff from agricultural and urban areas, and pesticide applications (Ref. 28, NRC, 1981).

II. *Chemical fate information.*

Although large amounts of ethylbenzene are released to the environment, the chemical fate processes are well studied and ethylbenzene will not persist in the environment. The principal concern is

for ecological effects at locations where ethylbenzene is released to the environment, where ethylbenzene may occur at significant steady-state concentrations. Therefore, chemical fate testing is not being recommended at this time.

III. *Biological effects of concern to human health.* The Committee reviewed the available information on the health effects of ethylbenzene. Planned and ongoing health effects testing by the NTP includes chemical disposition studies, subchronic and chronic oncogenicity studies and reproductive and developmental effects studies (contingent on the 90-day subchronic studies). Therefore, additional health effects testing is not being recommended at this time.

IV. *Ecological effects of concern—A. Acute and subchronic (short-term)*

effects. Ethylbenzene is acutely toxic to freshwater organisms at concentrations of 2.1 to 210 mg/L (Ref. 2, Böbra et al., 1983; Ref. 3, Bringmann, 1973; Ref. 4, Bringmann and Kuhn, 1977a; Ref. 5, Bringmann and Kuhn, 1977b; Ref. 6, Bringmann and Kuhn, 1978a; Ref. 7, Bringmann and Kuhn, 1978b; Ref. 8, Bringmann and Kuhn, 1980a; Ref. 9, Bringmann and Kuhn, 1980b; Ref. 10, Bringmann and Kuhn, 1981; Ref. 11, Bringmann et al., 1980; Ref. 12, Buccafusco et al., 1981; Ref. 15, Geiger et al., 1986; Ref. 18, Hutchinson et al., 1979; Ref. 19, Hutchinson et al., 1980; Ref. 20, Johnson and Finley, 1980; Ref. 21, LeBlanc, 1980; Ref. 30, Pickering and Henderson, 1966).

Ethylbenzene also is acutely toxic to saltwater organisms, at concentrations of 0.42 to 323 mg/L (Ref. 1, Benville and Korn, 1977; Ref. 13, Caldwell et al., 1977; Ref. 17, Heitmüller et al., 1981; Ref. 22, Legore, 1974; Ref. 27, Morrow et al., 1975; Ref. 31, Potera, 1975; Ref. 34, USEPA, 1978).

B. *Chronic (long-term) effects.* Embryo-larval forms of the fathead minnow (*Pimephales promelas*) were not adversely affected by test concentrations of 0.44 mg/L ethylbenzene (the highest concentration tested) (Ref. 35, USEPA, 1980). No other information was found regarding the chronic toxicity of ethylbenzene to aquatic organisms.

C. *Other ecological effects (biological, behavioral, or ecosystem processes).* No information was found.

D. *Bioconcentration and food-chain transport.* The bioconcentration factor for ethylbenzene is estimated to be 95, based on a log P value of 3.15.

Nunes and Benville (Ref. 29, 1979) exposed the Manila clam (*Tapes semidecussata*) to the water-soluble

fraction of Cook Inlet crude oil containing a mean concentration of 0.08 ppm ethylbenzene for 8 days in a continuous-flow bioassay. Ethylbenzene accumulated in clam tissues to a maximum concentration of 0.50 ppm. After 7 days depuration in clean water, the compound was no longer detected in the tissues (detection limit 0.13 ppm). Coho salmon (*Oncorhynchus kisutch*) and starry flounder (*Platichthys stellatus*) were exposed to the water-soluble fraction of Prudhoe Bay crude oil in flowing seawater for 6 and 2 weeks, respectively. The water-soluble fraction contained mean concentrations of 0.9 ppm total hydrocarbons, 0.005 ppm ethylbenzene, 0.2 ppm *m*-xylene, and 0.07 ppm *o*- and *p*-xylene. The maximum bioconcentration factors of the C₂-substituted benzenes (in Prudhoe Bay crude oil) were 2.4 in salmon muscle and 20 in flounder muscle. Following a depuration period of 2 weeks in clean seawater, C₂-substituted benzenes were not detected in the muscle tissue of either test organism (Ref. 32, Roubal et al., 1978).

E. Rationale for ecological effects recommendations. Most of the acute aquatic toxicity data were generated using static systems and nominal concentrations of ethylbenzene. If ethylbenzene volatilizes rapidly and extensively from static systems, the nominal concentrations overestimate (probably by one or two orders of magnitude) the actual LC50 or EC50 values. For example, the 48-hour daphnid LC50 for ethylbenzene was 75 mg/L when a loosely covered test vessel was used, and 2.1 mg/L when a system was used that minimized evaporation.

For some highly volatile, hydrolyzable, or degradable materials it is appropriate to use only results of flow-through tests in which the concentrations of test material in the test solutions were measured often enough using acceptable analytical methods. To provide more accurate aquatic toxicity data for assessing the acute hazards of ethylbenzene, it is recommended that acute toxicity tests be conducted with freshwater algae and aquatic invertebrates and saltwater algae, fish, and aquatic invertebrates using flow-through or static-renewal systems and measured concentrations of ethylbenzene. Also, more accurate aquatic toxicity data for ethylbenzene will be useful for the development of a revised Water Quality Advisory by the EPA Office of Water.

References

(1) Benville, P. E., Jr. and Korn, S. "The acute toxicity of six monocyclic aromatic crude oil components to

striped bass (*Morone saxatilis*) and bay shrimp (*Crago franciscorum*)," *California Fish and Game*. 63:204-209 (1977).

(2) Bobra, A. M., Shiu, W. Y., and Mackay, D. "A predictive correlation for the acute toxicity of hydrocarbons and chlorinated hydrocarbons to the water flea (*Daphnia magna*)," *Chemosphere*. 12:1121-1129 (1983).

(3) Bringmann, G. "Determination of the biological damage from water pollutants from the inhibition of glucose assimilation in the bacterium *Pseudomonas fluorescens*," *Gesundheits-Ingenieur*. 94:366-369 (1973).

(4) Bringmann, G., and Kuhn, R. "Limiting values for the damaging action of water pollutants to bacteria (*Pseudomonas putida*) and green algae (*Scenedesmus quadricauda*) in the cell multiplication inhibition test," *Zeitschrift fuer Wasser und Abwasser Forschung*. 10:87-98 (1977a).

(5) Bringmann, G. and Kuhn, R. "The toxicity of waterborne contaminants towards *Daphnia magna*," *Zeitschrift fuer Wasser und Abwasser Forschung*. 10:161-166 (1977b).

(6) Bringmann, G. and Kuhn, R. "Limiting values for the noxious effects of water pollutant material to blue algae (*Microcystis aeruginosa*) and green algae (*Scenedesmus quadricauda*) in cell propagation inhibition tests," *Vom Wasser* 50:45-60 (1978a).

(7) Bringmann, G. and Kuhn, R. "Testing of substances for their toxicity threshold: Model organisms *Microcystis (Diplocystis) aeruginosa* and *Scenedesmus quadricauda*," *Mitteilungen Internationale Vereinigung fuer Theoretische und Angewandte Limnologie*. 21:275-284 (1978b).

(8) Bringmann, G. and Kuhn, R. "Comparison of the toxicity thresholds of water pollutants to bacteria, algae, and protozoa in the cell multiplication inhibition test," *Water Research* 14:231-241 (1980a).

(9) Bringmann, G. and Kuhn, R. "Determination of the biological effect of water pollutants in protozoa. II. Bacterivorous ciliates," *Zeitschrift fuer Wasser und Abwasser Forschung*. 13:26-31 (1980b).

(10) Bringmann, G. and Kuhn, R. "Comparison of the effects of harmful substances on flagellates as well as ciliates and on holozoic bacteriophagus and saprozoic protozoa," *Gas- und Wasserfach; Wasser-Abwasser*. 122:308-313 (1981).

(11) Bringmann, G., Kuhn, R. and Winter, A. "Determination of the biological effect of water pollutants in protozoa. III. Saprozoic flagellates,"

Zeitschrift fuer Wasser und Abwasser Forschung. 13:170-173 (1980).

(12) Buccafusco, R. J., Ells, S. J., and LeBlanc, G. A. "Acute toxicity of priority pollutants to bluegill (*Lepomis macrochirus*)," *Bulletin of Environmental Contamination and Toxicology*. 26:446-452 (1981).

(13) Caldwell, R. S., Caldarone, E. M., and Mallon, M. H. "Effects of a seawater-soluble fraction of Cook Inlet crude oil and its major aromatic components on larval stages of the Dungeness crab (*Cancer magister*) Dana," *Fate and Effects of Petroleum Hydrocarbons in Marine Ecosystems and Organisms*, pp. 210-220. D. A. Wolfe, ed. (New York: Pergamon Press, 1977).

(14) CEH. *Chemical Economics Handbook*. Menlo Park, CA: SRI International. Section 645.3000A. (1985).

(15) Geiger, D.L., Poirier, S.H., Brook, L.T., and Call, D.J., eds. *Acute Toxicities of Organic Chemicals to Fathead Minnows*. Vol. III, pp. 189-190 (Superior, WI: Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 1986).

(16) Hawley, G.G. *The Condensed Chemical Dictionary*. 10th Ed., p. 425. (New York: Van Nostrand Reinhold Company, 1981).

(17) Heitmuller, P.T., Hollister, T.A., and Parrish, P.R. "Acute toxicity of 54 industrial chemicals to sheepshead minnows (*Cyprinodon variegatus*)," *Bulletin of Environmental Contamination and Toxicology*. 27:596-604 (1981).

(18) Hutchinson, T.C., Hellebust, J.A., Mackay, D., Tam, D., and Kauss, P. "Relationship of hydrocarbon solubility to toxicity in algae and cellular membrane effects," *Journal of the American Petroleum Institute*. 430B:541-547 (1979).

(19) Hutchinson, T.C., Hellebust, J.A., Tam, D., Mackay, D., Mascarenhas, R.A., and Shiu, W.Y. "The correlation of the toxicity to algae of hydrocarbons and halogenated hydrocarbons with their physical-chemical properties," *Environmental Science Research*. 16:577-586 (1980).

(20) Johnson, W.W. and Finley, M.T. "Handbook of Acute Toxicity of Chemicals to Fish and Aquatic Invertebrates," Resource Publication 137. Washington, DC: U.S. Fish and Wildlife Service (1980).

(21) LeBlanc, G.A. "Acute toxicity of priority pollutants to water flea (*Daphnia magna*)," *Bulletin of Environmental Contamination and Toxicology*. 24:684-691 (1980).

(22) Legore, R.S. "The effect of Alaskan crude oil and selected

hydrocarbon compounds on embryonic development of the Pacific oyster, *Crassostrea gigas*." Ph.D. thesis, University of Washington, Seattle, WA. Available from: University Microfilms, Ann Arbor, MI. Order No. 74-29447. (1974).

(23) Leo, A., Hansch, C., and Elkins, D. "Partition coefficients and their uses," *Chemical Reviews*. 71(6):525-615 (1971).

(24) Mackay, D., Shiu, W.Y., and Sutherland, R.P. "Determination of air-water Henry's law constants for hydrophobic pollutants," *Environmental Science and Technology*. 13(3):333-337 (1979).

(25) Mannsville. "Chemical Products Synopsis-Ethylbenzene," 2 pp. (Cortland, NY: Mannsville Chemical Products Corporation, 1987).

(26) Merck. *The Merck Index*. Windholz, M. ed., p. 546 (Rahway, NJ: Merck & Co., Inc., 1983).

(27) Morrow, J.E., Gritz, R.L., and Kirton, M.P. "Effects of some components of crude oil on young coho salmon," *Copeia*. 2:326-331 (1975).

(28) NRC. National Research Council. *The Alkyl Benzenes*. 384 pp. (Washington, DC: National Academy Press, 1981).

(29) Nunes, P. and Benville, P.E. Jr. "Uptake and depuration of petroleum hydrocarbons in the Manila clam, *Tapes semidecussata* Reeve," *Bulletin of Environmental Contamination and Toxicology*. 21:719-726 (1979).

(30) Pickering, Q.H. and Henderson, C. "Acute toxicity of some important petrochemicals to fish," *Journal of the Water Pollution Control Federation*. 38:1419-1429 (1966).

(31) Potera, G.T. "The effects of benzene, toluene and ethylbenzene on several important members of the estuarine ecosystem," Ph.D. thesis Lehigh University, Bethlehem, PA. Available from: University Microfilms, Ann Arbor, MI. Order No. 75-24012. (1975).

(32) Roubal, W.T., Stranahan, S.I., and Malins, D.C. "The accumulation of low molecular weight aromatic hydrocarbons of crude oil by coho salmon (*Oncorhynchus kisutch*) and starry flounder (*Platichthys stellatus*)," *Archives of Environmental Contamination and Toxicology*. 7:237-244 (1978).

(33) SRI International. *1986 Directory of Chemical Producers, United States*. p. 638 (Menlo Park, CA: SRI International, 1986).

(34) USEPA. "In-depth studies on health and environmental impacts of selected water pollutants." Available from: Charles E. Stephan, U.S. Environmental Protection Agency, Duluth, MN (1978).

(35) USEPA. "Ambient water quality criteria for ethylbenzene," EPA Report No. EPA 440/5-80-048. Washington, DC: U.S. Environmental Protection Agency, Office of Water Regulations and Standards (1980).

(36) USEPA. "Ambient water quality advisory for ethylbenzene." Washington, DC: U.S. Environmental Protection Agency, Office of Water Regulations and Standards (1986).

(37) Veschuereen, K. *Handbook of Environmental Data on Organic Chemicals*. 2nd Ed., p. 628 (New York: Van Nostrand Reinhold Company, 1983).

2.4 *Chemicals and groups of chemicals recommended without being designated for response within 12 months—2.4.a N-[5-bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide; N-[5-bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-methoxy phenyl]-acetamide; and N-[5-bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-ethoxy phenyl]-acetamide—Summary of recommended studies.* It is recommended that these chemicals be tested for the following:

1. *Chemical fate.* Solubility in water at 25°C. Biodegradation under aerobic and anaerobic conditions and the identification of any relatively persistent biodegradation intermediates.

2. *Health Effects.* Absorption and chemical disposition via oral route of administration. Subchronic toxicity (90-day study).

3. *Ecological Effects.* Acute toxicity to fish, aquatic invertebrates, algae, and benthic organisms, including filter feeders. Bioconcentration in fish. Chronic effects on aquatic and benthic biota if the acute studies show toxicity at low mg/L concentrations or if the chemical bioconcentrates.

Rationale for Recommendations

In the Nineteenth Report to the EPA Administrator (5) FR 41417, the Committee recommended testing of C. I. Disperse Blue 79 (CAS No. 3956-55-6). In that report it was noted that three closely related compounds, also used as dyes, raised similar concerns. However, those related compounds were not

recommended in the nineteenth report because it appeared that none was being produced or imported in substantial quantities.

Subsequent to the Nineteenth Report, it was learned that one of the closely related compounds, the bromo, methoxy analog of Disperse Blue 79 (CAS No. 3618-72-2), is produced domestically with an annual production volume of nearly 2 million pounds (9×10^5 kg) (Ref. 1, ETAD, 1987).

This new information has influenced the Committee to add the bromo, methoxy analog to the TSCA Section 4(e) Priority List. The Committee also is adding the chloro, methoxy and chloro, ethoxy analogs to the Priority List because they may be produced in significant quantities if used as substitutes for the bromo analogs in the production of commercial dyes. The Committee recommends that the three analogs be tested for the same chemical fate, health effects and ecological effects factors recommended for Disperse Blue 79 and for the same reasons presented in the Nineteenth Report.

As noted in the Nineteenth Report, there is potential for Disperse Blue 79 to be cleaved to released 2-bromo-4,6-dinitroaniline, both in the environment and *in vivo* following ingestion. The three disperse Blue 79 analogs being recommended in this Twentieth Report to the EPA Administrator have the same potential to be cleaved, releasing either 2-bromo-4,6-dinitroaniline or 2-chloro-4,6-dinitroaniline. These anilines, as noted in the Nineteenth Report, are among several anilines recommended and designated by the ITC in its Fourth Report to the EPA Administrator (44 FR 31867). If azo reduction of these dyes to yield the 2-halo-4,6-dinitroanilines is found to be a probable pathway in the environment or *in vivo*, the Committee recommends testing of the sort described by the EPA in the Advance Notice of Proposed Rulemaking (ANPR) on January 3, 1984 (49 FR 108).

Reference

(1) ETAD. Ecological and Toxicological Association of the Dyestuffs Manufacturing Industry. Letter from E. A. Clarke, Executive Secretary, ETAD, to R. H. Brink, Executive Secretary, TSCA Interagency Testing Committee (February 12, 1987).

[FR Doc. 87-11478 Filed 5-19-87; 8:45 am]

BILLING CODE 6560-50-M