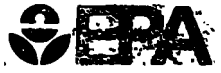
United States
Environmental Protection
Agency

NTIS No P890-921100



Health Effects Assessment Summary Tables

Third Quarter
FY - 1990

DISCLAIMER

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
WHAT'S NEW IN THE THIRD QUARTER HEAST	4
USER'S GUIDE: CHEMICAL TOXICITY	9
HEALTH EFFECTS ASSESSMENTS SUMMARY TABLE A: SUBCHRONIC AND CHRONIC TOXICITY (OTHER THAN CARCINOGENICITY)	A-1
HEALTH EFFECTS ASSESSMENTS SUMMARY TABLE B: CARCINOGENICITY	B-1
USER'S GUIDE: RADIONUCLIDE CARCINOGENICITY	C-1
HEALTH EFFECTS ASSESSMENTS SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY	C-8
REFERENCES FOR TABLES A	D-1
REFERENCES FOR TABLES B	D-88

INTRODUCTION

This document is the third quarter update of the Health Effects Assessment Summary Tables (HEAST) prepared by EPA's Environmental Criteria and Assessment Office in Cincinnati, OH for use at both Superfund and RCRA (Resource Conservation and Recovery Act) sites. Previously, the HEAST contained only chemicals commonly found at Superfund sites. Beginning with this quarter, the document will also include chemicals commonly found at RCRA sites as identified by the Office of Solid Waste's Technical Assessment Branch. By including chemicals identified by OSW, the Agency will conserve resources, enhance the completeness of HEAST tables and assist in promoting consistency within the Office Solid Waste and Emergency Response. Also acknowledged are the contributions of the Office of Radiation Programs, who provide Table C of the HEAST on radionuclides.

This update completely replaces the previous edition of this document. Chemicals considered are those for which Health Effects Assessment Documents, Health and Environmental Effects Profiles, Health and Environmental Effects Documents, Health Assessment documents or Air Quality Criteria Documents have been prepared by ECAO. Radionuclides considered are those believed to be most commonly encountered at Superfund sites. This report is an excellent "pointer" system to identify current literature or changes in assessment criteria for many chemicals of interest to the Superfund program.

It is important to remember that the numbers in these tables alone tell one very little about the adverse effects of a chemical or the quality of evidence on which toxicity criteria are based. Original assessment documents must be consulted by risk assessors in order for them to fully

appreciate the strengths and limitations of a specific data base. Original source documents will allow for the most complete characterization of potential toxicity associated with the range of exposure pathways generally evaluated at Superfund and RCRA sites. The HEAST is structured to point the user to these sources.

We recognize that at any one time there may be multiple Agency documents or data bases that present conflicting values or assessments on a specific chemical. For this reason the following hierarchy of sources is recommended in evaluating chemical toxicity for Superfund sites:

1. The Agency's Integrated Risk Information System (IRIS) and cited references. This data base is updated monthly but may still have data gaps. Call IRIS USER Support at 513/569-7254 (FTS 684-7254) for further information.

2. The Health Effects Assessment Summary Tables (HEAST) and cited references. Limited copies of the HEAST are available for EPA Superfund staff, States Superfund programs and other Federal agencies working on Superfund sites and EPA contractors working for the EPA Superfund program. If you fall into one of these groups you can call the Toxics Integration Branch (202) 475-9490 to be put on the mailing list.

   EPA's Office of Solid Waste (OSW) requests that their users (i.e. OSW staff, contractors, State solid waste programs) call Susan Griffin of the Office of Solid Waste at (202) 382-6392 to obtain copies. Regional OSW staff are reminded that copies of the HEAST are sent to all Regional libraries.

   Users of the HEAST in EPA's Office of Air and Radiation and state air programs should call Fred Hauchman of EPA's Office of Air Quality Planning and Standards at (919) 541-5339.

   All others must purchase the document from:

   National Technical Information Service (NTIS)
   5285 Port Royal Road
   Springfield, VA 22161
   (703) 487-4650

   The NTIS order number to receive all of the quarters for FY90 is PB-90-921100. The order number to receive the Third Quarter HEAST only is PB-90-921103. There is a charge to receive this from NTIS.

3. Consultation with EPA staff (ECAO's Chemical Mixtures Assessment Branch at 513/569-7300; FTS 684-7300).

4. Do not consult either the toxicity tables (Appendix A) in the Superfund Public Health Evaluation Manual (SPHEM, U.S. EPA, 1986) or the September 1988 Public Health Risk Evaluation Data Base (PHRED) as these sources are likely to contain numerous values that have since become out-of-date.

Most cited Agency references (e.g., HEAs, HEEPs, HEEDs, etc.), are (or will soon be) available through the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703/487-4650 or 800/336-4700). Carcinogen Assessment Group (CAG) Profiles cited in Table B are available through RCRA docket (800/424-9346).

Questions regarding the contents of the HEAST (e.g., chemicals not covered, pending RfDs) should be directed to EPA's Environmental Criteria and Assessment Office in Cincinnati, OH at (513)569-7300.

GENERIC ISSUES:

No changes in format have been introduced in the third quarter FY90 update of the HEA Summary Tables (HEAST).

Beginning with this quarter this document will also include chemicals commonly found at RCRA sites as identified by the Office of Solid Waste Technical Assessment Branch. (See chemical specific information for Tables A and B.)

Please note that the RfD Work Group has decided to change the terminology "inhalation Reference Dose" to "Reference concentration (RfC)". The Risk Assessment Council has reviewed and approved this proposal on 07/02/90. Next quarter, HEAST will be changed in order to reflect the RfC terminology. For this quarter, inhalation Reference Dose will remain reported as such.

Slope factors and unit risk values for approximately 40 additional nuclides, including radioisotopes of actinium, bismith, nickel, protactinium, neptunium, radium, thorium and others, have been added to Table C. With the exception of minor word changes, the text of the User's Guide for Section C remains the same as presented in the combined first and second Quarterly Update.

RfD and CRAVE Workgroup status reports dated 06/30/90 were used in this update of the Tables.

CHEMICAL-SPECIFIC CHANGES TO TABLE A: OTHER THAN CARCINOGENICITY

The following chemicals are new entries to Table A (at the request of OSW):

Aldicarb
Aluminum phosphide
Barium cyanide
Bis (2-chloro-isopropyl) ether
Calcium cyanide
Carbon disulfide
Chlorine cyanide
Chlorobenzilate
Copper cyanide
Cyanogen
Cyanogen bromide
2,4-Dichlorophenoxy acetic acid (2,4-D)
Dimethyl phthalate
Di-n-octyl phthalate
Formic acid
Hydrogen sulfide
Methanol
Nitric oxide
Phenylmercuric acetate
Potassium cyanide

Potassium silver cyanide
Pronamide
Selenourea
Silver
Silver cyanide
Strychnine
1,2,4,5-Tetrachlorobenzene
Tetraethyl dithiopyrophosphate
Tetraethyl lead
2,4,5-Trichlorophenoxy propionic acid (silvex)
Zinc cyanide
Zinc phosphide

Aramite

A footnote was added to indicate that this chemical is under review by the oral RfD Workgroup.

Atrazine

A different study, also by Ciba-Geigy, is now the basis for the assessment of oral toxicity. The chronic oral RfD did not change, but the footnote was changed to indicate that the RfD is verified and available on IRIS.

Barium

The footnote was changed to indicate that a new oral RfD was verified on 06/21/90 and IRIS will be changed.

Boron

The footnote was changed to indicate that the chronic oral RfD is verified and available on IRIS.

Bromomethane

The chronic inhalation RfD incorrectly appeared as 6E-2; it has now been corrected to 6E-3. The chronic oral RfD has been corrected to 1.4E-3, which is how it appears on IRIS. The subchronic oral RfD has been modified accordingly.

Chloroacetaldehyde

A footnote has been added to indicate that this chemical's assessment of oral toxicity is currently not under discussion.

Chlorodibromomethane

This chemical is also listed in a separate entry as dibromochloromethane; therefore, chlorodibromomethane and corresponding references have been removed. IRIS lists this chemical as dibromochloromethane.

1,2-c-Dichloroethylene

Oral RfD values are now available for this chemical. The chronic oral RfD derived by the Workgroup has been verified and is pending input into IRIS.

2,4-Dimethylphenol

Oral RfD values are now available for this chemical. The chronic oral RfD derived by the Workgroup has been verified and is pending input into IRIS.

4,6-Dinitro-o-cresol

A footnote has been added to indicate that this chemical is currently not under discussion.

2,4-Dinitrophenol

Oral RfD values are now available for this chemical. The chronic oral RfD derived by the Workgroup has been verified and is available on IRIS.

Disulfoton

This chemical is a new entry from a recently finalized HEED.

Fluoranthene

This chemical was erroneously listed as fluoroethene; the error has been corrected.

n-Hexane

Data regarding inhalation has been changed since a new inhalation RfD has been verified based on a human epidemiological study. The chronic inhalation RfD is pending input into IRIS.

Manganese

A footnote was added to indicate that this chemical's oral risk assessment is under review by the Workgroup.

Mercury, inorganic

Data regarding inhalation has been changed since a new inhalation RfD has been verified based on several occupational studies. The chronic inhalation RfD is pending input into IRIS.

Methoxychlor

A footnote was added to indicate that this chemical is under review by the oral RfD Workgroup.

Methyl bromide

This entry and the corresponding references have been deleted since the chemical is already listed under bromomethane, which is the name that appears on IRIS.

Methyl ethyl ketone

A footnote was added to indicate that this chemical's chronic oral RfD, while still available on IRIS, is being reconsidered by the Workgroup. The inhalation RfD has recently been verified, pending input into IRIS.

Nickel

A footnote was added to indicate that this chemical's chronic oral RfD, while still available on IRIS, is being reconsidered by the Workgroup.

Nitrobenzene

A footnote was added to indicate that although the chronic oral RfD is being reconsidered by the Workgroup it is still available on IRIS. The expression of the inhalation RfD as a dose in terms of mg/kg/day was removed to reflect derivation by the newer interim methodology.

Nitrogen dioxide

This chemical is a new entry from a recently finalized HEED. The inhalation RfD is under review by the RfD Workgroup. The oral RfD, which is an RfD for nitrogen dioxide-N derived by analogy to nitrate-N, is verified and available on IRIS.

Phosphine

A footnote was added to indicate that the chronic oral RfD is verified and is available on IRIS.

Propylene glycol monomethyl ether

A recent inhalation assessment verified a chronic RfD of 7E-1 using the new methodology. This RfD is pending input into IRIS. The new relevant information was added to this entry.

Selenium

The footnote was changed to indicate that the oral RfD for selenium is verified but not yet available on IRIS.

Styrene

A footnote was added to indicate that the chronic oral RfD, while still available on IRIS, is being reconsidered by the Workgroup.

Toluene

The footnote for the chronic oral RfD was changed to indicate that a new value was verified on 06/20/90 and IRIS will be changed.

1,1,1-Trichloroethane

A footnote was added to indicate that the chronic oral RfD, while still available on IRIS, is being reconsidered by the Workgroup.

CHEMICAL-SPECIFIC CHANGES TO TABLE B: CARCINOGENICITY

The following chemicals are new entries to Table B (at the request of OSW):

DDD
DDE
1,2-Dibromo-3-chloropropane
Diethylstilesterol
7,12-Dimethylbenz(a)antracene
1,4-Dioxane
Heptachlor epoxide
3-Methylcholanthracene
N-nitrospyrrolidine
1,1,1,2-Tetrachloroethane

Benzotrichloride

The footnotes were changed to indicate that the classification and oral slope factor have both been verified. The quantitative risk estimate for inhalation route is currently under review.

Decabromodiphenyl oxide

The footnote was changed to indicate that the Group C classification is verified and is available on IRIS.

1,3-Dichloropropene

A footnote was added to indicate that quantitative risk estimates, derived since the EPA Group was verified, have not been verified.

Direct Black 38

A footnote was added to indicate that this chemical's assessment is under review by CRAVE Workgroup.

Direct Blue 6

A footnote was added to indicate that this chemical's assessment is under review by CRAVE Workgroup.

Direct Brown 95

A footnote was added to indicate that this chemical's assessment is under review by CRAVE Workgroup.

Formaldehyde

A footnote was added to indicate that this oral slope factor, calculated in a CAG profile, has not been reviewed by the CRAVE Workgroup.

Methyl Ethyl Ketone

The footnote was changed to indicate that the Group D classification is verified and is available on IRIS.

Selenium Sulfide

A footnote was added to indicate that this chemical's assessment is verified; input into IRIS is pending.

Styrene

The footnote was changed to indicate that this chemical's assessment is now under review by CRAVE.

2,4,6-Trichlorophenol

The footnote was changed to indicate that oral and inhalation slope factors are available on IRIS.

Vinyl chloride

The footnote was changed to indicate that oral and inhalation slope factors have been verified, but input into IRIS is pending.

The Health Effects Assessment Summary Tables A & B summarize reference doses (RfDs) for toxicity from subchronic and chronic inhalation and oral exposure (Table A) and slope factors and unit risk values for carcinogenicity based on lifetime inhalation and oral exposure (Table B). A more complete discussion of how Superfund develops and considers the toxicity assessment in hazardous waste sites is presented in Chapter 7 of Risk Assessment Guidance for Superfund: Human Health Evaluation Manual Part A. The chemicals included in the tables are the subjects of final documents of Health Effects Assessment documents (HEAs), Health and Environmental Effects Profiles (HEEPs), Health and Environmental Effects Documents (HEEDs), Health Assessment Documents (HADs) and Air Quality Criteria Documents (AQCDs). The information in HEA Summary Tables A and B is excerpted from the HEAs, HEEPs, HEEDs, HADs and AQCDs, and expanded and updated quarterly to include chemicals addressed in HEAs, HEEDs, HADs and AQCDs that have been finalized since the last update and to bring existing values into conformity with more recent EPA assessments, especially RfD or CRAVE Work Group verifications. The references listed for each chemical in the Reference column and References section represent not only the study or studies that are the basis for the RfD, slope factor or unit risk, but also the U.S. EPA reference that is the source of the Agency analysis or risk assessment values and the IRIS citation for values verified by the RfD or CRAVE work group. Verified values are indicated in the tables by a footnote.

The following documents cited in this section may be obtained from their respective sources:

From the Center for Environmental Research Information (513)569-7562.

Risk Assessment Guidance: Volume 1, Human Health Evaluation Manual, Part A. EPA/540/1-89/002.

Air Quality Criteria Documents.

From the National Technical Information Service (NTIS) (703)487-4780.

Interim Methods for Development of Inhalation Reference Doses. EPA/600/8-88/006F. Order number PB90-145723. The price is $31.00.

Table A: Subchronic and Chronic Toxicity (other than Carcinogenicity)

The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of the daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a portion of the lifetime, in the case of a subchronic RfD (designated "RfD_s" in Table A and formerly called AIS), or during the lifetime, in the case of a chronic RfD (designated "RfD" in Table A and formerly called AIC). The RfD values are listed in Table A in the column under "Reference Dose." The RfD is derived by dividing the NOAEL (or LOAEL if a suitable NOAEL is not available) for subchronic or chronic exposure by an uncertainty factor (UF) times a modifying factor (MF):

$$RfD = \frac{\text{NOAEL or LOAEL}}{UF \times MF}$$

In Table A, the NOAEL or LOAEL that is the basis for the RfD value is listed under "Exposure." When a NOAEL or LOAEL is reported in terms of exposure concentration and schedule, the calculated mg/kg/day dose is given in parentheses. The species in which the NOAEL or LOAEL was determined and the

effect of concern are also described, and the reference for the study is presented. The effect of concern listed is that associated with the chemical and not with the dose listed. In the "Exposure," "Effect of Concern" and "Reference" columns, information for the inhalation route is given first, separated from information for the oral route by a semicolon or slash.

The uncertainty factor used in calculating the RfD reflects scientific judgment regarding the various types of data used to estimate RfD values. An uncertainty factor of 10 is usually used to account for variations in human sensitivity when extrapolating from valid human studies involving subchronic (for RfD_s) or long-term (for RfD) exposure of average, healthy subjects. An additional 10-fold factor is usually used for each of the following extrapolations: from long-term animal studies to the case of humans, from a LOAEL to a NOAEL, and from subchronic studies to a chronic RfD. In order to reflect professional assessment of the uncertainties of the study and data base not explicitly addressed by the above uncertainty factors (e.g., completeness of the overall data base), an additional uncertainty factor or modifying factor ranging from greater than 0 to less than or equal to 10 is applied. The default value for this modifying factor is 1.

A subchronic RfD is usually derived, if not previously derived in health effects documents that originally addressed the chemical, for chemicals for which a chronic RfD is presented in Table A. The subchronic RfD is derived in either of two ways. If an uncertainty factor to expand from subchronic to chronic exposure was used in the derivation of the chronic RfD, the subchronic RfD is derived from the same benchmark dose without application of the uncertainty factor to expand from subchronic to chronic exposure.

If, however, the chronic RfD was derived without use of an uncertainty factor to expand from subchronic to chronic exposure, the chronic RfD is adopted as the subchronic RfD.

Table A lists the uncertainty factor and modifying factor, multiplied together to form a single factor, under the heading "Uncertainty Factor." For example, the uncertainty factor of 500 listed for the chronic oral RfD for cyanide reflects an uncertainty factor of 100 and a modifying factor of 5; the uncertainty factor of 100 listed for the subchronic oral RfD for bromomethane reflects an uncertainty factor of 100 and a modifying factor of 1.

RfD values are specific for the route of exposure for which they are listed on Table A. In the few instances where an oral RfD has been extrapolated from inhalation data, the extrapolation is indicated by footnoting the value.

The interim methods for the derivation of inhalation RfDs were adopted by the Agency in 1988. These methods are different from those used for oral RfDs because of (1) the dynamics of the respiratory system and its diversity across species, and (2) differences in the physicochemical properties of contaminants (such as the size and shape of a particle or whether the contaminant is an aerosol or a gas). Parameters such as deposition, clearance mechanisms and the physicochemical properties of the inhaled agent are considered in the determination of the effective dose delivered to the target organ. Additional information concerning this methodology can be found in "Interim Methods for Development of Inhalation Reference Doses" (U.S. EPA, 1989, EPA/600/8-88/066F). An RfD value calculated using this interim methodology is generally reported as a concentration in air

(mg/m^3), although it may be converted to a corresponding inhaled dose (mg/kg/day) by dividing by 70 kg (an assumed human body weight) and multiplying by 20 m^3/day (an assumed human inhalation rate).

Inhalation RfD values reported in HEAs and early HEEDs that were finalized prior to the implementation of the interim methods were calculated using methods similar in concept to those used for oral RfDs, and the values are reported both as a concentration in air (in mg/m^3 for continuous, 24 hours/day exposure) and as a corresponding inhaled dose (in mg/kg/day).

RfD values for oral exposure are reported as mg/kg/day. An oral RfD value can be converted to a corresponding concentration in drinking water, assuming human body weight of 70 kg and water consumption of 2 ℓ/day, as follows:

$$\text{mg/ℓ in water} = \frac{\text{oral RfD (in mg/kg/day)} \times 70\ \text{kg}}{2\ \text{ℓ/day}}$$

The RfD is used as a reference point for gauging the potential effects of other doses. Usually, doses that are less than the RfD are not likely to be associated with health risks. As the frequency of exposures exceeding the RfD increases and as the size of the excess increases, the probability increases that adverse health effects may be observed in a human population. Nonetheless, a clear distinction that would categorize all doses below the RfD as "acceptable" (risk-free) and all doses in excess of the RfD as "unacceptable" (causing adverse effects) cannot be made. In addition, RfD values, and particularly those with limitations in the quality or quantity of supporting data, are subject to change as additional information becomes available.

When RfD values are listed for chemicals that are carcinogens, the entry under "Effect of Concern" in Table A will list cancer and will refer to

Table B if additional information concerning carcinogenicity is available in that table. RfD values that have been derived for carcinogens are based on noncancer endpoints only and should not be assumed to be protective against carcinogenicity.

Table B: Carcinogenicity

In assessing the carcinogenic potential of a chemical, the Human Health Assessment Group (HHAG) of the U.S. EPA classifies the chemical into one of the following groups, according to the weight of evidence from epidemiological studies and animal studies:

Group A - Human Carcinogen (sufficient evidence of carcinogenicity in humans)

Group B - Probable Human Carcinogen (B1 - limited evidence of carcinogenicity in humans; B2 - sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans)

Group C - Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data)

Group D - Not Classifiable as to Human Carcinogenicity (inadequate or no evidence)

Group E - Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies).

These classifications are shown under "EPA Group" on Table B.

Quantitative carcinogenic risk assessments are performed for chemicals in Groups A and B, and on a case-by-case basis for chemicals in Group C. Cancer slope factors (formerly called cancer potency factors in the Superfund Public Health Evaluation Manual) are estimated through the use of mathematical extrapolation models, most commonly the linearized multistage model, for estimating the largest possible linear slope (within the 95%

confidence limit) at low extrapolated doses that is consistent with the data. The slope factor or risk is characterized as an upper-bound estimate, i.e., the true risk to humans, while not identifiable, is not likely to exceed the upper-bound estimate and in fact may be lower.

Quantitative carcinogenic estimates listed in Table B include the following:

slope factor = risk per unit dose = risk per mg/kg/day

route-specific unit risk for inhalation exposure = risk per concentration unit in air = risk per $\mu g/m^3$

Unit risk estimates for inhalation and oral exposure can be calculated by dividing the appropriate slope factor by 70 kg and multiplying by the inhalation rate (20 m^3/day) or the water consumption rate (2 ℓ/day), respectively, for risk associated with unit concentration in air or water. Hence,

$$\text{risk per } \mu g/m^3 \text{ (air)} = \text{slope factor (risk per mg/kg/day)} \times \frac{1}{70 \text{ kg}} \times 20 \text{ } m^3/\text{day} \times 10^{-3} \text{ (mg/}\mu g\text{)}$$

$$\text{risk per } \mu g/\ell \text{ (water)} = \text{slope factor (risk per mg/kg/day)} \times \frac{1}{70 \text{ kg}} \times 2 \text{ } \ell/\text{day} \times 10^{-3} \text{ (mg/}\mu g\text{)}$$

Quantitative estimates of carcinogenic risk are listed under "Unit Risk [slope factor]" in Table B. Information on the study and data set used for estimation of the slope factor is given in the other columns of Table B. In the "Exposure" and "Reference" columns, information for the inhalation route is given first, separated from information for the oral route by a semicolon or slash.

Quantitative carcinogenic estimates are specific for the route of exposure for which they are listed on Table B. Footnotes are used in Table B to indicate those instances in which the values for inhalation or oral exposure are based on extrapolation from another route of exposure.

To estimate risk-specific concentrations in air from the unit risk in air as presented in Table B, the specified level of risk is divided by the unit risk for air. Hence the air concentration (in $\mu g/m^3$) corresponding to an upper-bound increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$\mu g/m^3 \text{ in air} = \frac{1x10^{-5}}{\text{unit risk in } (\mu g/m^3)^{-1}}$$

To estimate risk-specific concentrations in drinking water from the oral slope factor values presented in Table B, the specified level of risk is multiplied by 70 kg and divided by the slope factor and by 2 ℓ/day. Hence, the water concentration corresponding to an upper-bound increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$\text{mg/ℓ in water} = \frac{1x10^{-5}x70 \text{ kg}}{\text{slope factor in } (\text{mg/kg/day})^{-1} \text{ x } 2 \text{ ℓ/day}}$$

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Acenaphthene									
subchronic (RfD_S)	NA; 175 mg/kg/day by gavage for 90 days	NA	mouse	NA; hepatotoxicity	ND	6E-1	NA	300	U.S. EPA, 1989
chronic (RfD)	NA; 175 mg/kg/day by gavage for 90 days	NA	mouse	NA; hepatotoxicity	ND	6E-2[j]	NA	3000	U.S. EPA, 1989
Acenaphthylene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987
Acephate									
subchronic (RfD_S)	NA; 2 ppm in the diet for 13 weeks (0.135 mg/kg/day)	NA	rat	NA; inhibition of brain AChase	ND	4E-3	NA	30	U.S. EPA, 1990/ Chevron Chem. Co., 1989; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 2 ppm in the diet for 13 weeks (0.135 mg/kg/day)	NA	rat	NA; inhibition of brain AChase (also see Table B)	ND	4E-3[a]	NA	30	U.S. EPA, 1987/ Chevron Chem. Co., 1989; U.S. EPA, 1984, 1989
Acetone									
subchronic (RfD_S)	NA; 100 mg/kg/day for 90 days by gavage	NA	rat	NA; increased liver and kidney weight, nephrotoxicity	ND	NA	NA	100	U.S. EPA, 1988/ U.S. EPA, 1986, 1988, 1990
chronic (RfD)	NA; 100 mg/kg/day for 90 days by gavage	NA	rat	NA; increased liver and kidney weight, nephrotoxicity	ND	1E-1[a,l]	NA	1000	U.S. EPA, 1988/ U.S. EPA, 1986, 1988, 1990
Acetone cyanohydrin									
subchronic (RfD_S)	10.1 ppm (35.2 mg/m^3) 6 hours/day, 5 days/week for 14 weeks (4.0 mg/kg/day); 10.8 mg CN/kg/day for 104 weeks from diet treated with HCN	rat	rat	CNS signs; body weight, thyroid and CNS effects	1E-1 (4E-2)	7E-2[n]	100	500	Blank and Thake, 1984; U.S. EPA, 1988/Howard and Hanzal, 1955; U.S. EPA, 1985a,b, 1988

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	10.1 ppm (35.2 mg/m^3) 6 hours/day, 5 days/week for 14 weeks (4.0 mg/kg/day); 10.8 mg CN/kg/day for 104 weeks from diet treated with HCN	rat	rat	CNS signs; body weight, thyroid and CNS effects	1E-1 (4E-2)	7E-2[n]	100	500	Blank and Thake, 1984; U.S. EPA, 1988/Howard and Hanzal, 1955; U.S. EPA, 1985a,b, 1988
Acetonitrile									
subchronic (RfD_S)	100 ppm (168 mg/m^3) 6 hours/day, 65/92 days (39.0 mg/kg/day); 100 ppm (168 mg/m^3) 6 hours/day, 65/92 days (19.3 mg/kg/day)	mouse	mouse	elevated relative liver weight; elevated relative liver weight	5E-1 (1E-1)	6E-2	300	300	Coate, 1983; U.S. EPA, 1987/ Coate, 1983; U.S. EPA, 1987, 1990
chronic (RfD)	100 ppm (168 mg/m^3) 6 hours/day, 65/92 days (39.0 mg/kg/day); 100 ppm (168 mg/m^3) 6 hours/day, 65/92 days (19.3 mg/kg/day)	mouse	mouse	decreased RBC counts and hematocrit and hepatic lesions; decreased RBC counts and hematocrit and hepatic lesions	5E-2 (1E-2)	6E-3[b,z]	3000	3000	Coate, 1983; U.S. EPA, 1987/ Coate, 1983; U.S. EPA, 1987, 1990
Acetophenone									
subchronic (RfD_S)	0.007 mg/m^3 continuously for 70 days (0.0045 mg/kg/day); 10,000 ppm diet (8450 ppm, correcting for volatilization) for 17 weeks (423 mg/kg/day)	rat	rat	congestion of cardiac vessels and liver dystrophy, reduced albumin/globulin ratio; none observed	2E-4(5E-5)	1E+0	100	300	Imasheva, 1966; U.S. EPA, 1987/ Hagan et al., 1967; U.S. EPA, 1990
chronic (RfD)	0.007 mg/m^3 continuously for 70 days (0.0045 mg/kg/day); 10,000 ppm diet (8450 ppm, correcting for volatilization) for 17 weeks (423 mg/kg/day)	rat	rat	congestion of cardiac vessels and liver dystrophy, reduced albumin/globulin ratio; none observed	2E-5(5E-6)	1E-1[a]	1000	3000	Imasheva, 1966; U.S. EPA, 1987/ Hagan et al., 1967; U.S. EPA, 1990
Acrolein									
subchronic (RfD_S)	0.4 ppm, 6 hours/day, 5 days/week for 62 days; NA	rat	NA	pulmonary function and lung composition; NA	1E-3	ND	300	NA	Costa et al., 1986; Kutzman, 1981, 1985; U.S. EPA, 1987/ U.S. EPA, 1987

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	0.4 ppm, 6 hours/day, 5 days/week for 62 days; NA	rat	NA	pulmonary function and lung composition; NA (also see Table B)	1E-4[j]	ND	3000	NA	Costa et al., 1986; Kutzman, 1981, 1985; U.S. EPA, 1987, 1989/U.S. EPA, 1987
Acrylamide									
subchronic (RfD_S)	NA; 0.2 mg/kg/day in the drinking water for 90 days	NA	rat	NA; nerve damage	ND	2E-3	NA	100	U.S. EPA, 1990/ Burek et al., 1980; U.S. EPA, 1985; U.S. EPA, 1990
chronic (RfD)	NA; 0.2 mg/kg/day in the drinking water for 90 days	NA	rat	NA; nerve damage (also see Table B)	ND	2E-4[a]	NA	1000	U.S. EPA, 1990/ Burek et al., 1980; U.S. EPA, 1985; U.S. EPA, 1990
Acrylic acid									
subchronic (RfD_S)	NA; 83 mg/kg/day in the water for 3 months	NA	rat	NA; reduced body weight, altered organ weights	ND	8E-1	NA	100	U.S. EPA, 1984/ DePass et al., U.S. EPA, 1984, 1990
chronic (RfD)	NA; 83 mg/kg/day in the water for 3 months	NA	rat	NA; reduced body weight, altered organ weights	ND	8E-2[a]	NA	1000	U.S. EPA, 1984/ DePass et al., U.S. EPA, 1984, 1990
Adiponitrile			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987
Alachlor									
subchronic (RfD_S)	NA; 1 mg/kg/day by gavage for 1 year	NA	dog	NA; hemolytic anemia, hemosiderosis (also see Table B)	ND	1E-2	NA	100	U.S. EPA, 1990/ Monsanto Company, 1984; U.S. EPA, 1984; U.S. EPA, 1990
chronic (RfD)	NA; 1 mg/kg/day by gavage for 1 year	NA	dog	NA; hemolytic anemia, hemosiderosis	ND	1E-2[a]	NA	100	U.S. EPA, 1990/ Monsanto Company, 1984; U.S. EPA, 1984; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Aldicarb									
subchronic (RfD_S)	NA; 0.25 mg/kg/day of aldicarb sulfoxide in diet for 3-6 months	NA	rat	NA; cholinesterase inhibition	ND	1.3E-3	NA	100	NA/Weil and Carpenter, 1968; U.S. EPA, 1990
chronic (RfD)	NA; 0.25 mg/kg/day of aldicarb sulfoxide in diet for 3-6 months	NA	rat	NA; cholinesterase inhibition	ND	1.3E-3[z]	NA	100	NA/Weil and Carpenter, 1968; U.S. EPA, 1990
Aldrin									
subchronic (RfD_S)	NA; 0.5 ppm in diet for 2 years (0.025 mg/kg/day)	NA	rat	NA; liver lesions	ND	3E-5	NA	1000	NA/Fitzhugh, et al., 1964; U.S. EPA, 1990, 1987
chronic (RfD)	NA; 0.5 ppm in diet for 2 years (0.025 mg/kg/day)	NA	rat	NA; liver lesions (also see Table B)	ND	3E-5[a]	NA	1000	NA/Fitzhugh et al., 1964; U.S. EPA, 1990, 1987
Allidochlor	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Allyl alcohol									
subchronic (RfD_S)	NA; 50 ppm in the drinking water for 15 weeks (4.8 mg/kg/day)	NA	rat	NA; liver and kidney	ND	5E-2	NA	100	U.S. EPA, 1985, 1990/ Carpamini et al., 1978; U.S. EPA, 1985, 1990
chronic (RfD)	NA; 50 ppm in the drinking water for 15 weeks (4.8 mg/kg/day)	NA	rat	NA; liver and kidney	ND	5E-3[a]	NA	1000	U.S. EPA, 1985, 1990/ Carpamini et al., 1978; U.S. EPA, 1985, 1990
Allyl chloride (3-chloropropene)									
subchronic (RfD_S)	occupational; NA	human	NA	liver; NA	ND	2E-3[b]	NA	100	U.S. EPA, 1983/ ACGIH, 1980; U.S. EPA, 1983
chronic (RfD)	occupational; NA	human	NA	liver; NA (also see Table B)	ND	2E-3[b]	NA	100	U.S. EPA, 1983/ ACGIH, 1980; U.S. EPA, 1983

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Aluminum	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987
Aluminum phosphide									
subchronic (RfD_S)	NA; 0.51 mg phosphine/kg fumigated chow for 2 years (0.25 mg phosphine/kg/day) (0.043 mg aluminum phosphine/kg/day)	NA	rat	NA; body weight and clinical parameters	NA	4E-4	NA	100	NA/Hackenburg 1972; U.S. EPA, 1990
chronic (RfD)	NA; 0.51 mg phosphine/kg fumigated chow for 2 years (0.25 mg phosphine/kg/day) (0.043 mg aluminum phosphine/kg/day)	NA	rat	NA; body weight and clinical parameters	NA	4E-4[a]	NA	100	NA/Hackenburg 1972; U.S. EPA, 1990
Ametryn									
subchronic (RfD_S)	NA; 10 mg/kg/day, 6 days/week for 13 weeks by gavage	NA	rat	NA; liver	ND	9E-2	NA	100	U.S. EPA, 1990/ Ciba-Geigy, 1961; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 10 mg/kg/day, 6 days/week for 13 weeks by gavage	NA	rat	NA; liver	ND	9E-3[a]	NA	1000	U.S. EPA, 1990/ Ciba-Geigy, 1961; U.S. EPA, 1984, 1990
1-Amino-2-naphtol and 1-Amino-2-naphtol hydrochloride	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1986
m-Aminophenol									
subchronic (RfD_S)	NA; 1300 ppm in the diet for 13 weeks (65 mg/kg/day)	NA	rat	NA; thyroid and body weight	ND	7E-1	NA	100	NA/Re et al., 1984; U.S. EPA, 1985
chronic (RfD)	NA; 1300 ppm in the diet for 13 weeks (65 mg/kg/day)	NA	rat	NA; thyroid and body weight	ND	7E-2	NA	1000	NA/Re et al., 1984; U.S. EPA, 1985
o-Aminophenol	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
p-Aminophenol	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
4-Aminopyridine									
subchronic (RfD_S)	NA; 3 ppm in diet for 90 days (0.15 mg/kg/day)	NA	rat	NA; increased liver (males) and brain weight (females)	ND	2E-4	NA	1000	U.S. EPA, 1989/ Kohn, 1968; U.S. EPA, 1980, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 3 ppm in diet for 90 days (0.15 mg/kg/day)	NA	rat	NA; increased liver (males) and brain weight (females)	ND	2E-5[g]	NA	10,000	U.S. EPA, 1989/ Kohn, 1968; U.S. EPA, 1980, 1989
Ammonia									
subchronic (RfD_S)	0.36 mg/m^3 continuous; 9934 mg/ℓ in drinking water	human	human	odor threshold; taste threshold	0.36[c]	34 mg/ℓ in drinking water[d]	none	none	Carson et al., 1981; U.S. EPA, 1987/Campbell et al., 1958; U.S. EPA, 1981, 1987; WHO, 1986
chronic (RfD)	0.36 mg/m^3 continuous; 34 mg/ℓ in drinking water	human	human	odor threshold; taste threshold	0.36[c,g]	34 mg/ℓ in drinking water[d]	none	none	Carson et al., 1981; U.S. EPA, 1987/Campbell et al., 1958; U.S. EPA, 1981, 1987; WHO, 1986
Anthracene									
subchronic (RfD_S)	NA; 1000 mg/kg/day by gavage for 90 days	NA	mouse	NA; No effects	ND	3E+0	NA	300	U.S. EPA, 1987/ U.S. EPA, 1989
chronic (RfD_S)	NA; 1000 mg/kg/day by gavage for 90 days	NA	mouse	NA; No effects	ND	3E-1[j,l]	NA	3000	U.S. EPA, 1987/ U.S. EPA, 1989
Antimony									
subchronic (RfD_S)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1990
chronic (RfD)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4[a]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1985, 1990
Antimony pentoxide									
subchronic (RfD_S)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Bs/kg/day, 0.46 mg Sb_2O_5 kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	5E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.46 mg Sb_2O_5 kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	5E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1985, 1987, 1990
Antimony potassium tartrate									
subchronic (RfD_S)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.93 mg SbK tartrate/ kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	9E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1990
chronic (RfD)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.93 mg SbK tartrate/ kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	9E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1987, 1990
Antimony tetroxide									
subchronic (RfD_S)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.44 mg Sb_2O_4/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1990
chronic (RfD)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.44 mg Sb_2O_4/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1985, 1987, 1990
Antimony trioxide									
subchronic (RfD_S)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.42 mg Sb_2O_3/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 5 ppm Sb from antimony potassium tartrate in drinking water, lifetime (0.35 mg Sb/kg/day, 0.42 mg Sb_2O_3/kg/day)	NA	rat	cancer; reduced lifespan, altered blood chemistries	ND[e]	4E-4[f]	NA	1000	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1985, 1987, 1990
Aramite									
subchronic (RfD_S)	NA; 500 ppm in diet for 52 weeks (12.5 mg/kg/day)	NA	dog	NA; degenerative liver effect	ND	1E-1	NA	100	U.S. EPA, 1989/ Oser and Oser, 1960
chronic (RfD)	NA; 100 ppm in diet for 104 weeks (5 mg/kg/day)	NA	rat	NA; increased liver weight (also see Table B)	ND	5E-2[g]	NA	100	U.S. EPA, 1989/ Popper et al., 1960; Oser and Oser, 1962
Arsenic									
subchronic (RfD_S)	NA; 1 µg/kg/day	NA	human	NA; keratosis and hyperpigmentation	ND	1E-3	NA	1	U.S. EPA, 1984/ Tseng, 1977
chronic (RfD)	NA; 1 µg/kg/day	NA	human	cancer; keratosis and hyperpigmentation (also see Table B)	ND	1E-3[g]	NA	1	U.S. EPA, 1984/ Tseng, 1977
Atrazine									
subchronic (RfD_S)	NA; 10 ppm in the diet, 2-generation study (0.5 mg/kg/day)	NA	rat	NA; decreased body weight of pups	ND	5E-3	NA	100	U.S. EPA, 1990/ Ciba-Geigy, 1987; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 10 ppm in the diet, 2-generation study (0.5 mg/kg/day)	NA	rat	NA; decreased body weight of pups	ND	5E-3[a]	NA	100	U.S. EPA, 1990/ Ciba-Geigy, 1987; U.S. EPA, 1984, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Barium									
subchronic (RfD_s)	1.15 mg $BaCO_3/m^3$ (0.80 mg Ba/m^3) 4 hours/day for 4 months (0.14 mg Ba/kg/day); 100 ppm Ba from $BaCl_2$ (5.1 mg Ba/kg/day) in drinking water for ≤16 months	rat	rat	fetotoxicity; increased blood pressure	5E-3 (1E-3)[bb]	5E-2	100	100	Tarasenko et al., 1977; U.S. EPA, 1984/ Perry et al., 1983; U.S. EPA, 1990
chronic (RfD)	1.15 mg $BaCO_3/m^3$ (0.80 mg/Ba/m^3) 4 hours/day for 4 months (0.14 mg Ba/kg/day); 100 ppm Ba from $BaCl_2$ (5.1 mg Ba/kg/day) in drinking water for ≤16 months	rat	rat	fetotoxicity; increased blood pressure	5E-4 (1E-4)[bb]	5E-2[ff]	1000	100	Tarasenko et al., 1977; U.S. EPA, 1984/ Perry et al., 1983; U.S. EPA, 1984, 1985, 1990
Barium cyanide									
subchronic (RfD_s)	NA; 10 ppm barium in drinking water for up to 16 months, equivalent to barium cyanide at 7 mg/kg/day	NA	rat	NA; hypertension	ND	7E-2	NA	100	NA/Perry et al., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 10 ppm barium in drinking water for up to 16 months, equivalent to barium cyanide at 7 mg/kg/day	NA	rat	NA; hypertension	ND	7E-2[z]	NA	100	NA/Perry et al., 1983; U.S. EPA, 1990
Benefin									
subchronic (RfD_s)	NA; 25 mg/kg/day in the diet for 1 year	NA	dog	NA; hematological effects	ND	3E-1	NA	100	U.S. EPA, 1990/ Eli Lilly Co., 1972; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 25 mg/kg/day in the diet for 1 year	NA	dog	NA; hematological effects	ND	3E-1[a]	NA	100	U.S. EPA, 1990/ Eli Lilly Co., 1972; U.S. EPA, 1984, 1990
Benzal chloride	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Benzaldehyde									
subchronic (RfD_S)	NA; 200 mg/kg/day by gavage 5 days/week for 13 weeks	NA	rat	NA; kidney, forestomach	ND	1E+0	NA	100	U.S. EPA, 1990/ Kluwe et al., 1983; U.S. EPA, 1985, 1990
chronic (RfD)	NA; 200 mg/kg/day by gavage 5 days/week for 13 weeks	NA	rat	NA; kidney, forestomach	ND	1E-1[a]	NA	1000	U.S. EPA, 1990/ Kluwe et al., 1983; U.S. EPA, 1985, 1990
Benzaldehyde cyanohydrin	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1988
Benzidine									
subchronic (RfD_S)	NA; 160 ppm benzidine dihydrochloride in drinking water for 33 months (27.2 mg/kg/day)	NA	mouse	NA; brain cell and liver cell changes	ND	3E-3	NA	1000	U.S. EPA, 1987/ Littlefield et al., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 160 ppm benzidine dihydrochloride in drinking water for 33 months (27.2 mg/kg/day)	NA	mouse	NA; brain cell and liver cell changes (also see Table B)	ND	3E-3[a]	NA	1000	U.S. EPA, 1987/ Littlefield et al., 1983; U.S. EPA, 1990
Benzoic acid									
subchronic (RfD_S)	NA; per capita daily dietary intake of benzoic acid equivalent to 312 mg/day	NA	human	NA; irritation, malaise	ND	4E+0	NA	1	U.S. EPA, 1987/ FASEB, 1973; U.S. EPA, 1987
chronic (RfD)	NA; per capita daily dietary intake of benzoic acid equivalent to 312 mg/day	NA	human	NA; irritation, malaise	ND	4E+0[a]	NA	1	U.S. EPA, 1987/ FASEB, 1973; U.S. EPA, 1987, 1990
Benzyl Alcohol									
subchronic (RfD_S)	NA; 200 mg/kg by gavage 5 days/week for 13 weeks (143 mg/kg/day)	NA	rat	NA; decrease in body weight	ND	1E+0	NA	1000	U.S. EPA, 1989/ NTP, 1988; U.S. EPA, 1989
chronic (RfD)	NA; 400 mg/kg by gavage 5 days/week for 103 weeks (286 mg/kg/day)	NA	rat	NA; hyperplasia of the epithelium of the forestomach	ND	3E-1	NA	1000	U.S. EPA, 1989/ NTP, 1988; U.S. EPA, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Beryllium									
subchronic (RfD_S)	NA; 5 ppm in drinking water for lifetime (0.54 mg/kg/day)	NA	rat	NA; none observed	ND	5E-3	NA	100	U.S. EPA, 1987/ Schroeder and Mitchener, 1975; U.S. EPA, 1990
chronic (RfD)	NA; 5 ppm in drinking water for lifetime (0.54 mg/kg/day)	NA	rat	NA; none observed (also see Table B)	ND	5E-3[a]	NA	100	U.S. EPA, 1987/ Schroeder and Mitchener, 1975; U.S. EPA, 1990
1,1'-Biphenyl									
subchronic (RfD_S)	NA; 0.1% in the diet for 700 days (50 mg/kg/day)	NA	rat	NA; kidney damage	ND	5E-2	NA	1000	NA/Ambrose et al., 1960; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.1% in the diet for 700 days (50 mg/kg/day)	NA	rat	NA; kidney damage	ND	5E-2[a]	NA	1000	NA/Ambrose et al., 1960; U.S. EPA, 1984, 1990
Bis(2-chloroisopropyl) ether									
subchronic (RfD_S)	NA; 400 ppm in diet for up to 104 weeks (35.8 mg/kg/day)	NA	mouse	NA; decrease in hemoglobin and possible erythrocyte destruction	ND	4E-2	NA	1000	NA/Mitsumori et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 400 ppm in diet for up to 104 weeks (35.8 mg/kg/day)	NA	mouse	NA; decrease in hemoglobin and possible erythrocyte destruction	ND	4E-2[a]	NA	1000	NA/Mitsumori et al., 1979; U.S. EPA, 1990
Bis(2-ethylhexyl) phthalate									
subchronic (RfD_S)	NA; 0.04% of diet for 1 year (19 mg/kg/day)	NA	guinea pig	NA; increased relative liver weight	ND	2E-2	NA	1000	U.S. EPA, 1987/ Carpenter et al., 1953; U.S. EPA, 1990
chronic (RfD)	NA; 0.04% of diet for 1 year (19 mg/kg/day)	NA	guinea pig	NA; increased relative liver weight (also see Table B)	ND	2E-2[a]	NA	1000	U.S. EPA, 1987/ Carpenter et al., 1953; U.S. EPA, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
Bisphenol A									
subchronic (RfD_S)	NA; 0-1000 ppm for 18 weeks, 2 generations (NOAEL 750 ppm = 62 mg/kg/day)	NA	rat	NA; reduced body weight	ND	6E-1	NA	100	U.S. EPA, 1988/ U.S. EPA, 1984, 1988, 1990
chronic (RfD)	NA; 0, 1000, 2000 ppm (1000 ppm = 50 mg/kg/day)	NA	rat	NA; reduced body weight	ND	5E-2[a]	NA	1,000	U.S. EPA, 1988a/ NTP, 1982; U.S. EPA, 1988, 1990
Boron									
subchronic (RfD_S)	NA; 350 ppm in diet (8.75 mg/kg/day) for 2 years	NA	dog	NA; testicular lesions	ND	9E-2	NA	100	U.S. EPA, 1987/ Weir and Fisher, 1972; U.S. EPA, 1987
chronic (RfD)	NA; 350 ppm in diet (8.75 mg/kg/day) for 2 years	NA	dog	NA; testicular lesions	ND	9E-2[a]	NA	100	U.S. EPA, 1987/ Weir and Fisher, 1972; U.S. EPA, 1987
Brominated dibenzo-p-dioxins and dibenzofurans				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985a,b, 1986
Bromoacetone				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1986
Bromochloroethane				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985
Bromodichloromethane									
subchronic (RfD_S)	NA; 25 mg/day by gavage 5 days/week for 102 weeks (17.9 mg/kg/day)	NA	mouse	NA; renal cytomegaly	ND	2E-2	NA	1000	U.S. EPA, 1987/ NTP, 1986/ U.S. EPA, 1990
chronic (RfD)	NA; 25 mg/day by gavage 5 days/week for 102 weeks (17.9 mg/kg/day)	NA	mouse	NA, renal cytomegaly (also see Table B)	ND	2E-2[a]	NA	1000	U.S. EPA, 1987/ NTP, 1986; U.S. EPA, 1990
Bromoform									
subchronic (RfD_S)	NA; 25 mg/kg by gavage 5 days/week for 13 weeks (17.9 mg/kg/day)	NA	rat	NA; liver effects	ND	2E-1	NA	100	U.S. EPA, 1987/ NTP, 1988; U.S. EPA, 1989, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	NA; 25 mg/kg by gavage 5 days/week for 13 weeks (17.9 mg/kg/day)	NA	rat	NA; liver effects (also see Table B)	ND	2E-2[a]	NA	1000	U.S. EPA, 1987/ NTP, 1988; U.S. EPA, 1989, 1990
Bromomethane									
subchronic (RfD_S)	26.6 ppm (103 mg/m^3) 7.5 hours/day, 4 days/ week for 8 months (HEC= 18 mg/m^3); 2 mg/kg 5 days/week for 13 weeks (1.4 mg/kg/day)	rabbit	rat	neurotoxicity; hyperplasia of forestomach epithelium	6E-2	1.4E-2	300	100	Russo et al., 1984/Danse et al., 1984; U.S. EPA, 1987
chronic (RfD)	26.6 ppm (103 mg/m^3) 7.5 hours/day, 4 days/ week for 8 months (HEC= 18 mg/m^3); 2 mg/kg 5 days/week for 13 weeks (1.4 mg/kg/day)	rabbit	rat	neurotoxicity; hyperplasia of forestomach epithelium	6E-3[j]	1.4E-3[a,l]	3000	1000	Russo et al., 1984/Danse et al., 1984; U.S. EPA, 1986, 1987, 1990
4-Bromophenyl phenyl ether				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1986
Bromophos									
subchronic (RfD_S)	NA; 5 mg/kg/day in the diet for 3 generations	NA	rat	NA; depression of plasma and liver cholin- esterase	ND	5E-2	NA	100	U.S. EPA, 1986/ Leuschner et al., 1967; U.S. EPA, 1986
chronic (RfD)	NA; 5 mg/kg/day in the diet for 3 generations	NA	rat	NA; depression of plasma and liver cholin- esterase (also see Table B)	ND	5E-3	NA	1000	U.S. EPA, 1986/ Leuschner et al., 1967; U.S. EPA, 1986
Bromoxynil									
subchronic (RfD_S)	NA; 100 ppm in the diet for 2 years (5 mg/kg/ day)	NA	rat	NA; no adverse effects	ND	2E-2	NA	300	U.S. EPA, 1990/ Union Carbide, 1982; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 100 ppm in the diet for 2 years (5 mg/kg/ day)	NA	rat	NA; no adverse effects	ND	2E-2[a]	NA	300	U.S. EPA, 1990/ Union Carbide, 1982; U.S. EPA, 1984, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
Bromoxynil octanoate									
subchronic (RfD_S)	NA; 100 ppm in the diet for 2 years (5 mg/kg/day)	NA	rat	NA; no adverse effects	ND	2E-2	NA	300	U.S. EPA, 1990/ Union Carbide, 1982; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 100 ppm in the diet for 2 years (5 mg/kg/day)	NA	rat	NA; no adverse effects	ND	2E-2[a]	NA	300	U.S. EPA, 1990/ Union Carbide, 1982; U.S. EPA, 1984, 1990
Busan 77		DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT							U.S. EPA, 1984
Busan 90		DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT							U.S. EPA, 1984
1-Butanol (n-Butanol)									
Subchronic (RfD_S)	NA; 125 mg/kg/day by gavage for 13 weeks	NA	rat	NA; effects on erythrocyte	ND	1E+0	ND	100	U.S. EPA, 1989/ U.S. EPA, 1986, 1989, 1990
chronic (RfD)	NA; 125 mg/kg/day by gavage for 13 weeks	NA	rat	NA; effects on erythrocyte	ND	1E-1[a]	ND	1000	U.S. EPA, 1989/ U.S. EPA, 1986, 1989, 1990
Butylate									
subchronic (RfD_S)	NA; 5 mg/kg/day by gavage for 12 months	NA	dog	NA; liver effects	ND	5E-2	NA	100	U.S. EPA, 1984/ Stauffer Chem. Co., 1987; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 5 mg/kg/day by gavage for 12 months	NA	dog	NA; liver effects	ND	5E-2[a]	NA	100	U.S. EPA, 1984/ Stauffer Chem. Co., 1987; U.S. EPA, 1984, 1989, 1990
Butyl benzyl phthalate									
subchronic (RfD_S)	NA; 0.28% of diet for 26 weeks (159 mg/kg/day)	NA	rat	NA; effects on body weight gain, testes, liver, kidney	ND	2E+0	NA	100	U.S. EPA, 1987, 1989/NTP, 1985; U.S. EPA, 1986, 1987, 1989, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA; 0.28% of diet for 26 weeks (159 mg/kg/day)	NA	rat	NA; effects on body weight gain, testes, liver, kidney (also see Table B)	ND	2E-1[a]	NA	1000	U.S. EPA, 1987, 1989/NTP, 1985; U.S. EPA, 1986, 1987, 1989, 1990
t-Butylchloride	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[l]								U.S. EPA, 1988/ U.S. EPA, 1988
Butyrolactone, gamma	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984/ U.S. EPA, 1984/
Cacodylic acid									
subchronic (RfD_S)	NA; 184 mg/kg cacodylic acid in diet for 90 days (9.2 mg/kg/day)	NA	rat	NA; none	ND	3E-2[cc]	NA	300	U.S. EPA, 1989/ Nees, 1968; U.S. EPA, 1989
chronic (RfD)	NA; 184 mg/kg cacodylic acid in diet for 90 days (9.2 mg/kg/day)	NA	rat	NA; none	ND	3E-3[g,cc]	NA	3000	U.S. EPA, 1989/ Nees, 1968; U.S. EPA, 1989
Cadmium									
subchronic (RfD_S)	NA; NA	NA	NA	cancer; NA	ND	ND[h]	NA	NA	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; NA	NA	human	cancer (see Table B); renal damage	ND	1E-3 (food)[a,i] 5E-4 (water)	NA	10	U.S. EPA, 1984/ U.S. EPA, 1988, 1990
Calcium cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (19.1 mg calcium cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	NA	4E-2[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (19.1 mg calcium cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	4E-2[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Caprolactam									
subchronic (RfD_S)	NA; 0.1% diet 90 days (50 mg/kg/day)	NA	rat	NA; renal effects	ND	5E-1	NA	100	U.S. EPA, 1988/ Powers et al., 1984; U.S. EPA, 1988

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 1000 ppm for 3 generations (50 mg/kg/day)	NA	rat	NA; reduced body weight	ND	5E-1[a]	NA	100	U.S. EPA, 1988a/ Serota et al., 1984; U.S. EPA, 1988, 1990
Captafol									
subchronic (RfD_S)	NA; 2 mg/kg/day in capsules for 12 months	NA	dog	NA; kidney and bladder effects	ND	2E-3	NA	1000	U.S. EPA, 1990/ Ortho-Chevron Chemical Co., 1985; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 2 mg/kg/day in capsules for 12 months	NA	dog	NA; kidney and bladder effects (also see Table B)	ND	2E-3[a]	NA	1000	U.S. EPA, 1990/ Ortho-Chevron Chemical Co., 1985; U.S. EPA, 1984, 1990
Captan									
subchronic (RfD_S)	NA; 12.5 mg/kg/day in the diet (multi-generation)	NA	rat	NA; decreased body weight	ND	1E-1	NA	100	U.S. EPA, 1990/ Stauffer Chem. Co., 1982; Chevron Chem. Co., 1982; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 12.5 mg/kg/day in the diet (multi-generation)	NA	rat	NA; decreased body weight	ND	1E-1[a]	NA	100	U.S. EPA, 1990/ Stauffer Chem. Co., 1982; Chevron Chem. Co., 1982; U.S. EPA, 1984, 1990
Carbaryl									
subchronic (RfD_S)	NA; 200 ppm in the diet for 2 years (9.6 mg/kg/day)	NA	rat	NA; kidney and and liver toxicity	ND	1E-1	NA	100	U.S. EPA, 1990/ Carpenter et al., 1961; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 200 ppm in the diet for 2 years (9.6 mg/kg/day)	NA	rat	NA; kidney and and liver toxicity	ND	1E-1[a]	NA	100	U.S. EPA, 1990/ Carpenter et al., 1961; U.S. EPA, 1984, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
Carbofuran									
subchronic (RfD_S)	NA; 0.5 mg/kg/day in the diet for 1 year	NA	dog	NA; hematological, testicular and uterine effects	ND	5E-3	NA	100	U.S. EPA, 1990/ FMC Corp., 1983; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.5 mg/kg/day in the diet for 1 year	NA	dog	NA; hematological, testicular and uterine effects	ND	5E-3[a]	NA	100	U.S. EPA, 1990/ FMC Corp., 1983; U.S. EPA, 1984, 1990
Carbon disulfide									
subchronic (RfD_S)	NA; 20 ppm (62.3 mg/m^3) inhalation 6 hours/day during pregnancy and before breeding (1.6 m^3/day breathing rate and 0.5 absorption factor used to calculate dose of 11.0 mg/kg/day)	NA	rabbit	NA; fetal toxicity; malformation	ND	1E-1	NA	100	NA/Hardin et al., 1981; U.S. EPA, 1990
chronic (RfD)	NA; 20 ppm (62.3 mg/m^3) inhalation 6 hours/day during pregnancy and before breeding (1.6 m^3/day breathing rate and 0.5 absorption factor used to calculate dose of 11.0 mg/kg/day)	NA	rabbit	NA; fetal toxicity; malformation	1E-2[j]	1E-1[b,z]	NA	100	NA/Hardin et al., 1981; U.S. EPA, 1990
Carbon tetrachloride									
subchronic (RfD_S)	NA; 1 mg/day, 5 days/ week for 12 weeks (0.71 mg/kg/day)	NA	rat	NA; liver lesions	ND	7E-3	NA	100	U.S. EPA, 1984/ Bruckner et al., 1986; U.S. EPA, 1990
chronic (RfD)	NA; 1 mg/day, 5 days/ week for 12 weeks (0.71 mg/kg/day)	NA	rat	NA; liver lesions (also see Table B)	ND	7E-4[a]	NA	1000	U.S. EPA, 1984/ Bruckner et al., 1986; U.S. EPA, 1990
Chloral									
subchronic (RfD_S)	NA; 15.7 mg/kg/day from drinking water	NA	mouse	NA; hepatotoxicity	ND	2E-2	NA	1000	U.S. EPA, 1988/ Sanders et al., 1982; U.S. EPA, 1988

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 15.7 mg/kg/day from drinking water	NA	mouse	NA; hepatotoxicity (also see Table B)	ND	2E-3[a]	NA	10,000	U.S. EPA, 1988/ Sanders et al., 1982; U.S. EPA, 1988, 1990
Chlordane									
subchronic (RfD_S)	NA; 1 ppm in diet for 130 weeks (0.045 mg/kg/day)	NA	rat	NA; liver necrosis	ND	6E-5	NA	1000	U.S. EPA, 1988/ Velsicol Chemical Corp., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 1 ppm in diet for 130 weeks (0.045 mg/kg/day)	NA	rat	NA; liver necrosis (also see Table B)	ND	6E-5[a]	NA	1000	U.S. EPA, 1988/ Velsicol Chemical Corp., 1983; U.S. EPA, 1990
Chlorine cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (25.3 mg chlorine cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	5E-2	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (25.3 mg chlorine cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	5E-2[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Chloroacetaldehyde			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[q]						U.S. EPA, 1988
Chloroacetic acid									
subchronic (RfD_S)	NA; 30 mg/kg, 5 days/ week for 13 weeks (21.4 mg/kg/day)	NA	rat	NA; myocarditis	ND	2E-2	NA	1000	U.S. EPA, 1988/ IRDC, 1982; U.S. EPA, 1988
chronic (RfD)	NA; 30 mg/kg, 5 days/ week for 13 weeks (21.4 mg/kg/day)	NA	rat	NA; myocarditis	ND	2E-3	NA	10,000	U.S. EPA, 1988/ IRDC, 1982; U.S. EPA, 1988
2-Chloroaniline			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (SEE TABLE B)						U.S. EPA, 1987
3-Chloroaniline			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (SEE TABLE B)						U.S. EPA, 1987

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
4-Chloroaniline (p-Chloroaniline)									
subchronic (RfD_S)	NA; 250 ppm in diet for 78 weeks (12.5 mg/kg/day)	NA	rat	NA; proliferative lesions of the spleen	ND	4E-3	NA	3000	U.S. EPA, 1987/ NCI, 1979; U.S. EPA, 1990
chronic (RfD)	NA; 250 ppm in diet for 78 weeks (12.5 mg/kg/day)	NA	rat	NA; proliferative lesions of the spleen (also see Table B)	ND	4E-3[a]	NA	3000	U.S. EPA, 1987/ NCI, 1979; U.S. EPA, 1990
Chlorobenzene									
subchronic (RfD_S)	75 ppm (345 mg/m^3) 7 hours/day, 5 days/ week for 120 days (53 mg/kg/day); 27.3 mg/kg/day by capsule for 90 days	rat	dog	liver and kidney effects; liver and kidney effects	2E-1 (5E-2)	2E-1	1000	100	Dilley, 1977; U.S. EPA, 1984/ Monsanto, 1967; U.S. EPA, 1985, 1989, 1990
chronic (RfD)	75 ppm (345 mg/m^3) 7 hours/day, 5 days/ week for 120 days (53 mg/kg/day); 27.3 mg/kg/day by capsule for 90 days	rat	dog	liver and kidney effects; liver and kidney effects (also see Table B)	2E-2 (5E-3)	2E-2[a]	10,000	1000	Dilley, 1977; U.S. EPA, 1984/ Monsanto, 1967; U.S. EPA, 1985, 1989, 1990
Chlorobenzilate									
subchronic (RfD_S)	NA; 5 mg/kg/day in starch suspension by gastric intubation for 13 days during gestation period	NA	rabbit	NA; decreased stool quantity, food consumption and weight gain; hyperirritability	ND	2E-2	NA	300	NA/Ciba-Geigy Corp., 1984a; U.S. EPA, 1990
chronic (RfD)	NA; 5 mg/kg/day in starch suspension by gastric intubation for 13 days during gestation period	NA	rabbit	NA; decreased stool quantity, food consumption and weight gain; hyperirritability	ND	2E-2[a]	NA	300	NA/Ciba-Geigy Corp., 1984a; U.S. EPA, 1990
p-Chlorobenzoic acid									
subchronic (RfD_S)	NA; 0.2% in diet for 5 months (173.3 mg/kg/day)	NA	rat	NA; none observed	ND	2E+0	NA	100	U.S. EPA, 1987/ Kieckebusch et al., 1960; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 0.2% in diet for 5 months (173.3 mg/kg/day)	NA	rat	NA; none observed	ND	2E-1	NA	1000	U.S. EPA, 1987/ Kieckebusch et al., 1960; U.S. EPA, 1987
4-Chlorobenzotrifluoride									
subchronic (RfD$_S$)	NA; 15 mg/kg/day by gavage daily for 90 days	NA	rat	NA; renal tubular degeneration	ND	2E-1	NA	100	U.S. EPA, 1988/ Hooker Chemical Co., 1981; U.S. EPA, 1988
chronic (RfD)	NA; 15 mg/kg/day by gavage daily for 90 days	NA	rat	NA; renal tubular degeneration	ND	2E-2	NA	1000	U.S. EPA, 1988/ Hooker Chemical Co., 1981; U.S. EPA, 1988
2-Chloro-1,3-butadiene (Chloroprene)									
subchronic (RfD$_S$)	10 ppm, 6 hours/day, 5 days/week for 2 years (36 mg/m^3); NA	rat	NA	alopecia, retarded growth; NA	1E-1(4E-2)	2E-2[b,q]	100	NA	Du Pont, 1985; U.S. EPA, 1989/ U.S. EPA, 1989
chronic (RfD)	10 ppm, 6 hours/day, 5 days/week for 2 years (36 mg/m^3); NA	rat	NA	alopecia, retarded growth; NA	1E-1(4E-2)	2E-2[b,q]	100	NA	Du Pont, 1985; U.S. EPA, 1989/ U.S. EPA, 1989
1-Chlorobutane									
subchronic (RfD$_S$)	NA; 120 mg/kg, 5 days/ week for 13 weeks by gavage (86 mg/kg/day)	NA	rat	NA; CNS and hematopoietic effects	ND	9E-1	NA	100	U.S. EPA, 1988/ NTP, 1986; U.S. EPA, 1988
chronic (RfD)	NA; 60 mg/kg, 5 days/ week for 103 weeks by gavage (43 mg/kg/day)	NA	rat	NA; mortality, CNS and hemato-logic effects	ND	4E-1[l]	NA	100	U.S. EPA, 1988/ NTP, 1986; U.S. EPA, 1988
2-Chlorobutane			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[l]						U.S. EPA, 1988/ U.S. EPA, 1988
Chlorocyclopentadiene			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[l]						U.S. EPA, 1988
Chlorodibromomethane (see Dibromochloromethane)									
p-Chloro-m-cresol									
subchronic (RfD$_S$)	NA; 200 mg/kg/day for 28 days	NA	rat	NA; decrease in weight gain	ND	2E+0	NA	100	U.S. EPA, 1988/ Madsen et al., 1986; U.S. EPA, 1988

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; NA	NA	NA	NA; NA	ND	ND	NA	NA	U.S. EPA, 1988/ U.S. EPA, 1988
Chloroform									
subchronic (RfD_S)	NA; 15 mg/kg, 6 days/ week for 7.5 years (12.9 mg/kg/day)	NA	dog	NA; liver lesions	ND	1E-2	NA	1000	U.S. EPA, 1988/ Heywood et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 15 mg/kg, 6 days/ week for 7.5 years (12.9 mg/kg/day)	NA	dog	NA; liver lesions (also see Table B)	ND	1E-2[a]	NA	1000	U.S. EPA, 1988/ Heywood et al., 1979; U.S. EPA, 1990
m-Chloronitrobenzene			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1985
Chlorophenol, 3- and 4-			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987
2-Chlorophenol									
subchronic (RfD_S)	NA; 50 ppm in drinking water from weaning through birth of first litter (5 mg/kg/day)	NA	rat	NA; reproductive effects	ND	5E-3	NA	1000	U.S. EPA, 1987a,b/Exon and Koeller, 1982; U.S. EPA, 1987a,b, 1990
chronic (RfD)	NA; 50 ppm in drinking water from weaning through birth of first litter (5 mg/kg/day)	NA	rat	NA; reproductive effects	ND	5E-3[a]	NA	1000	U.S. EPA, 1987a,b/Exon and Koeller, 1982; U.S. EPA, 1987a,b, 1990
Chloroprene (see 2-Chloro-1,3-butadiene)									
2-Chloropropane									
subchronic (RfD_S)	250 ppm (803 mg/m^3), 6 hours/day, 5 days/ weeks for 4 weeks (91.4 mg/kg/day); NA	rat	NA	liver effects; NA	3E+0 (9E-1)	ND	100	NA	Gage, 1970; U.S. EPA, 1987/ U.S. EPA, 1987
chronic (RfD)	250 ppm (803 mg/m^3), 6 hours/day, 5 days/ weeks for 4 weeks (91.4 mg/kg/day); NA	rat	NA	liver effects; NA	3E-1 (9E-2)	ND	1000	NA	Gage, 1970; U.S. EPA, 1987/ U.S. EPA, 1987
3-Chloropropene (see Allyl chloride)									

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Chlorotoluenes, m- and p-				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985
o-Chlorotoluene									
subchronic	NA; 20 mg/kg/day by gavage for 103 or 104 days	NA	rat	NA; decreased body weight gain	NA	2E-1	NA	100	U.S. EPA, 1990/ Gibson et al., 1974; U.S. EPA 1990
chronic (RfD)	NA; 20 mg/kg/day by gavage for 103 or 104 days	NA	rat	NA; decreased body weight gain	NA	2E-2[a]	NA	1000	U.S. EPA, 1990/ Gibson et al., 1974; U.S. EPA 1990
Chlorpyrifos									
subchronic (RfD_S)	NA; 0.03 mg/kg/day by capsule for 20 days or 0.1 mg/kg/day for 9 days	NA	human	NA; decreased plasma cholin-esterase	ND	3E-3	NA	10	U.S. EPA, 1990/ Dow Chemical Co., 1972; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.03 mg/kg/day by capsule for 20 days or 0.1 mg/kg/day for 9 days	NA	human	NA; decreased plasma cholin-esterase	ND	3E-3[a]	NA	10	U.S. EPA, 1990/ Dow Chemical Co., 1972; U.S. EPA, 1984, 1990
Chlorpyrifos-methyl									
subchronic (RfD_S)	NA; 3-generation study in rats, 2-year study in dogs	NA	rat, dog	NA; reduced fertility in rats, liver effects in dogs	ND	1E-2	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 3-generation study in rats, 2-year study in dogs	NA	rat, dog	NA; reduced fertility in rats, liver effects in dogs	ND	1E-2[g]	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
Chlorthalonil									
subchronic (RfD_S)	NA; 60 ppm in the diet for 2 years (1.5 mg/kg/day)	NA	dog	NA; kidney lesions	ND	1.5E-2	NA	100	U.S. EPA, 1990/ Diamond Shamrock Chem. Co., 1970; U.S. EPA, 1990
chronic (RfD)	NA; 60 ppm in the diet for 2 years (1.5 mg/kg/day)	NA	dog	NA; kidney lesions (also see Table B)	ND	1.5E-2[a]	NA	100	U.S. EPA, 1990/ Diamond Shamrock Chem. Co., 1970; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Chlorthiophos									
subchronic (RfD_S)	NA; 1.6 ppm in the diet for 2 years (0.08 mg/kg/day)	NA	rat	NA; no effect on erthrocyte cholinesterase	ND	8E-4	NA	100	U.S. EPA, 1986/ Worthing and Walker, 1983; U.S. EPA, 1986
chronic (RfD)	NA; 1.6 ppm in the diet for 2 years (0.08 mg/kg/day)	NA	rat	NA; no effect on erthrocyte cholinesterase	ND	8E-4	NA	100	U.S. EPA, 1986/ Worthing and Walker, 1983; U.S. EPA, 1986
Chromium (III)									
subchronic (RfD_S)	NA; 5% Cr_2O_3 in diet 5 days/week for 90 days (1400 mg Cr/kg/day)	NA	rat	NA; hepatotoxicity	ND	1E+1	NA	100	U.S. EPA, 1984/ Ivankovic and Preussman, 1975; U.S. EPA, 1984
chronic (RfD)	NA; 5% Cr_2O_3 in diet 5 days/week for 600 feedings (1468 mg Cr/kg/day)	NA	rat	NA; hepatotoxicity	ND	1E+0[a]	NA	1000	U.S. EPA, 1984/ Ivankovic and Preussman, 1975; U.S. EPA, 1984, 1990
Chromium (VI)									
subchronic (RfD_S)	NA; 25 ppm Cr VI in drinking water for 1 year (2.4 mg/kg/day)	NA	rat	cancer; not defined	ND	2E-2	NA	100	U.S. EPA, 1984/ MacKenzie et al., 1958; U.S. EPA, 1984
chronic (RfD)	NA; 25 ppm Cr VI in drinking water for 1 year (2.4 mg/kg/day)	NA	rat	cancer (see Table B); not defined	ND	5E-3[a]	NA	500	U.S. EPA, 1984/ MacKenzie et al., 1958; U.S. EPA, 1984, 1990
Chrysene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Copper									
subchronic (RfD_S)	NA; 5.3 mg, single dose	NA	human	NA; local GI irritation	ND	1.3 mg/ℓ[k]	NA	NA	U.S. EPA, 1984/ U.S. EPA, 1987
chronic (RfD)	NA; NA	NA	human	NA; local GI irritation[l]	ND	1.3 mg/ℓ[k]	NA	NA	U.S. EPA, 1984/ U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Copper cyanide subchronic (RfD_S)	NA; 5 mg/kg/day by gavage for 90 days	NA	rat	NA; decreased body and organ weights, histopathologic alterations in liver and kidney	ND	5E-2	NA	100	NA/U.S. EPA, 1986, 1990
chronic (RfD)	NA; 5 mg/kg/day by gavage for 90 days	NA	rat	NA; decreased body and organ weights, histopathologic alterations in liver and kidney	ND	5E-3[a]	NA	1000	NA/U.S. EPA, 1986, 1990
m-Cresol subchronic (RfD_S)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-1	NA	100	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990
chronic (RfD)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-2[a]	NA	1000	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990
o-Cresol subchronic (RfD_S)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-1	NA	100	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-2[a]	NA	1000	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990
p-Cresol									
subchronic (RfD_S)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-1	NA	100	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990
chronic (RfD)	NA; 50 mg/kg/day for 90 days	NA	rat	NA; reduced body weight gain, neurotoxicity	ND	5E-2[a]	NA	1000	U.S. EPA, 1984, 1985/Microbiological Associates, 1986; Toxicity Research Laboratories, 1987; U.S. EPA, 1990
Cumene									
subchronic (RfD_S)	105.1 ppm (517 mg/m^3) for 6 hrs/day, 5 days/wk for 4 weeks; 110 mg/kg/day for 194 days	rat	rat	CNS involvement, nasal irritation; renal	9E-2	4E-1	1000	300	Monsanto Company 1986; U.S. EPA, 1987, 1990/Wolfe, 1956; U.S. EPA, 1990
chronic (RfD)	105.1 ppm (517 mg/m^3) for 6 hrs/day, 5 days/wk for 4 weeks; 110 mg/kg for 194 days	rat	rat	CNS involvement, nasal irritation; renal	9E-3[j]	4E-2[a]	10,000	3000	Monsanto Company 1986; U.S. EPA, 1987, 1990/Wolfe et al., 1956; U.S. EPA, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Cyanazine									
subchronic (RfD_S)	NA; 25 ppm in the diet for 1 year (0.625 g/kg/day)	NA	dog	NA; body weight loss, hematologic and clinical chemistry parameters	ND	2E-3	NA	300	U.S. EPA, 1990/ Shell Chem. Co., 1986; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 25 ppm in the diet for 1 year (0.625 g/kg/day)	NA	dog	NA; body weight loss, hematologic and clinical chemistry parameters	ND	2E-3[a]	NA	300	U.S. EPA, 1990/ Shell Chem. Co., 1986; U.S. EPA, 1984, 1990
Cyanide									
subchronic (RfD_S)	NA; 10.8 mg CN/kg/day for 104 weeks from diet treated with HCN	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	2E-2	NA	500	U.S. EPA, 1984/ Howard and Hanzal, 1955; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 10.8 mg CN/kg/day for 104 weeks from diet treated with HCN	NA	rat	NA; weight loss, thyroid effects and myelin degeneration[l]	ND	2E-2[a]	NA	500	U.S. EPA, 1984/ Howard and Hanzal, 1955; U.S. EPA, 1984, 1990
Cyanogen									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (21.6 mg Cyanogen/kg/day)	NA	rat	NA; weight loss, thyroid effects myelin degeneration	ND	4E-2[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (21.6 mg Cyanogen/kg/day)	NA	rat	NA; weight loss, thyroid effects myelin degeneration	ND	4E-2[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Cyanogen bromide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (4.4 mg Cyanogen bromide/kg/day)	NA	rat	NA; weight loss, thyroid effects myelin degeneration	ND	9E-2[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (4.4 mg Cyanogen bromide/kg/day)	NA	rat	NA; weight loss, thyroid effects myelin degeneration	NA	9E-2[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Cycloate				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[g]					U.S. EPA, 1984
Cyclohexanol				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985
Cyclohexylamine									
subchronic (RfD_S)	NA; 600 ppm cyclohexylamine·HCl in diet for 90 days (30 mg/kg/day cyclohexylamine)	NA	rat	NA; reduced body weight	ND	3E-1	NA	100	U.S. EPA, 1987/ Gaunt et al., 1974; U.S. EPA, 1987
chronic	NA; 600 ppm cyclohexylamine·HCl in diet for 2 years (18 mg/kg/day cyclohexylamine)	NA	rat	NA; testicular effects	ND	2E-1[a]	NA	100	U.S. EPA, 1987/ Gaunt et al., 1976; U.S. EPA, 1987, 1990
Cyclopentadiene									
subchronic (RfD_S)	250 ppm (676 mg/m^3) for 135, 7-hour exposures in 194 days (87.3 mg/kg/day); NA	rat	NA	liver and kidney lesions; NA	3E+0 (9E-1)	ND	100	NA	Dow, 1987; U.S. EPA, 1987/ U.S. EPA, 1987
chronic (RfD)	NA; NA	NA	NA	NA; NA	ND	ND	NA	NA	U.S. EPA, 1987/ U.S. EPA, 1987
Dacthal (DCPA)									
subchronic (RfD_S)	NA; 1000 ppm in the in the diet for 2 years (50 mg/kg/day)	NA	rat	NA; kidney and adrenal weights	ND	5E-1	NA	100	U.S. EPA, 1990/ Diamond Shamrock Co., 1963; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 1000 ppm in the in the diet for 2 years (50 mg/kg/day)	NA	rat	NA; kidney and adrenal weights	ND	5E-1[a]	NA	100	U.S. EPA, 1990/ Diamond Shamrock Co., 1963; U.S. EPA, 1984, 1990
Dalapon (sodium salt)									
subchronic (RfD_S)	NA; 15 mg/kg/day in the diet for 2 years	NA	rat	NA; increased relative kidney weight	ND	3E-2	NA	300	U.S. EPA, 1990/ Paynter et al., 1960; U.S. EPA, 1984, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA; 15 mg/kg/day in the diet for 2 years	NA	rat	NA; increased relative kidney weight	ND	3E-2[a]	NA	300	U.S. EPA, 1990/ Paynter et al., 1960; U.S. EPA, 1984, 1990
2,4-DB									
subchronic (RfD_S)	NA; 8 mg/kg/day in the diet for 90 days	NA	dog	NA; internal hemorrhage, mortality	ND	8E-2	NA	100	U.S. EPA, 1990/ Rhodia Inc., 1969; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 8 mg/kg/day in the diet for 90 days	NA	dog	NA; internal hemorrhage, mortality	ND	8E-3[a]	NA	1000	U.S. EPA, 1990/ Rhodia Inc., 1969; U.S. EPA, 1984, 1990
DDT									
subchronic (RfD_S)	NA; 1 ppm in diet for 27 weeks (0.05 mg/kg/day)	NA	rat	NA; liver lesions	ND	5E-4	NA	100	U.S. EPA, 1984/ Laug et al., 1950; U.S. EPA, 1990
chronic (RfD)	NA; 1 ppm in diet for 27 weeks (0.05 mg/kg/day)	NA	rat	NA; liver lesions (also see Table B)	ND	5E-4[a]	NA	100	U.S. EPA, 1984/ Laug et al., 1950; U.S. EPA, 1988, 1990
Decabromodiphenyl ether (Decabromodiphenyl oxide)									
subchronic (RfD_S)	NA; 1.0 mg/kg/day in the diet for 2 years	NA	rat	NA; liver enlargement	ND	1E-2	NA	100	U.S. EPA, 1987/ Kociba et al., 1975; Norris et al., 1973, 1975; U.S. EPA, 1987; U.S. EPA, 1990
chronic (RfD)	NA; 1.0 mg/kg/day in the diet for 2 years	NA	rat	NA; liver enlargement (also see Table B)	ND	1E-2[a]	NA	100	U.S. EPA, 1987/ Kociba et al., 1975; Norris et al., 1973, 1975; U.S. EPA, 1987; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Diazinon									
subchronic (RfD_S)	NA; 1.0 ppm (0.09 mg/kg/day) in the diet for 35-42 days	NA	rat	NA; inhibition of plasma cholinesterase activity	ND	9E-4	NA	100	U.S. EPA, 1984/ Davies and Holub, 1979, 1980a,b; U.S. EPA, 1984
chronic (RfD)	NA; 1.0 ppm (0.09 mg/kg/day) in the diet for 35-42 days	NA	rat	NA; inhibition of plasma cholinesterase activity	ND	9E-4[g]	NA	100	U.S. EPA, 1984/ Davies and Holub, 1979, 1980a,b; U.S. EPA, 1984
Dibenzofuran	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[1]								U.S. EPA, 1987
1,4-Dibromobenzene									
subchronic (RfD_S)	NA; 10 mg/kg/day by gavage for 45 or 90 days	NA	rat	NA; liver weight and liver enzymes	ND	1E-1	NA	100	U.S. EPA, 1990/ Carlson and Tardiff, 1977; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 10 mg/kg/day by gavage for 45 or 90 days	NA	rat	NA; liver weight and liver enzymes	ND	1E-2[a]	NA	1000	U.S. EPA, 1990/ Carlson and Tardiff, 1977; U.S. EPA, 1984, 1990
Dibromochloromethane									
subchronic (RfD_S)	NA; 30 mg/kg/day by gavage, 5 days/week for 13 weeks (21 mg/kg/day)	NA	rat	NA; liver lesions	ND	2E-1	NA	100	U.S. EPA, 1990/ NTP, 1985; U.S. EPA, 1985, 1989, 1990
chronic (RfD)	NA; 30 mg/kg/day by gavage, 5 days/week for 13 weeks (21 mg/kg/day)	NA	rat	NA; liver lesions (also see Table B)	ND	2E-2[a]	NA	1000	U.S. EPA, 1990/ NTP, 1985; U.S. EPA, 1985, 1989, 1990
Di-n-butyl phthalate									
subchronic (RfD_S)	NA; 0.25% of diet for 52 weeks (125 mg/kg/day) (89 mg/kg/day)	NA	rat	NA; mortality	ND	1E+0	NA	100	U.S. EPA, 1987/ Smith, 1953; U.S. EPA, 1987

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	NA; 0.25% of diet for 52 weeks (125 mg/kg/day)	NA	rat	NA; mortality[1]	ND	1E-1[a]	NA	1000	U.S. EPA, 1987/ Smith, 1953; U.S. EPA, 1987 1990
1,2-Dichlorobenzene subchronic (RfD_S)	290 mg/m^3 7 hours/day, 5 days/week for up to 7 months (44 mg/kg/day); 125 mg/kg/day, 5 days/ week for 13 weeks	rat	rat	decreased body weight gain; liver effects (also see Table B)	2E+0 (4E-1)	9E-1	100	100	Hollingsworth et al., 1958; U.S. EPA, 1987/ NTP, 1985; U.S. EPA, 1987, 1990
chronic (RfD)	290 mg/m^3 7 hours/day, 5 days/week for up to 7 months (44 mg/kg/day); 125 mg/kg/day, 5 days/ week for 13 weeks (89 mg/kg/day)	rat	rat	decreased body weight gain; liver effects (also see Table B)	2E-1 (4E-2)	9E-2[a,1]	1000	1000	Hollingsworth et al., 1958; U.S. EPA, 1987/ NTP, 1985; U.S. EPA, 1987, 1990
1,4-Dichlorobenzene (p-dichlorobenzene) subchronic (RfD_S)	75 ppm (454.6 mg/m^3) 5 hours/day, 5 days/week for 76 weeks; NA	rat	NA	liver and kidney effects; NA	7E-1	ND	100	NA	Riley et al., 1980/U.S. EPA, 1987
chronic (RfD)	75 ppm (454.6 mg/m^3) 5 hours/day, 5 days/week for 76 weeks; NA	rat	NA	liver and kidney effects (also see Table B)	7E-1[1]	ND	100	NA	Riley et al., 1980/U.S. EPA, 1987
Dichlorobutenes	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (CANCER: SEE TABLE B)								U.S. EPA, 1987
Dichlorodifluoromethane (F-12) subchronic (RfD_S)	4136 mg/m^3, 8 hours/ day, 5 days/week for 6 weeks (482.3 mg/kg/ day); 90 mg/kg/day for 90 days	guinea pig	dog	lung and liver lesions; none	2E+0 (5E-1)	9E-1	1000	100	Prendergast et al., 1967; U.S. EPA, 1987/ Clayton, 1967; U.S. EPA, 1987
chronic (RfD)	4136 mg/m^3, 8 hours/ day, 5 days/week for 6 weeks (482.3 mg/kg/ day); 15 mg/kg/day for 2 years	guinea pig	rat	lung and liver lesions; depressed body weight gain	2E-1 (5E-2)	2E-1[a]	10,000	100	Prendergast et al., 1967; U.S. EPA, 1987/ Sherman, 1974; U.S. EPA, 1982, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
1,1-Dichloroethane subchronic (RfD_S)	500 ppm (2025 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (138 mg/kg/day); 500 ppm (2025 mg/m^3) 6 hours/day, 5 days/week for 13 weeks	cat	rat	kidney damage; none	5E+0 (1E+0)	1E+0	100	100	Hofmann et al., 1971; U.S. EPA, 1984/Hofmann et al., 1971; U.S. EPA, 1983, 1984
chronic (RfD)	500 ppm (2025 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (138 mg/kg/day); 500 ppm (2025 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (mg/kg/day)	cat	rat	kidney damage; none (also see Table B)	5E-1 (1E-1)	1E-1[g]	1000	1000	Hofmann et al., 1971; U.S. EPA, 1984/Hofmann et al., 1971; U.S. EPA, 1983, 1984
1,1-Dichloroethylene subchronic (RfD_S)	NA; 50 ppm in drinking water for 2 years (9 mg/kg/day)	NA	rat	NA; liver lesions	ND	9E-3	NA	1000	U.S. EPA, 1984/Quast et al., 1983; U.S. EPA, 1988, 1990
chronic (RfD)	NA; 50 ppm in drinking water for 2 years (9 mg/kg/day)	NA	rat	NA; liver lesions (also see Table B)	ND	9E-3[z]	NA	1000	U.S. EPA, 1984/Quast et al., 1983; U.S. EPA, 1988, 1990
1,2-c-Dichloroethylene subchronic (RfD_S)	NA; gavage for 90 days (32 mg/kg/day)	NA	rat	NA; decreased hematocrit and hemoglobin	ND	1E-1	NA	300	U.S. EPA, 1984/McCauley et al., n.d.; U.S. EPA, 1984, 1990
chronic (RfD)	NA; gavage for 90 days (32 mg/kg/day)	NA	rat	NA; decreased hematocrit and hemoglobin	ND	1E-2[j]	NA	3000	U.S. EPA, 1984/McCauley et al., n.d.; U.S. EPA, 1984, 1990
1,2-t-Dichloroethylene subchronic (RfD_S)	NA; 0.1 mg/L in drinking water for 90 days (17 mg/kg/day)	NA	mouse	NA; increased serum alkaline phosphatase	ND	2E-1	NA	100	U.S. EPA, 1984/Barnes et al., 1985; U.S. EPA, 1990
chronic (RfD)	NA; 0.1 mg/L in drinking water for 90 days (17 mg/kg/day)	NA	mouse	NA; increased serum alkaline phosphatase	ND	2E-2[a]	NA	1000	U.S. EPA, 1984/Barnes et al., 1985; U.S. EPA, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
2,4-Dichlorophenol									
subchronic (RfD_S)	NA; 3 ppm in drinking water for 2 generations (0.3 mg/kg/day)	NA	rat	NA; immune function	ND	3E-3	NA	100	U.S. EPA, 1987a,b/Exon and Koller, 1985; U.S. EPA, 1987a,b, 1990
chronic (RfD)	NA; 3 ppm in drinking water for 2 generations (0.3 mg/kg/day)	NA	rat	NA; immune function	ND	3E-3[a]	NA	100	U.S. EPA, 1987a,b/Exon and Koller, 1985; U.S. EPA, 1986 1987a,b, 1990
Dichlorophenol, 2,3-, 2,5-, 2,6-, 3,4- and 3,5-				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
2,4-Dichlorophenoxy acetic acid (2,4-D)									
subchronic (RfD_S)	NA; 1.0 mg/kg/day in diet for 91 days	NA	rat	NA; hematologic hepatic and renal toxicity	ND	1E-2	NA	100	NA/Dow Chemical Co., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 1.0 mg/kg/day in diet for 91 days	NA	rat	NA; hematologic hepatic and renal toxicity	ND	1E-2[z]	NA	100	NA/Dow Chemical Co., 1983; U.S. EPA, 1990
Dichloroprop				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[g]					U.S. EPA, 1984
Dichloropropanes (1,1-, 1,2-, 1,3-, 2,2-)				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (also see Table B)					U.S. EPA, 1985
1,3-Dichloropropene (Telone II)									
subchronic (RfD_S)	10 ppm (45.4 mg/m^3) 6 hours/day, 5 days/week for 13 weeks; 3 mg/kg/day in the diet for 90 days	rat	rat	degeneration changes in nasal mucosa; increased organ weight	1E-2	3E-3	100	1000	Stott et al., 1982; U.S. EPA, 1989/Dow Chemical Co., 1973; U.S. EPA 1989, 1990
chronic (RfD)	10 ppm (45.4 mg/m^3); 6 hours/day, 5 days/week for 13 weeks; 3 mg/kg/day in the diet for 90 days	rat	rat	degenerative changes in nasal mucosa; increased organ weights (also see Table B)	1E-2	3E-4[a]	100	10,000	Stott et al., 1982; U.S. EPA 1989/Dow Chemical Co., 1973; U.S. EPA 1989, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Dicyclopentadiene subchronic (RfD_S)	1 ppm (5.4 mg/m^3), 6 hours/day, 5 days/ week for 90 days (0.61 mg/kg/day); 690 ppm in diet for 3 generations (32 mg/kg/day for males)	rat	rat	kidney dysfunction; none	2E-3 (6E-4)	3E-1	1000	100	Dodd et al., 1982; U.S. EPA, 1987/Litton Bionetics, 1980; U.S. EPA, 1987
chronic (RfD)	1 ppm (5.4 mg/m^3), 6 hours/day, 5 days/ week for 90 days (0.61 mg/kg/day); 690 ppm in diet for 3 generations (32 mg/kg/day for males)	rat	rat	kidney dysfunction; none	2E-4 (6E-5)	3E-2	10,000	1000	Dodd et al., 1982;U.S. EPA, 1987/Litton Bionetics, 1980; U.S. EPA, 1987
Dieldrin subchronic (RfD_S)	NA; 0.1 ppm in diet for 2 years (0.005 mg/kg/day)	NA	rat	NA; liver lesions	ND	5E-5	NA	100	U.S. EPA, 1987/ Walker et al., 1969; U.S. EPA, 1990
chronic (RfD)	NA; 0.1 ppm in diet for 2 years (0.005 mg/kg/day)	NA	rat	NA; liver lesions (Cancer: see Table B)	ND	5E-5[a]	NA	100	U.S. EPA, 1987/ Walker et al., 1969; U.S. EPA, 1990
N,N-Diethylaniline	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987
Diethylene glycol monoethyl ether subchronic (RfD_S)	NA; diet provided 500 mg/kg/day for 90 days	NA	rat	NA; impaired renal function, increased testes weight	ND	5E+0	NA	100	U.S. EPA, 1984/ Hall et al., 1966; U.S. EPA, 1984
chronic (RfD)	NA; 0.2% in drinking water (200 mg/kg/day) for 2 years	NA	rat	NA; kidney histo-pathology	ND	2E+0	NA	100	U.S. EPA, 1984/ Smyth et al., 1964; U.S. EPA, 1984
Diethylformamide subchronic (RfD_S)	NA; 546 µg/day (1.56 mg/kg/day) in diet x 5 days/week for 73 weeks	NA	rat	NA; no effect	ND	1.1E-1	NA	100	U.S. EPA, 1986/ Argus et al., 1965; U.S. EPA, 1986

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 546 µg/day (1.56 mg/kg/day) in diet x 5 days/week for 73 weeks	NA	rat	NA; no effect	ND	1.1E-1	NA	100	U.S. EPA, 1986/ Argus et al., 1965; U.S. EPA, 1986
1,2-Diethylhydrazine	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Diethyl-p-nitrophenyl phosphate (paraoxon)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1989
Diethyl phthalate subchronic (RfD_S)	NA; 1% in diet for 16 weeks (750 mg/kg/day)	NA	rat	NA; reduced terminal body weight	ND	8E+0	NA	100	U.S. EPA, 1987/ Brown et al., 1978; U.S. EPA, 1987
chronic (RfD)	NA; 1% in diet for 16 weeks (750 mg/kg/day)	NA	rat	NA; reduced terminal body weight[1]	ND	8E-1[a]	NA	1000	U.S. EPA, 1987/ Brown et al., 1978; U.S. EPA, 1987, 1990
Dimethoate subchronic (RfD_S)	NA; 1 ppm (0.05 mg/kg/day) in diet for 2 years	NA	rat	NA; brain cholinesterase inhibition	ND	2E-4	NA	300	U.S. EPA, 1985/ American Cyanimid Co., 1986; U.S. EPA, 1990
chronic (RfD)	NA; 1 ppm (0.05 mg/kg/day) in diet for 2 years	NA	rat	NA; brain cholinesterase inhibition	ND	2E-4[a]	NA	300	U.S. EPA, 1985/ American Cyanimid Co., 1986; U.S. EPA, 1990
N,N-Dimethylaniline subchronic (RfD_S)	NA; 31.25 mg/kg/day by gavage x 5/7 days for 13 weeks	NA	rat	NA; splenomegaly and splenic hemosiderosis	ND	2E-2	NA	1000	U.S. EPA, 1986/ Abdo et al., 1984; U.S. EPA, 1990
chronic (RfD)	NA; 31.25 mg/kg/day by gavage x 5/7 days for 13 weeks	NA	rat	NA; splenomegaly and splenic hemosiderosis	ND	2E-3[a]	NA	10,000	U.S. EPA, 1986/ Abdo et al., 1984; U.S. EPA, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
N,N-Dimethylformamide subchronic (RfD_S)	NA; 540 ppm (96 mg/kg/day) in diet for 119 days	NA	mouse	NA; increased liver weight	ND	1E+0	NA	100	U.S. EPA, 1986/ Becci et al., 1983; U.S. EPA, 1986
chronic (RfD)	NA; 540 ppm (96 mg/kg/day) in diet for 119 days	NA	mouse	NA; increased liver weight	ND	1E-1	NA	1000	U.S. EPA, 1986/ Becci et al., 1983; U.S. EPA, 1986
Dimethylphenols (2,3-, 2,5-)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (Cancer: see Table B)								U.S. EPA, 1986
2,4-Dimethylphenol subchronic (RfD_S)	NA; 50 mg/kg/day by gavage for 90 days	NA	mouse	NA; neurological signs and hematological changes	ND	2E-1	NA	300	U.S. EPA, 1986/ American Biogenics, 1989; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 50 mg/kg/day by gavage for 90 days	NA	mouse	NA; neurological signs and hematological changes	ND	2E-2[1]	NA	3000	U.S. EPA, 1986/ American Biogenics, 1989; U.S. EPA, 1986, 1990
2,6-Dimethylphenol subchronic (RfD_S)	NA; 0.6 mg/kg/day for 8 months	NA	rat	NA; effects on blood pressure, weight gain and histological appearance of several organs	ND	6E-3	NA	100	U.S. EPA, 1987/ Veldre and Janes, 1979; U.S. EPA, 1987, 1990
chronic (RfD)	NA; 0.6 mg/kg/day for 8 months	NA	rat	NA; effects on blood pressure, weight gain and histological appearance of several organs	ND	6E-4[a]	NA	1000	U.S. EPA, 1987/ Veldre and Janes, 1979; U.S. EPA, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
3,4-Dimethylphenol									
subchronic (RfD_S)	NA; 1.4 mg/kg/day for 8 months	NA	rat	NA; reduced growth, internal lesions	ND	1E-2	NA	100	U.S. EPA, 1987/ Veldre and Janes, 1979; U.S. EPA, 1987, 1990
chronic (RfD)	NA; 1.4 mg/kg/day for 8 months	NA	rat	NA; reduced growth, internal lesions	ND	1E-3[a]	NA	1000	U.S. EPA, 1987/ Veldre and Janes, 1979; U.S. EPA, 1987, 1990
Dimethyl phthalate									
subchronic (RfD_S)	NA; 1000 mg/kg/day in diet for 2 years	NA	rat	NA; minor effect on growth; some nephritic involvement	ND	1E+0	NA	100	NA/Lehman, 1955; U.S. EPA, 1987
chronic (RfD)	NA; 1000 mg/kg/day in diet for 2 years	NA	rat	NA; minor effect on growth; some nephritic involvement	ND	1E+0[g]	NA	100	NA/Lehman, 1955; U.S. EPA, 1987
Dimethyl terephthalate									
subchronic (RfD_S)	NA; 2500 ppm (125 mg/kg/day) in diet for 103 weeks	NA	rat	NA; chronic kidney inflammation	ND	1E-1	NA	1000	U.S. EPA, 1984/ NCI, 1979; U.S. EPA, 1990
chronic (RfD)	NA; 2500 ppm (125 mg/kg/day) in diet for 103 weeks	NA	rat	NA; chronic kidney inflammation	ND	1E-1[a]	NA	1000	U.S. EPA, 1984/ NCI, 1979; U.S. EPA, 1990
N,N-Dimethylurea	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
m-Dinitrobenzene									
subchronic (RfD_S)	NA; 3 ppm (0.40 mg/kg/day) in drinking water for 16 weeks	NA	rat	NA; increased splenic weight	ND	1E-3	NA	300	U.S. EPA, 1985/ Cody et al., 1981; U.S. EPA, 1990
chronic (RfD)	NA; 3 ppm (0.40 mg/kg/day) in drinking water for 16 weeks	NA	rat	NA; increased splenic weight	ND	1E-4[a]	NA	3000	U.S. EPA, 1985/ Cody et al., 1981; U.S. EPA, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Dinitrobenzenes (o-, p-)									
subchronic (RfD_S)	NA; 3 ppm (0.40 mg/kg/day) in drinking water for 16 weeks	NA	rat	NA; increased splenic weight	ND	4E-3	NA	100	U.S. EPA, 1985/ Cody et al., 1981; U.S. EPA, 1985
chronic (RfD)	NA; 3 ppm (0.40 mg/kg/day) in drinking water for 16 weeks	NA	rat	NA; increased splenic weight	ND	4E-4	NA	1000	U.S. EPA, 1985/ Cody et al., 1981; U.S. EPA, 1985
2,6-Dinitro-p-cresol			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1984
4,6-Dinitro-o-cresol			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[q]						U.S. EPA, 1986/ U.S. EPA, 1986
2,4-Dinitrophenol									
subchronic (RfD_S)	NA; 2 mg/kg/day, therapeutic use	NA	human	NA; cataract	ND	2E-3	NA	1000	U.S. EPA, 1990/ Horner, 1942; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 2 mg/kg/day, therapeutic use	NA	human	NA; cataract	ND	2E-3[a]	NA	1000	U.S. EPA, 1990/ Horner, 1942; U.S. EPA, 1984, 1990
Dinitrophenols (2,3-; 2,5-; 2,6-; 3,5-)			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1984
Dinitrotoluenes (2,3-; 2,4-; 2,5-; 2,6-; 3,4-)			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (Cancer: see Table B)						U.S. EPA, 1986
Di-n-octyl phthalate									
subchronic (RfD_S)	NA; 175 mg/kg/day in diet for 7-12 months	NA	rat	NA; elevated kidney and liver weights; increased SGOT and SGPT	ND	2E-2	NA	1000	NA/Piekacz, 1971; U.S. EPA, 1987
chronic (RfD)	NA; 175 mg/kg/day in diet for 7-12 months	NA	rat	NA; elevated kidney and liver weights; increased SGOT and SGPT	ND	2E-2	NA	1000	NA/Piekacz, 1971; U.S. EPA, 1987
Dinoseb									
subchronic (RfD_S)	NA; 1 mg/kg/day in diet for 29 weeks	NA	rat	NA; decreased fetal weight	ND	1E-3[bb]	NA	1000	U.S. EPA, 1984/ Dow Chemical Co., 1981; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 1 mg/kg/day in diet for 29 weeks	NA	rat	NA; decreased fetal weight	ND	1E-3[a,l,bb]	NA	1000	U.S. EPA, 1984/ Dow Chemical Co., 1981; U.S. EPA, 1990
N,N-Diphenylamine									
subchronic (RfD_S)	NA: 0.0170 (2.5 mg/kg/ day) in diet for 2 years	NA	dog	NA; decreased body weight gain and increased liver and kidney weights	ND	2.5E-2	NA	100	U.S. EPA, 1985/ Thomas et al., 1967; U.S. EPA, 1990
chronic (RfD)	NA: 0.0170 (2.5 mg/kg/ day) in diet for 2 years	NA	dog	NA; decreased body weight gain and increased liver and kidney weights (also see Table B)	ND	2.5E-2[a]	NA	100	U.S. EPA, 1985/ Thomas et al., 1967; U.S. EPA, 1990
Direct Lightfast Blue				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
Disulfoton									
subchronic (RfD_S)	NA; 0.8 ppm in diet for 2 years (0.04 mg/kg/day)	NA	rat	NA; cholinesterase inhibition, optic nerve degeneration	ND	4E-5	NA	1000	U.S. EPA, 1990a/ Mobay chemical, 1985; U.S. EPA, 1990a,b
chronic (RfD)	NA; 0.8 ppm in diet for 2 years (0.04 mg/kg/day)	NA	rat	NA; cholinesterase inhibition, optic nerve degeneration	ND	4E-5[a]	NA	1000	U.S. EPA, 1990a/ Mobay chemical, 1985; U.S. EPA, 1990a,b
Endosulfan									
subchronic (RfD_S)	NA; 3 ppm in diet in 2-generation reproductive study (0.15 mg/kg/day)	NA	rat	NA; mild kidney lesions	ND	2E-4	NA	1000	U.S. EPA, 1987/ Huntington Research Center, 1984; U.S. EPA, 1987, 1990
chronic (RfD)	NA; 3 ppm in diet in 2-generation reproductive study (0.15 mg/kg/day)	NA	rat	NA; mild kidney lesions	ND	5E-5[a]	NA	3000	U.S. EPA, 1987/ Huntington Research Center, 1984; U.S. EPA, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Endothall									
subchronic (RfD_S)	NA; 100 ppm disodium endothall in the diet for 2 years (2 mg endothall ion/kg/day)	NA	dog	NA; stomach effect	ND	2E-2	NA	100	U.S. EPA, 1989/ Keller, 1965; Pennwalt Agchem, n.d; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 100 ppm disodium endothall in the diet for 2 years (2 mg endothall ion/kg/day)	NA	dog	NA; stomach effect	ND	2E-2[a]	NA	100	U.S. EPA, 1989/ Keller, 1965; Pennwalt Agchem, n.d.; U.S. EPA, 1989, 1990
Endrin									
subchronic (RfD_S)	NA; 1 ppm in diet for 18 months (0.045 mg/kg/day)	NA	dog	NA; increased relative organ weights	ND	5E-4	NA	100	U.S. EPA, 1987/ Treon et al., 1955; U.S. EPA, 1985, 1987, 1990
chronic (RfD)	NA; 1 ppm in diet for >2 years (0.025 mg/kg/day)	NA	dog	NA; convulsions and liver lesions	ND	3E-4[a]	NA	100	U.S. EPA, 1987/ CBI; U.S. EPA, 1985, 1987, 1990
Epichlorohydrin									
subchronic (RfD_S)	5 ppm, 6 hours/day, 5 days/week for 87-88 days (HEC=0.25 mg/m^3); 10 ppm (37.8 mg/m^3), 6 hours/day, 5 days/week for 136 weeks	mouse	rat	nasal turbinate injury; kidney damage	3E-3	2E-2	100	100	Quast et al., 1979/Laskin et al., 1980; U.S. EPA, 1984, 1990
chronic (RfD)	5 ppm, 6 hours/day, 5 days/week for 87-88 days (HEC=0.25 mg/m^3); 10 ppm (37.8 mg/m^3), 6 hours/day, 5 days/week for 136 weeks	mouse	rat	nasal turbinate injury; kidney damage (also see Table B)	3E-4[j]	2E-3[a,b]	1000	1000	Quast et al., 1979/Laskin et al., 1980; U.S. EPA, 1984, 1990
EPTC (see S-Ethyl dipropylthiocarbamate)									
Ethoprop	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
2-Ethoxyethanol									
subchronic (RfD_S)	10 ppm (37 mg/m^3) 6 hours/day on days 6-15 of gestation (6.8 mg/kg/day); 50 µl (46.6 mg/kg/day) on days 1-21 of gestation	rat	rat	fetotoxicity; fetotoxicity	2E-1 (7E-2)[bb]	5E-1[bb]	100	100	Doe, 1984; U.S. EPA, 1984/ Stenger et al., 1971; U.S. EPA, 1984
chronic (RfD)	100 ppm (369 mg/m^3) 6 hours/day, 5 days/ week for 13 weeks (49.9 mg/kg/day) 500 mg/kg 5 days/week for 103 weeks (357 mg/kg/day)	rat	rat	altered hemotology; reduced body weight (also see Table B)	2E-1 (5E-2)	4E-1	1000	1000	Barbee et al., 1984; U.S. EPA, 1984/Melnick, 1984; U.S. EPA, 1985
2-Ethoxyethanol acetate									
subchronic (RfD_S)	NA; 50 ppm (30.1 mg/kg) x 6 hours/day on gestational day 6-18	NA	rat	NA; decreased ossification	ND	3E-1[b,bb]	NA	100	U.S. EPA, 1985/ Union Carbide, 1984; U.S. EPA, 1985
chronic (RfD)	NA; 50 ppm (30.1 mg/kg) x 6 hours/day on gestational day 6-18	NA	rat	NA; decreased ossification	ND	3E-1[b,bb]	NA	100	U.S. EPA, 1985/ Union Carbide, 1984; U.S. EPA, 1985
2-Ethoxyethanol esters (2-ethoxyethanol acrylate, 2-ethoxyethyl methacrylate, 2-ethoxyethanol phosphated, 2-ethoxyethyl dodecanoate)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
Ethyl acetate									
subchronic (RfD_S)	NA; 900 mg/kg/day by gavage for 90 days	NA	rat	NA; mortality, body weight loss	ND	9E+0	NA	100	U.S. EPA, 1990/ U.S. EPA, 1986a,b, 1990
chronic (RfD)	NA; 900 mg/kg/day by gavage for 90 days	NA	rat	NA; mortality, body weight loss (also see Table B)	ND	9E-1[a]	NA	1000	U.S. EPA, 1990/ U.S. EPA, 1986a,b, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
n-Ethylaniline	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1986
Ethylbenzene									
subchronic (RfD_S)	NA; 136 mg/kg 5 days/week for 182 days (97.1 mg/kg/day)	NA	rat	NA; hepatotoxicity and nephrotoxicity	ND	1E+0	NA	100	U.S. EPA, 1984/ Wolf et al., 1956; U.S. EPA, 1984, 1986, 1990
chronic (RfD)	NA; 136 mg/kg 5 days/week for 182 days (97.1 mg/kg/day)	NA	rat	NA; hepatotoxicity and nephrotoxicity[1]	ND	1E-1[a]	NA	1000	U.S. EPA, 1984/ Wolf et al., 1956; U.S. EPA, 1984, 1986, 1990
Ethyl chloride	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987
S-Ethyl dipropylthiocarbamate									
subchronic (RfD_S)	NA; 50 ppm in diet for 2 generations (2.5 mg/ kg/day)	NA	rat	NA; degenerative cardiomyopathy	ND	2.5E-2	NA	100	U.S. EPA, 1984/ PPG Industries, 1986; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 50 ppm in diet for 2 generations (2.5 mg/ kg/day)	NA	rat	NA; degenerative cardiomyopathy	ND	2.5E-2[a]	NA	100	U.S. EPA, 1984/ PPG Industries, 1986; U.S. EPA, 1984, 1990
Ethylene cyanohydrin									
subchronic (RfD_S)	NA; 30 mg/kg/day in drinking water for 90 days	NA	rat	NA; decreased heart and brain weights	ND	3E-1	NA	100	U.S. EPA, 1988/ Sauerhoff et al., 1976; U.S. EPA, 1988
chronic (RfD)	NA; 30 mg/kg/day in drinking water for 90 days	NA	rat	NA; decreased heart and brain weights	ND	3E-1	NA	100	U.S. EPA, 1988/ Sauerhoff et al., 1976; U.S. EPA, 1988

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Ethylenediamine									
subchronic (RfD_S)	59 ppm (145 mg/m^3) 7 hours/day, 5 days/week for 30 days (25.8 mg/kg/day); 3-month dietary study with 50 mg/kg/day ethylenediamine dihydrochloride (22.6 mg ethylenediamine/kg/day)	rat	rat	death, kidney and liver lesions; liver and hematologic changes	1E+0 (3E-1)	2E-1	100	100	Pozzani and Carpenter, 1954; U.S. EPA, 1988/ Yang et al., 1983; U.S. EPA, 1988
chronic (RfD)	NA; 3-month dietary study with 50 mg/kg/day ethylenediamine dihydrochloride (22.6 mg ethylenediamine/kg/day)	NA	rat	NA; liver and hematologic changes	ND	2E-2	NA	1000	U.S. EPA, 1988/ Yang et al., 1983; U.S. EPA, 1988
Ethylene glycol									
subchronic (RfD_S)	NA; 200 mg/kg/day in developmental toxicity	NA	rat	NA; fetotoxicity	ND	2E+0[bb]	NA	100	U.S. EPA, 1987/ Maronpot et al., 1983; U.S. EPA, 1987a, 1990
chronic (RfD)	NA; 200 mg/kg/day in 2-year dietary study	NA	rat	NA; mortality, liver and kidney effects	ND	2E+0[a]	NA	100	U.S. EPA, 1987/ DePass et al., 1986a; U.S. EPA, 1987a, 1990
Ethylene glycol monobutyl ether									
subchronic (RfD_S)	25 ppm (121 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (16 mg/kg/day); NA	rat	NA	altered hematology; NA	6E-1 (2E-1)	ND	100	NA	Dodd et al., 1983/U.S. EPA, 1984
chronic (RfD)	25 ppm (121 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (16 mg/kg/day); NA	rat	NA	altered hematology; NA	6E-2 (2E-2)	ND	1000	NA	Dodd et al., 1983/U.S. EPA, 1984
Ethylene thiourea	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[g] (also see Table B)								U.S. EPA, 1984

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Ethyl ether									
subchronic (RfD_S)	NA; 500 mg/kg/day for 90 days	NA	rat	NA; liver effects	ND	5E+0	NA	100	U.S. EPA, 1987/ American Biogenics Corp., 1986; U.S. EPA, 1987
chronic (RfD)	NA; 500 mg/kg/day for 90 days	NA	rat	NA; liver effects	ND	5E-1[j]	NA	1000	U.S. EPA, 1987/ American Biogenics Corp., 1986; U.S. EPA, 1987
Ethyl methacrylate									
subchronic (RfD_S)	NA; 65 ppm (7.5 mg/kg/day) methyl methacrylate x 114.5/100.13 (molecular weight ratio) in drinking water for 2 years	NA	rat	NA; increased kidney weight	ND	9E-2	NA	100	U.S. EPA, 1986/ Borzelleca et al., 1964; U.S. EPA, 1986
chronic (RfD)	NA; 65 ppm (7.5 mg/kg/day) methyl methacrylate x 114.5/100.13 (molecular weight ratio) in drinking water for 2 years	NA	rat	NA; increased kidney weight (also see Table B)	ND	9E-2[g]	NA	100	U.S. EPA, 1986/ Borzelleca et al., 1964; U.S. EPA, 1986
Ethyl toluene (o-, p , m-)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
4-Ethyl-o-xylene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Fluoranthene									
subchronic (RfD_S)	NA; 125 mg/kg/day by gavage for 90 days	NA	mouse	NA; nephropathy, liver weight changes hematological changes	ND	4E-1	NA	300	U.S. EPA, 1988
chronic (RfD)	NA; 125 mg/kg/day by gavage for 90 days	NA	mouse	NA; nephropathy, liver weight changes, hematological changes	ND	4E-2[j]	NA	3000	U.S. EPA, 1988

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Fluorene									
subchronic (RfD_S)	NA; 125 mg/kg/day by gavage for 13 weeks	NA	mouse	NA; hematological changes (decreased RBC)	ND	4E-1	NA	300	U.S. EPA, 1989
chronic (RfD)	NA; 125 mg/kg/day by gavage for 13 weeks	NA	mouse	NA; hematological changes (decreased RBC)	ND	4E-2[j]	NA	3000	U.S. EPA, 1989
Fluorides									
subchronic (RfD_S)	NA; 0.06 mg fluoride/kg/day in drinking water	NA	human	NA: dental fluorosis at higher levels	ND	6E-2	NA	1	U.S. EPA, 1989/ Hodge, 1950; U.S. EPA, 1989, 1990
chronic (RfD_S)	NA; 0.06 mg fluoride/kg/day in drinking water	NA	human	NA: dental fluorosis at higher levels	ND	6E-2[a]	NA	1	U.S. EPA, 1989/ Hodge, 1950; U.S. EPA, 1989, 1990
Fluridone									
subchronic (RfD_S)	NA; 200 ppm in the diet for 2 years (8 mg/kg/day)	NA	rat	NA; kidney and testes	ND	8E-2	NA	100	U.S. EPA, 1990/ Eli Lilly and Co., 1980; U.S. EPA, 1984 1990
chronic (RfD)	NA; 200 ppm in the diet for 2 years (8 mg/kg/day)	NA	rat	NA; kidney and and testes	ND	8E-2[a]	NA	100	U.S. EPA, 1990/ Eli Lilly and Co., 1980; U.S. EPA, 1984 1990
Folpet									
subchronic (RfD_S)	NA; 10 mg/kg/day in capsules for 1 year	NA	dog	NA; body weight gain, blood chemistry	ND	1E-1	NA	100	U.S. EPA, 1990/ Chevron Chemical Corp., 1986; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 10 mg/kg/day in capsules for 1 year	NA	dog	NA; body weight gain, blood chemistry (also see Table B)	ND	1E-1[a]	NA	100	U.S. EPA, 1990/ Chevron Chemical Corp., 1986; U.S. EPA, 1984, 1990
Formaldehyde cyanohydrin				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1988
Formic acid									
subchronic (RfD_S)	NA; 0.2% in drinking water (200 mg/kg/day), several generation study	NA	rat	NA; decreased growth	ND	2E+0	NA	100	NA/Malorny, 1969; U.S. EPA, 1990
chronic (RfD)	NA; 0.2% in drinking water (200 mg/kg/day), several generation study	NA	rat	NA; decreased growth	ND	2E+0[a]	NA	100	NA/Malorny, 1969; U.S. EPA, 1990
Furan									
subchronic (RfD_S)	NA; 2 mg/kg, 5 days/week for 13 weeks (1.4 mg/kg/day)	NA	mouse	NA; hepatic lesions	ND	1E-2	NA	100	U.S. EPA, 1987/ SRI, 1982; U.S. EPA, 1987
chronic (RfD)	NA; 2 mg/kg, 5 days/week for 13 weeks (1.4 mg/kg/day)	NA	mouse	NA; hepatic lesions	ND	1E-3[a]	NA	1000	U.S. EPA, 1987/ SRI, 1982; U.S. EPA, 1987, 1990
Furfural									
subchronic (RfD_S)	20 ppm (77 mg/m^3), 6 hours/day, 5 days/week for 13 weeks (13 mg/kg/day); 11 mg/kg, 5 days/week for 13 weeks (7.9 mg/kg/day)	hamster	rat	olfactory degeneration; hepatotoxicity	5E-1 (1E-1)	3E-2	100	300	Feron et al., 1979; U.S. EPA, 1988/SRI, 1981; U.S. EPA, 1990
chronic (RfD)	20 ppm (77 mg/m^3), 6 hours/day, 5 days week for 13 weeks (13 mg/kg/day); 11 mg/kg, 5 days/week for 13 weeks (7.9 mg/kg/day)	hamster	rat	olfactory degeneration; hepatotoxicity	5E-2 (1E-2)	3E-3[a]	1000	3000	Feron et al., 1979; U.S. EPA, 1988/SRI, 1981; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Glycidaldehyde									
subchronic (RfD_S)	10 ppm (29 mg/m^3), 4 hours/day, 5 days/week for 12 weeks (HEC, 3.5 mg/m^3); 1.1 mg/kg/day	rat	rat	decreased body weight and kidney effects; decreased body weight and kidney effects	1E-2	4E-3	300	300	Hine et al., 1961; U.S. EPA, 1989/Hine et al., 1961; U.S. EPA, 1989, 1990
chronic (RfD_S)	10 ppm (29 mg/m^3), 4 hours/day, 5 days/week for 12 weeks (HEC, 3.5 mg/m^3); 1.1 mg/kg/day	rat	rat	decreased body weight and kidney effects; decreased body weight and kidney effects (also see Table B)	1E-3	4E-4[a]	3000	3000	Hine et al., 1961; U.S. EPA, 1989/Hine et al., 1961; U.S. EPA, 1989, 1990
Heptachlor									
subchronic (RfD_S)	NA; 3 ppm in diet for 2 years (0.15 mg/kg/day)	NA	rat	NA; increased liver weight	ND	5E-4	NA	300	U.S. EPA, 1987/ Velsicol Chemical, 1955; U.S. EPA, 1990
chronic (RfD)	NA; 3 ppm in diet for 2 years (0.15 mg/kg/day)	NA	rat	NA; increased liver weight (also see Table B)	ND	5E-4[a]	NA	300	U.S. EPA, 1987/ Velsicol Chemical, 1955; U.S. EPA, 1990
n-Heptane			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1989/ U.S. EPA, 1989
Hexabromobenzene									
subchronic (RfD_S)	NA; 40 ppm in the diet for 12 weeks (2 mg/kg/day)	NA	rat	NA; induced carboxylesterase activity	ND	2E-2	NA	100	U.S. EPA, 1990/ Mendoza et al., 1977; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 40 ppm in the diet for 12 weeks (2 mg/kg/day)	NA	rat	NA; induced carboxylesterase activity	ND	2E-3[a]	NA	1000	U.S. EPA, 1990/ Mendoza et al., 1977; U.S. EPA, 1984, 1990
Hexachlorobenzene									
subchronic (RfD_S)	NA; 1.6 ppm in diet for 130 weeks (0.08 mg/kg/day)	NA	rat	NA; liver and hematologic effects	ND	8E-4	NA	100	U.S. EPA, 1984/ Arnold et al., 1985; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 1.6 ppm in diet for 130 weeks (0.08 mg/kg/day)	NA	rat	NA; liver and hematologic effects (also see Table B)	ND	8E-4[a]	NA	100	U.S. EPA, 1984/ Arnold et al., 1985; U.S. EPA, 1990
Hexachlorobutadiene subchronic (RfD_S)	NA; 2-year dietary study (0.2 mg/kg/day)	NA	rat	NA; kidney toxicity	ND	2E-3	NA	100	U.S. EPA, 1984/ Kociba et al., 1977; U.S. EPA, 1990
chronic (RfD)	NA; 2-year dietary study (0.2 mg/kg/day)	NA	rat	NA; kidney toxicity (Cancer: see Table B)	ND	2E-3[a]	NA	100	U.S. EPA, 1984/ Kociba et al., 1977; U.S. EPA, 1990
Hexachlorocyclohexane, gamma (Lindane) subchronic (RfD_S)	NA; 4 ppm in diet for 12 weeks (0.33 mg/kg/day)	NA	rat	NA; liver and and kidney toxicity	ND	3E-3	NA	100	U.S. EPA, 1984/ Zoecon Corp., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 4 ppm in diet for 12 weeks (0.33 mg/kg day)	NA	rat	NA; liver and kidney toxicity (Cancer: see Table B)	ND	3E-4[a]	NA	1000	U.S. EPA, 1984/ Zoecon Corp., 1983; U.S. EPA, 1990
Hexachlorocyclopentadiene subchronic (RfD_S)	0.15 ppm (1.67 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (0.2 mg/kg/day); 10 mg/kg, 5 days/week for 13 weeks (7.1 mg/kg/day)	rat	rat	respiratory tract lesions; forestomach lesions	7E-4 (2E-4)	7E-2	100	100	Battelle Northwest Laboratories, 1984; U.S. EPA, 1984/SRI, 1981; Abdo et al., 1984; U.S. EPA, 1990
chronic (RfD)	0.15 ppm (1.67 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (0.2 mg/kg/day); 10 mg/kg, 5 days/week for 13 weeks (7.1 mg/kg/day)	rat	rat	respiratory tract lesions; forestomach lesions	7E-5 (2E-5)	7E-3[a]	1,000	1,000	Battelle Northwest Laboratories, 1984; U.S. EPA, 1984/SRI, 1981; Abdo et al., 1984; U.S. EPA, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Hexachloroethane subchronic (RfD_S)	NA; 16-week dietary study (1 mg/kg/day)	NA	rat	NA; kidney degeneration	ND	1E-2	NA	100	U.S. EPA, 1987/ Gorzinski et al., 1985; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 16-week dietary study (1 mg/kg/day)	NA	rat	NA; kidney degeneration (also see Table B)	ND	1E-3[a]	NA	1000	U.S. EPA, 1987/ Gorzinski et al., 1985; U.S. EPA, 1989, 1990
Hexachlorophene subchronic (RfD_S)	NA; 30 ppm in the diet for 13 weeks (0.75 mg/ kg/day)	NA	dog	NA; nervous system effects (also see Table B)	ND	3E-3	NA	300	U.S. EPA, 1990/ Nationwide Chem. Corp. 1974; U.S. EPA, 1986, 1990 1990
chronic (RfD)	NA; 30 ppm in the diet for 13 weeks (0.75 mg/ kg/day)	NA	dog	NA; nervous system effects (also see Table B)	ND	3E-4[a]	NA	3000	U.S. EPA, 1990/ Nationwide Chem. Corp. 1974; U.S. EPA, 1986, 1990
Hexamethylenediamine	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
N-Hexane subchronic (RfD_S)	73 mg/m^3 TWA for 1-12 years (occupational); 570 mg/kg/day	human	rat	neurotoxicity; neuropathy or testicular atrophy	2E-1	6E-1	300	1000	Sanagi et al., 1980; U.S. EPA, 1990/Krasavage et al., 1980; U.S. EPA, 1989
chronic (RfD)	73 mg/m^3 TWA for 1-12 years (occupational); 570 mg/kg/day	human	rat	neurotoxicity; neuropathy or testicular atrophy	2E-1[j]	6E-1	300	10,000	Sanagi et al., 1980; U.S. EPA, 1990/Krasavage et al., 1980; U.S. EPA, 1989
2-Hexanone	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1989
Hydrogen sulfide subchronic (RfD_S)	NA; 3.1 mg/kg/day in dried greens for 105 days	NA	pig	NA; GI disturbance	ND	3E-2	NA	100	NA/Watterau et al., 1964-1965; U.S. EPA, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA; 3.1 mg/kg/day in dried greens for 105 days	NA	pig	NA; GI disturbance	9E-4[j]	3E-3[a]	NA	1000	NA/Watterau et al., 1964-1965; U.S. EPA, 1990
p-Hydroquinone subchronic (RfD_S)	NA; 300 mg/day for 3-5 months (4.29 mg/kg/day)	NA	human	NA; hematological effects	ND	4E-1	NA	10	U.S. EPA, 1987/ Carlson and Brewer, 1953; U.S. EPA, 1987
chronic (RfD)	NA; 300 mg/day for 3-5 months (4.29 mg/kg/day)	NA	human	NA; hematological effects	ND	4E-2	NA	100	U.S. EPA, 1987/ Carlson and Brewer, 1953; U.S. EPA, 1987
Iron			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1984
Isobutyl alcohol suchronic (RfD_S)	NA; 316 mg/kg/day in the diet for 13 weeks	NA	rat	NA; hypoactivity and ataxia	ND	3E+0	NA	100	U.S. EPA, 1986a/ U.S. EPA, 1986a,b, 1990
chronic (RfD)	NA; 316 mg/kg/day in the diet for 13 weeks	NA	rat	NA; hypoactivity and ataxia	ND	3E-1[a]	NA	1000	U.S. EPA, 1986a/ U.S. EPA, 1986a,b, 1990
Isophorone subchronic (RfD_S)	NA; 90-day oral (capsules) study (150 mg/kg/day)	NA	dog	NA; kidney lesions	ND	2E+0	NA	100	U.S. EPA, 1987/ Rohm and Haas, 1972; NTP, 1986; U.S. EPA, 1990
chronic (RfD)	NA; 90-day oral (capsules) study (150 mg/kg/day)	NA	dog	NA; kidney lesions (Cancer: see Table B)	ND	2E-1[a]	NA	1000	U.S. EPA, 1987/ Rohm and Haas, 1972; NTP, 1986; U.S. EPA, 1990
Isopropalin subchronic (RfD_S)	NA; 250 ppm in the diet for 90 days (15 mg/kg/ day)	NA	rat	NA; hematological effects, altered organ weights	ND	1.5E-1	NA	100	U.S. EPA, 1990/ Eli Lilly Co., 1985; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 250 ppm in the diet for 90 days (15 mg/kg/day)	NA	rat	NA; hematological effects, altered organ weights	ND	1.5E-2[a]	NA	1000	U.S. EPA, 1990/ Eli Lilly Co., 1985; U.S. EPA, 1984, 1990
Lactonitrile	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1988
Lead									
subchronic (RfD_S)	NA; NA	NA	NA	NA; NA	NDP	ND	NA	NA	U.S. EPA, 1984, 1986/U.S. EPA, 1984, 1986
chronic (RfD)	NA; NA	NA	NA	CNS effects; CNS effects (also see Table B)	NDP	ND[q]	NA	NA	U.S. EPA, 1984, 1986/U.S. EPA, 1984, 1986
Lead alkyls: tetrabutyl, tetraethyl, tetramethyl, tetrapropyl, triethyl, trimethyl, tripropyl, trimethylethyl, dimethylethyl, methyltriethyl									
subchronic (RfD_S)	NA; 0.00017 mg/kg/day by gavage for 20 weeks	NA	rat	NA; liver and neuronal damage	ND	1E-6	NA	1000	U.S. EPA, 1985/ Schepers, 1964; U.S. EPA, 1985
chronic (RfD)	NA; 0.00017 mg/kg/day by gavage for 20 weeks	NA	rat	NA; liver and neuronal damage	ND	1E-7[x]	NA	10,000	U.S. EPA, 1985/ Schepers, 1964; U.S. EPA, 1985
Lindane (see Hexachlorocyclohexane, gamma)									
Linuron									
subchronic (RfD_S)	NA; 25 ppm in the diet for 2 years (0.625 mg/kg/day)	NA	dog	NA; hematological	ND	2E-3	NA	300	U.S. EPA, 1990/ Du Pont de Nemours and Co., 1962; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 25 ppm in the diet for 2 years (0.625 mg/kg/day)	NA	dog	NA; hematological (also see Table B)	ND	2E-3[a,u]	NA	300	U.S. EPA, 1990/ Du Pont de Nemours and Co., 1962; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Malathion									
subchronic (RfD_S)	NA; 16 mg/day in capsules for 47 days (0.23 mg/kg/day)	NA	human	NA; hematological	ND	2E-2	NA	10	U.S. EPA, 1990/ Moeller and Rider, 1962; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 16 mg/day in capsules for 47 days (0.23 mg/kg/day)	NA	human	NA; hematological	ND	2E-2[a]	NA	10	U.S. EPA, 1990/ Moeller and Rider, 1962; U.S. EPA, 1984, 1990
Maleic anhydride									
subchronic (RfD_S)	NA; 10 mg/kg/day in the diet for 2 years	NA	rat	NA; kidney lesions	ND	1E-1	NA	100	U.S. EPA, 1990/ Jessup et al., 1982; Preache, 1983; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 10 mg/kg/day in the diet for 2 years	NA	rat	NA; kidney lesions (also see Table B)	ND	1E-1[a]	NA	100	U.S. EPA, 1990/ Jessup et al., 1982; Preache, 1983; U.S. EPA, 1986, 1990
Maleic hydrazide									
subchronic (RfD_S)	NA; 1% in diet for 28 months (500 mg/kg/day)	NA	rat	NA; altered kidney function	ND	5E-1	NA	1000	U.S. EPA, 1989/ Van der Haijden et al., 1981; U.S. EPA, 1989, 1990
chronic(RfD)	NA; 1% in diet for 28 months (500 mg/kg/day)	NA	rat	NA; altered kidney function	ND	5E-1[a]	NA	1000	U.S. EPA, 1989/ Van der Haijden et al., 1981; U.S. EPA, 1989, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Malononitrile									
subchronic (RfD_S)	NA; 0.25 mg/kg/day by gavage 6 days/week for 120 days	NA	rat	NA; liver and spleen	ND	2E-4	NA	1000	U.S. EPA, 1986/ Panov et al., 1972; U.S. EPA, 1986
chronic (RfD)	NA; 0.25 mg/kg/day by gavage 6 days/week for 120 days	NA	rat	NA; liver and spleen (also see Table B)	ND	2E-5[q]	NA	1000	U.S. EPA, 1986/ Panov et al., 1972; U.S. EPA, 1986
Mancozeb									
subchronic (RfD_S)	NA; 50 ppm in the diet for 90 weeks (2.9 mg/kg day)	NA	rat	NA; goitrogenic effects	ND	3E-2	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 50 ppm in the diet for 90 weeks (2.9 mg/kg day)	NA	rat	NA; goitrogenic effects	ND	3E-2	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
Maneb									
subchronic (RfD_S)	NA; 300 ppm in diet for 6 months (5 mg/kg/day)	NA	monkey	NA; increased thyroid weight	ND	5E-2	NA	100	U.S. EPA, 1984/ Rohm and Haas Co., 1977; Maneb Data Task Force, 1986; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 300 ppm in diet for 6 months (5 mg/kg/day)	NA	monkey	NA; increased thyroid weight	ND	5E-2[a]	NA	100	U.S. EPA, 1984/ Rohm and Haas Co., 1977; Maneb Data Task Force, 1986; U.S. EPA, 1984, 1990
Manganese									
subchronic (RfD_S)	0.3 mg/m^3 occupational (2.1 mg/day); 1050 ppm Mn from Mn_3O_4 from day 1 of gestation through 224 days of age (52.5 mg Mn/kg/day)	human	rat	CNS; reproductive	1E-3(3E-4)	5E-1	100	100	Saric et al., 1977; U.S. EPA, 1984a,b/Laskey et al., 1982; U.S. EPA, 1984a,b

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	0.3 mg/m^3 occupational (2.1 mg/day); 1 mg $MnCl_2 \cdot 4\ H_2O$/l for >2 years (22 mg Mn/kg/day day) in drinking water	human	rat	CNS; CNS[1]	1E-3(3E-4)	2E-1[1]	100	100	Saric et al., 1977; U.S. EPA, 1984/Leung et al., 1981; Lai et al., 1982; U.S. EPA, 1984a,b
MCPA (see 2-Methyl-4-chlorophenoxyacetic acid)									
MCPB (see 4-(2-Methyl-4-chlorophenoxy)butyric acid)									
MCPP (see 2-(2-Methyl-4-chlorophenoxy)propionic acid)									
Mephosfolan subchronic (RfD_s)	NA; 1.25 ppm in the diet for 17 weeks (0.09 mg/kg/day)	NA	rat	NA; liver and kidney weights, reduced plasma, RBC and brain cholinesterase activities	ND	9E-4	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 1.25 ppm in the diet for 17 weeks (0.09 mg/kg/day)	NA	rat	NA; liver and kidney weights, reduced plasma, RBC and brain cholinesterase activities	ND	9E-5	NA	1000	U.S. EPA, 1984/ U.S. EPA, 1984
Mercury, inorganic subchronic (RfD_s)	0.009 mg/m^3, several occupational studies; several oral and parenteral studies in the Brown Norway rat	human	rat	neurotoxicity; kidney effects	3E-4	3E-4	30	1000	Fawer et al., 1987; Pakkivi and Toulonen, 1989; Pikkivi and Hanninen, 1989; Pikkivi,, 1989; U.S. EPA, 1984, 1990/ Fitzhugh et al., 1950; Dru et al., 1978; Bernaudin et al., 1981; Andres, 1984; U.S. EPA, 1987

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	0.009 mg/m^3, several occupational studies; several oral and parenteral studies in the Brown Norway rat	human	rat	neurotoxicity; kidney effects	3E-4[j]	3E-4[j]	30	1000	Fawer et al., 1987; Pakkivi and Toulonen, 1989; Pikkivi and Hanninen, 1989; Pikkivi,, 1989; U.S. EPA, 1984, 1990/ Fitzhugh et al., 1950; Dru et al., 1978; Bernaudin et al., 1981; Andres, 1984; U.S. EPA, 1987
Merphos subchronic (RfD_S)	NA; 0.1 mg/kg/day in capsules for 3 months	NA	hen	NA; ataxia, delayed neuro-toxicity	ND	3E-4	NA	300	U.S. EPA, 1990/ Abou-Donia et al., 1980; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.1 mg/kg/day in capsules for 3 months	NA	hen	NA; ataxia, delayed neuro-toxicity	ND	3E-5[a]	NA	3000	U.S. EPA, 1990/ Abou-Donia et al., 1980; U.S. EPA, 1984, 1990
Merphos oxide subchronic (RfD_S)	NA; 0.1 mg/kg/day in capsules for 3 months	NA	hen	NA; ataxia, delayed neuro-toxicity	ND	3E-4	NA	300	U.S. EPA, 1990/ Abou-Donia et al., 1979; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.1 mg/kg/day in capsules for 3 months	NA	hen	NA; ataxia, delayed neuro-toxicity	ND	3E-5[a]	NA	3000	U.S. EPA, 1990/ Abou-Donia et al., 1979; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Methacrylonitrile subchronic (RfD_S)	3.2 ppm (9 mg/m^3), 7 hours/day, 5 days/week for 90 days (0.63 mg/kg/day); 3.2 ppm (9 mg/m^3) 7 hours/day 5 days/week for 90 days (0.32 mg/kg/day)	dog	dog	increased SGOT and SGPT, loss of hind-limb motor control, brain lesions; increased SGOT and SGPT, loss of hind-limb motor control, brain lesions	7E-3 (2E-3)[m]	1E-3[b]	300	300	Pozzani et al., 1968; U.S. EPA, 1990/Pozzani et al., 1968; U.S. EPA, 1990
chronic (RfD)	3.2 ppm (9 mg/m^3), 7 hours/day, 5 days/week for 90 days (0.63 mg/kg/day); 3.2 ppm (9 mg/m^3) 7 hours/day 5 days/week for 90 days (0.32 mg/kg/day)	dog	dog	increased SGOT and SGPT, loss of hind-limb motor control, brain lesions; increased SGOT and SGPT, loss of hind-limb motor control, brain lesions	7E-4 (2E-4)[m]	1E-4[a,b]	3000	3000	Pozzani et al., 1968; U.S. EPA, 1990/Pozzani et al., 1968; U.S. EPA, 1990
Methanol subchronic (RfD_S)	NA; 500 mg/kg/day by gavage for 90 days	NA	rat	NA; increased serum alkaline phosphatase and SGPT and decreased brain weight	ND	5E+0	NA	100	NA/U.S. EPA, 1986, 1990
chronic (RfD)	NA; 500 mg/kg/day by gavage for 90 days	NA	rat	NA; increased serum alkaline phosphatase and SGPT and decreased brain weight	ND	5E-1[a]	NA	1000	NA/U.S. EPA, 1986, 1990
Methomyl subchronic (RfD_S)	NA; 100 ppm in diet (2.5 mg/kg/day) for 24 months	NA	dog	NA; kidney lesions	ND	3E-2	NA	100	U.S. EPA, 1988/Kaplan and Sherman, 1977; U.S. EPA, 1988, 1990
chronic (RfD)	NA; 100 ppm in diet (2.5 mg/kg/day) for 24 months	NA	dog	NA; kidney lesions	ND	3E-2[a]	NA	100	U.S. EPA, 1988/Kaplan and Sherman, 1977; U.S. EPA, 1988, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Methoxychlor									
subchronic (RfD_S)	NA; 200 ppm (10 mg/kg/day in diet during gestation	NA	rat	NA; fetotoxicity	ND	1E-1[bb]	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 200 ppm (10 mg/kg/day) in diet during gestation	NA	rat	NA; fetotoxicity	ND	1E-1[g,l,bb]	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
2-Methoxyethanol									
subchronic (RfD_S)	10 ppm (31 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (2.9 mg/kg/day); 10 ppm (31 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (1.47 mg/kg/day)	rabbit	rabbit	fetotoxicity and testicular effects; fetotoxicity and testicular effects	1E-1 (3E-2)[o,bb]	1E-2[b,bb]	100	100	Miller et al., 1982; U.S. EPA, 1986/Miller et al., 1982; U.S. EPA, 1986
chronic (RfD)	10 ppm (31 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (2.9 mg/kg/day); 10 ppm (31 mg/m^3) 6 hours/day, 5 days/week for 13 weeks (1.47 mg/kg/day)	rabbit	rabbit	fetotoxicity and testicular effects; fetotoxicity and testicular effects	1E-2 (3E-3)[o,bb]	1E-3[b,g,bb]	1000	1000	Miller et al., 1982; U.S. EPA, 1986/Miller et al., 1982; U.S. EPA, 1986
2-Methoxyethanol acetate									
subchronic (RfD_S)	NA; 10 ppm (31 mg/m^3) 2-methoxyethanol x 18.13/76.09 (molecular weight ratio) x 6 hours/day x 5 days/week x 0.5 absorption factor for 13 weeks	NA	rabbit	NA; testicular degeneration	ND	2E-2[b]	NA	100	U.S. EPA, 1987/ Miller et al., 1982; U.S. EPA, 1987
chronic (RfD)	NA; 10 ppm (31 mg/m^3) 2-methoxyethanol x 18.13/76.09 (molecular weight ratio) x 6 hours/day x 5 days/week x 0.5 absorption factor for 13 weeks	NA	rabbit	NA; testicular degeneration	ND	2E-3[b]	NA	1000	U.S. EPA, 1987/ Miller et al., 1982; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Methyl acetate									
subchronic (RfD_S)	NR; 500 mg/kg/day methanol by gavage for 90 days x 74.08/32.04 (molecular weight ratio)	NA	rat	NA; liver damage	ND	10	NA	100	U.S. EPA, 1986/ Toxicity Research Laboratory, 1986; U.S. EPA, 1986
chronic (RfD)	NR; 500 mg/kg/day methanol by gavage for 90 days x 74.08/32.04 (molecular weight ratio)	NA	rat	NA; liver damage (also see Table B)	ND	1[9]	NA	1000	U.S. EPA, 1986/ Toxicity Research Laboratory, 1986; U.S. EPA, 1986
Methyl acrylate									
subchronic (RfD_S)	NA; 15 ppm (53 mg/m^3) x 6 hours/day x 5 days/ week for 2 years x 0.5 absorption factor	NA	rat	NA; no effect	ND	3E-2	NA	100	U.S. EPA, 1987/ Klimisch and Reininghaus, 1984; U.S. EPA, 1987
chronic (RfD)	NA; 15 ppm (53 mg/m^3) x 6 hours/day x 5 days/ week for 2 years x 0.5 absorption factor	NA	rat	NA; no effect (also see Table B)	ND	3E-2	NA	100	U.S. EPA, 1987/ Klimisch and Reininghaus, 1984; U.S. EPA, 1987
Methyl bromide (see Bromomethane)									
Methyl chloride				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (also see Table B)					U.S. EPA, 1986
Methyl chlorocarbonate				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1989
2-Methyl-4-chlorophenoxy-acetic acid (MCPA)									
subchronic (RfD_S)	NA; 6 ppm in the diet for 52 weeks (0.15 mg/ kg/day)	NA	dog	NA; kidney and and liver	ND	5E-4	NA	300	U.S. EPA, 1990/ Industry Task Force, 1986; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 6 ppm in the diet for 52 weeks (0.15 mg/ kg/day)	NA	dog	NA; kidney and and liver	ND	5E-4[a]	NA	300	U.S. EPA, 1990/ Industry Task Force, 1986; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
4-(2-Methyl-4-chlorophenoxy)-buturic acid (MCPB)									
subchronic (RfD_S)	NA; 12 mg/kg/day in the diet for 13 weeks	NA	rat, dog	NA; reproductive toxicity in dogs, liver and kidney effects in rats	ND	1E-1	NA	100	U.S. EPA, 1990/ Rhodia Inc., 1970a,b; U.S. EPA, 1984, 1990
chronic	NA; 12 mg/kg/day in the diet for 13 weeks	NA	rat, dog	NA; reproductive toxicity in dogs, liver and kidney effects in rats	ND	1E-2[a]	NA	1000	U.S. EPA, 1990/ Rhodia Inc., 1970a,b; U.S. EPA, 1984, 1990
2-(2-Methyl-4-chlorophenoxy)-propionic acid (MCPP)									
subchronic (RfD_S)	NA; 50 ppm in the diet for 90 days (3 mg/kg/day)	NA	rat	NA; kidney weight	ND	1E-2	NA	300	U.S. EPA, 1990/ BASF Akt., 1985; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 50 ppm in the diet for 90 days (3 mg/kg/day)	NA	rat	NA; kidney weight	ND	1E-3[a]	NA	3000	U.S. EPA, 1990/ BASF Akt., 1985; U.S. EPA, 1984; 1990
Methylcyclohexane		DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT							U.S. EPA, 1984
Methylene bromide									
subchronic (RfD_S)	NA; 25 ppm (178 mg/m^3) 6 hours/day for 63 days in a 90-day period, 0.5 absorption factor (11.0 mg/kg/day)	NA	rat	NA; increased carboxyhemoglobin	ND	1E-1[b]	NA	100	U.S. EPA, 1987/ Keyes et al., 1982; U.S. EPA, 1987
chronic (RfD)	NA; 25 ppm (178 mg/m^3) 6 hours/day for 63 days in a 90-day period, 0.5 absorption factor (11.0 mg/kg/day)	NA	rat	NA; increased carboxyhemoglobin (also see Table B)	ND	1E-2[b]	NA	1000	U.S. EPA, 1987/ Keyes et al., 1982; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Methylene chloride (dichloromethane)									
subchronic (RfD_S)	200 ppm (694.8 mg/m^3) 6 hours/day, 5 days/week for 2 years; 24-month drinking water study [5.85 mg/kg/day (males) 6.47 mg/kg/day (females)]	rat	rat	NA; liver toxicity;	3	6E-2	100	100	Nitschke et al., 1988/ National Coffee Association, 1982; U.S. EPA, 1989, 1990
chronic (RfD)	200 ppm (694.8 mg/m^3) 6 hours/day, 5 days/week for 2 years; 24-month drinking water study [5.85 mg/kg/day (males) 6.47 mg/kg/day (females)]	rat	rat	NA; liver toxicity; (Cancer: see Table B)	3[j]	6E-2[a]	100	100	Nitschke et al., 1988/National Coffee Association, 1982; U.S. EPA, 1989, 1990
4,4'-Methylenediphenyl isocyanate	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
Methyl ethyl benzenes (see Ethyltoluene)									
Methyl ethyl ketone									
subchronic (RfD_S)	235 ppm (693 mg/m^3) 7 hours/day, 5 days/ week for 12 weeks (92 mg/kg/day); 235 ppm (693 mg/m^3) 7 hours/ day, 5 days/week for 12 weeks (46 mg/kg/day)	rat	rat	CNS; fetotoxicity	3E-0 (9E-1)	5E-1[b,bb]	100	100	LaBelle and Brieger, 1955; U.S. EPA, 1990/ LaBelle and Brieger, 1955; U.S. EPA, 1985, 1989, 1990
chronic (RfD)	235 ppm (693 mg/m^3) 7 hours/day, 5 days/ week for 12 weeks (92 mg/kg/day); 235 ppm (693 mg/m^3) 7 hours/ day, 5 days/week for 12 weeks (46 mg/kg/day)	rat	rat	CNS; fetotoxicity	3E-1 (9E-2)[g]	5E-2[b,l,z,bb]	1000	1000	LaBelle and Brieger, 1955; U.S. EPA, 1990/ LaBelle and Brieger, 1955; U.S. EPA, 1985, 1989, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Methyl isobutyl ketone subchronic (RfD_S)	50 ppm (205 mg/m^3) 6 hours/day, 5 days/ week for 90 days (23.3 mg/kg/day); 50 mg/kg/day by gavage for 13 weeks	rat	rat	liver and kidney effects; liver and kidney effects	8E-1 (2E-1)	5E-1	100	100	Union Carbide Corp., 1983; U.S. EPA, 1987/ Microbiological Associates, 1986; U.S. EPA, 1987
chronic (RfD)	50 ppm (205 mg/m^3) 6 hours/day, 5 days/ week for 90 days (23.3 mg/kg/day); 50 mg/kg/day by gavage for 13 weeks	rat	rat	liver and kidney effects; liver and kidney effects	8E-2 (2E-2)[g]	5E-2[a]	1000	1000	Union Carbide Corp., 1983; U.S. EPA, 1987/ Microbiological Associates, 1986; U.S. EPA, 1987, 1990
Methyl isocyanate	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1986
Methyl mercury subchronic (RfD_S)	NA; 0.003 mg/kg/day in humans associated with Hg in blood at 200 ng/mℓ	NA	human	NA; CNS effects	ND	3E-4	NA	10	U.S. EPA, 1990/ Clarkson et al., 1976; Nordberg Strangart, 1976; WHO, 1976; U.S. EPA, 1980, 1984, 1990
chronic (RfD)	NA; 0.003 mg/kg/day in humans associated with Hg in blood at 200 ng/mℓ	NA	human	NA; CNS effects	ND	3E-4[z]	NA	10	U.S. EPA, 1990/ Clarkson et al., 1976; Nordberg Strangart, 1976; WHO, 1976; U.S. EPA, 1980, 1984, 1990
Methyl methacrylate subchronic (RfD_S)	NA; 60 ppm for 4 months then 70 ppm for 20 months in drinking water (7.5 mg/kg/day)	NA	rat	NA; increased relative kidney weight	ND	8E-2	NA	100	U.S. EPA, 1985/ Borgelleca et al., 1964; U.S. EPA, 1985

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 60 ppm for 4 months then 70 ppm for 20 months in drinking water (7.5 mg/kg/day)	NA	rat	NA; increased relative kidney weight (also see Table B)	ND	8E-2[g]	NA	100	U.S. EPA, 1985/ Borgelleca et al., 1964; U.S. EPA, 1985
Methyl parathion									
subchronic (RfD_S)	NA; 0.5 ppm (0.025 mg/ kg/day) in diet for 2 years	NA	rat	NA; reduced hemoglobin, hematocrit and RBCs, cholinesterase inhibition	ND	2.5E-4	NA	100	U.S. EPA, 1984/ Monsanto Co., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 0.5 ppm (0.025 mg/ kg/day) in diet for 2 years	NA	rat	NA; reduced hemoglobin, hematocrit and RBCs, cholinesterase inhibition	ND	2.5E-4[a]	NA	100	U.S. EPA, 1984/ Monsanto Co., 1983; U.S. EPA, 1990
Methyl styrene (industrial mixture)									
subchronic (RfD_S)	10 ppm (48.3 mg/m^3) 6 hours/day, 5 days/week for 103 weeks (11.2 mg/ kg/day); 10 ppm (48.3 mg/m^3) 6 hours/day, 5 days/week for 103 weeks (5.6 mg/kg/day)	mouse	mouse	nasal lesions; nasal lesions	4E-2 (1E-2)	6E-3[b]	1000	1000	MRI, 1984a; U.S. EPA, 1987/ MRI, 1984a; U.S. EPA, 1987
chronic	10 ppm (48.3 mg/m^3) 6 hours/day, 5 days/week for 103 weeks (11.2 mg/ kg/day); 10 ppm (48.3 mg/m^3) 6 hours/day, 5 days/week for 103 weeks (5.6 mg/kg/day)	mouse	mouse	nasal lesions; nasal lesions	4E-2 (1E-2)	6E-3[b]	1000	1000	MRI, 1984a; U.S. EPA, 1987/ MRI, 1984a; U.S. EPA, 1987
Methyl styrene, alpha									
subchronic (RfD_S)	970 mg/m^3, 7.5 hours/ day, 5 days/week for 200 days (69 mg/kg/day); NA	rat	NA	liver and kidney; NA	ND	7E-1[b]	NA	100	U.S. EPA, 1987; Wolf et al., 1956/U.S. EPA, 1987; Wolf et al., 1956

Compound	Exposure: Inhalation, Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	970 mg/m^3, 7.5 hours/day, 5 days/week for 200 days (69 mg/kg/day); NA	rat	NA	liver and kidney; NA	ND	7E-2[b]	NA	1000	U.S. EPA, 1987; Wolf et al., 1956/U.S. EPA, 1987; Wolf et al., 1956
Mirex									
subchronic (RfD_S)	NA; 0.1 ppm in diet, multigenerational study (0.015 mg/kg/day)	NA	prairie vole	NA; decreased pup survival	ND	2E-6	NA	10,000	U.S. EPA, 1987/ Shannon, 1976; U.S. EPA, 1990
chronic (RfD)	NA; 0.1 ppm in diet, multigenerational study (0.015 mg/kg/day)	NA	prairie vole	NA; decreased pup survival (Cancer: see Table B)	ND	2E-6[a]	NA	10,000	U.S. EPA, 1987/ Shannon, 1976; U.S. EPA, 1990
Molinate									
subchronic (RfD_S)	NA; 0.2 mg/kg/day by gavage	NA	rat	NA; reproductive toxicity	ND	2E-3	NA	100	U.S. EPA, 1984/ Stauffer Chemical Co., 1981; U.S. EPA, 1990
chronic (RfD)	NA; 0.2 mg/kg/day by gavage	NA	rat	NA; reproductive toxicity	ND	2E-3[a]	NA	100	U.S. EPA, 1984/ Stauffer Chemical Co., 1981; U.S. EPA, 1990
Monochlorobutanes									
subchronic (RfD_S)	NA; 120 mg/kg, 5 days/week for 13 weeks by gavage	NA	rat	NA; reduced body weight gain; hyperactivity, convulsions	ND	9E-1	NA	100	U.S. EPA, 1989/ NTP, 1986; U.S. EPA, 1989
chronic (RfD)	NA; 60 mg/kg, 5 days/week for 103 weeks by gavage	NA	rat	NA; mortality	ND	4E-1	NA	100	U.S. EPA, 1989/ NTP, 1986; U.S. EPA, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Naphthalene									
subchronic (RfD_S)	NA; 10-20 mg/day in diet 6 days/week for ≈700 days (41 mg/kg/day)[s]	NA	rat	NA; ocular and internal lesions	ND	4E-3[t]	NA	10,000	U.S. EPA, 1988/ Schmahl, 1955; U.S. EPA, 1988
chronic (RfD)	NA; 10-20 mg/day in diet 6 days/week for ≈700 days (41 mg/kg/day)[s]	NA	rat	NA; ocular and internal lesions	ND	4E-3[g,l,t]	NA	10,000	U.S. EPA, 1988/ Schmahl, 1955; U.S. EPA, 1986, 1988
1,4-Naphthoquinone				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1986
Nickel									
subchronic (RfD_S)	NA; 100 ppm Ni from nickel sulfate in diet for 2 years (5 mg Ni/kg/day)	NA	rat	cancer; reduced body and organ weight	ND	2E-2	NA	300	U.S. EPA, 1984/ Ambrose et al., 1976; U.S. EPA, 1990
chronic (RfD)	NA; 100 ppm Ni from nickel sulfate in diet for 2 years (5 mg Ni/kg/day)	NA	rat	cancer (see Table B); reduced body and organ weight	ND	2E-2[z]	NA	300	U.S. EPA, 1984/ Ambrose et al., 1976; U.S. EPA, 1990
Nicotinonitrile				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
Nitric oxide									
subchronic (RfD_S)	NA; 10 ppm (10 mg/ℓ) nitrate concentration in infant formula (1.0 mg/kg/day)	NA	human	NA; methemoglobinemia	NA	1E-1	NA	10	NA/Walton, 1951; U.S. EPA, 1990
chronic (RfD)	NA; 10 ppm (10 mg/ℓ) nitrate concentration in infant formula (1.0 mg/kg/day)	NA	human	NA; methemoglobinemia	NA	1E-1[a]	NA	10	NA/Walton, 1951; U.S. EPA, 1990
Nitrite									
subchronic (RfD_S)	NA; 10 ppm nitrate in drinking water	NA	human	NA; methemoglobinemia	ND	1E-1	NA	10	U.S. EPA, 1989/ Walton, 1951; U.S. EPA, 1989, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	NA; 10 ppm nitrate in drinking water	NA	human	NA; methemoglobinemia	ND	1E-1[z]	NA	10	U.S. EPA, 1989/ Walton, 1951; U.S. EPA, 1989, 1990
Nitroanilines (o-, m-, p-)				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985
Nitrobenzene subchronic (RfD_S)	5 ppm (25 mg/m^3) 6 hours/day, 5 days/ week for 90 days (HEC=4.5 mg/m^3); 5 ppm (25 mg/m^3) 6 hours/day, 5 days/ week for 90 days (4.64 mg/kg/day)	mouse	mouse	hematological, adrenal, renal and hepatic lesions; hematological, adrenal, renal and hepatic lesions;	2E-2	5E-3[b]	300	1000	CIIT, 1984; U.S. EPA, 1987/ CIIT, 1984; U.S. EPA, 1987
chronic (RfD)	5 ppm (25 mg/m^3) 6 hours/day, 5 days/ week for 90 days (HEC=4.5 mg/m^3); 5 ppm (25 mg/m^3) 6 hours/day, 5 days/ week for 90 days (4.64 mg/kg/day)	mouse	mouse	hematological, adrenal, renal and hepatic lesions; hematological, adrenal, renal and hepatic lesions;	2E-3[j]	5E-4[b,l,z]	3000	10,000	CIIT, 1984; U.S. EPA, 1987/ CIIT, 1984; U.S. EPA, 1985, 1987, 1990
Nitrofurantoin Subchronic (RfD_S)	NA; 300 ppm diet for 13 weeks (69.7 mg/kg/ day)	NA	mouse	NA; testicular damage	ND	7E-1	NA	100	U.S. EPA, 1987/ SRI, 1980; U.S. EPA, 1987
chronic (RfD)	NA: 300 ppm diet for 13 weeks (69.7 mg/kg/ day)	NA	mouse	NA; testicular damage	ND	7E-2	NA	1000	U.S. EPA, 1987/ SRI, 1980; U.S. EPA, 1987
Nitrofurans, other: see Table B									
Nitrogen dioxide subchronic (RfD_S)	0.4 ppm (0.753 mg/m^3) continuous for up to 27 months (HEC=1.56 mg/m^3); 10 ppm nitrate-N in water (1 mg nitrate-N/kg/day)	rat	human	proliferative changes in lungs; methemoglobinemia	2E-2	1E+0	100	1	Kubota et al., 1987; Sagai and Ichinose, 1987; Sagai et al., 1984; U.S. EPA, 1990b/Walton, 1951; U.S. EPA, 1990a,b

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	0.4 ppm (0.753 mg/m^3) continuous for up to 27 months (HEC=1.56 mg/m^3); 10 ppm nitrate-N in water (1 mg nitrate-N/kg/day)	rat	human	proliferative changes in lungs; methemoglobinemia	2E-2[g]	1E+0[a,dd]	100	1	Kubota et al., 1987; Sagai and Ichinose, 1987; Sagai et al., 1984; U.S. EPA, 1990b/Walton, 1951; U.S. EPA, 1990a,b
Nitrogen oxides				RISK ASSESSMENT VALUES NOT DERIVED					U.S. EPA, 1982
Nitromethane				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1985
Nitrophenols				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
p-Nitrosodiphenylamine				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1986
Nitrotoluenes (o-, m-, p-)									
subchronic (RfD$_S$)	NA; 200 mg/kg/day o-nitrotoluene x 5 days/week by gavage for 6 months	NA	rat	NA; splenic lesions	ND	1E-1	NA	1000	U.S. EPA, 1986; Ciss et al., 1980; U.S. EPA, 1986
chronic (RfD)	NA; 200 mg/kg/day o-nitrotoluene x 5 days/week by gavage for 6 months	NA	rat	NA; splenic lesions (also see Table B)	ND	1E-2	NA	10,000	U.S. EPA, 1986; Ciss et al., 1980; U.S. EPA, 1986
Octamethylpyrophosphoramine									
subchronic (RfD$_S$)	NA; 1.5 mg/day for at least 30 days (0.02 mg/kg/day)	NA	human	NA; decreased blood cholinesterase activity	ND	2E-3	NA	10	U.S. EPA, 1989/ Rider et al., 1969; U.S. EPA, 1989
chronic (RfD)	NA; 1.5 mg/day for at least 30 days (0.02 mg/kg/day)	NA	human	NA; decreased blood cholinesterase activity	ND	2E-3[g]	NA	10	U.S. EPA, 1989/ Rider et al., 1969; U.S. EPA, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Octabromodiphenyl ether									
subchronic (RfD_S)	NA; 2.5 mg/kg/day by gavage for 90 days	NA	rat	NA; liver histology	ND	3E-2	NA	100	U.S. EPA, 1990/ Carlson, 1980; U.S. EPA, 1983, 1990
chronic (RfD)	NA; 2.5 mg/kg/day by gavage for 90 days	NA	rat	NA; liver histology	ND	3E-3[a]	NA	1000	U.S. EPA, 1990/ Carlson, 1980; U.S. EPA, 1983, 1990
Ozone and other photochemical oxidants				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1986
Paraldehyde				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (also see Table B)					U.S. EPA, 1986
Parathion									
subchronic (RfD_S)	NA; CBI	NA	human	NA; cholinesterase inhibition	ND	6E-3	NA	10	U.S. EPA, 1987/ U.S. EPA, 1987
chronic (RfD)	NA; CBI	NA	human	NA; cholinesterase inhibition, cancer[u]	ND	6E-3[g]	NA	10	U.S. EPA, 1987/ U.S. EPA, 1987
Particulate matter and sulfur oxides				RISK ASSESSMENT VALUES NOT DERIVED					U.S. EPA, 1982
Pebulate									
subchronic (RfD_S)	NA; 5 mg/kg/day subchronic feeding study	NA	rat	NA; anticoagulant effects	ND	5E-2	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 5 mg/kg/day subchronic feeding study	NA	rat	NA; anticoagulant effects	ND	5E-2	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
Pendimethalin									
subchronic (RfD_S)	NA; 12.5 mg/kg/day, 7 days/week in capsules for 2 years	NA	dog	NA; liver	ND	4E-2	NA	300	U.S. EPA, 1990/ American Cyanimid, 1979; U.S. EPA, 1984, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 12.5 mg/kg/day, 7 days/week in capsules for 2 years	NA	dog	NA; liver	ND	4E-2[a]	NA	300	U.S. EPA, 1990/ American Cyanimid, 1979; U.S. EPA, 1984, 1990
Pentabromodiphenyl ether subchronic (RfD_S)	NA; 1.8 mg/kg/day by gavage for 90 days	NA	rat	NA; liver enzymes	ND	2E-2	NA	100	U.S. EPA, 1990/ Carlson, 1980; U.S. EPA, 1983, 1990
chronic (RfD)	NA; 1.8 mg/kg/day by gavage for 90 days	NA	rat	NA; liver enzymes	ND	2E-3[a]	NA	1000	U.S. EPA, 1990/ Carlson, 1980; U.S. EPA, 1983, 1990
Pentachlorobenzene subchronic (RfD_S)	NA; 83 mg/kg/day in the diet for 100 days	NA	rat	NA; liver and kidney toxicity	ND	8E-3	NA	1000	U.S. EPA, 1989/ Linder, 1980; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 83 mg/kg/day in the diet for 100 days	NA	rat	NA; liver and kidney toxicity	ND	8E-4[a]	NA	10,000	U.S. EPA, 1989/ Linder, 1980; U.S. EPA, 1989, 1990
Pentachlorocyclopentadiene			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[1]						U.S. EPA, 1988
Pentachloronitrobenzene subchronic (RfD_S)	NA; 30 ppm (0.75 mg/kg/ day) in diet for 2 years	NA	dog	NA; liver toxicity	ND	3E-3	NA	300	U.S. EPA, 1986/ Olin Corp., 1968; U.S. EPA, 1990
chronic (RfD)	NA; 30 ppm (0.75 mg/kg/ day) in diet for 2 years	NA	dog	NA; liver toxicity (Cancer: see Table B)	ND	3E-3[a]	NA	300	U.S. EPA, 1986/ Olin Corp., 1968; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Pentachlorophenol									
subchronic (RfD_S)	NA; 3 mg/kg/day by gavage 62 days before mating through gestation	NA	rat	NA; fetotoxicity	ND	3E-2[bb]	NA	100	U.S. EPA, 1984/ Schwetz et al., 1978; U.S. EPA, 1984, 1986, 1990
chronic (RfD)	NA; 3 mg/kg/day by gavage for 22-24 months	NA	rat	NA; liver and kidney pathology	ND	3E-2[a]	NA	100	U.S. EPA, 1984/ Schwetz et al., 1978; U.S. EPA, 1984, 1986, 1990
1,1,2,3,3-Pentachloropropene				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1983
n-Pentane				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
Phenanthrene				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1984, 1987
Phenol									
subchronic (RfD_S)	NA; 60 mg/kg/day by gavage during organogenesis	NA	rat	NA; reduced fetal body weight	ND	6E-1[bb]	NA	100	U.S. EPA, 1984/ Research Triangle Institute, 1983; U.S. EPA, 1990
chronic (RfD)	NA; 60 mg/kg/day by gavage during organogenesis	NA	rat	NA; reduced fetal body weight	ND	6E-1[a,1,bb]	NA	100	U.S. EPA, 1984/ Research Triangle Institute, 1983; U.S. EPA, 1990
Phenylenediamines (o-, p-)				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT (Cancer: see Table B)					U.S. EPA, 1985
m-Phenylenediamine									
subchronic (RfD_S)	NA; 6.0 mg/kg/day for 90 days	NA	rat	NA; liver lesions	ND	6E-2	NA	100	U.S. EPA, 1985/ Hofer and Hruby, 1982; U.S. EPA, 1990
chronic (RfD)	NA; 6.0 mg/kg/day for 90 days	NA	rat	NA; liver lesions	ND	6E-3[a]	NA	1000	U.S. EPA, 1985/ Hofer and Hruby, 1982; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Phenylmercuric acetate subchronic (RfD_S)	NA; 0.1 ppm mercury in diet for 2 years (0.0084 mg mecuric acetate/kg/day)[ee]	NA	rat	NA; renal damage	ND	8E-5	NA	100	NA/Fitzhugh et al., 1950; U.S. EPA, 1990
chronic (RfD)	NA; 0.1 ppm mercury in diet for 2 years (0.0084 mg mecuric acetate/kg/day)[ee]	NA	rat	NA; renal damage	ND	8E-5[a]	NA	100	NA/Fitzhugh et al., 1950; U.S. EPA, 1990
Phosgene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Phosphine subchronic (RfD_S)	1 ppm (1.4 mg/m^3) 34 hours/week for 24 weeks; 0.026 mg/kg/day in the diet for 2 years	rat	rat	renal effects; no effect	3E-4	3E-4	1	100	Klimmer, 1969; U.S. EPA, 1989/ Hackenberg, 1972; U.S. EPA, 1989
chronic (RfD)	1 ppm (1.4 mg/m^3) 34 hours/week for 24 weeks; 0.026 mg/kg/day in the diet for 2 years	rat	rat	renal effects; no effect	3E-5	3E-4[a]	10	100	Klimmer, 1969; U.S. EPA, 1989/ Hackenberg, 1972; U.S. EPA, 1989
Phthalic acid esters, selected (see Table B)									
Phthalic acids (o-, m-)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1986
p-Phthalic acid subchronic (RfD_S)	NA; 142 mg/kg/day in diet for 2 years	NA	rat	NA; hyperplasia of bladder urothelium	ND	1E+0	NA	100	U.S. EPA, 1986/ CIIT, 1983; Gross, 1974; U.S. EPA, 1986
chronic (RfD)	NA; 142 mg/kg/day in diet for 2 years	NA	rat	NA; hyperplasia of bladder urothelium	ND	1E+0	NA	100	U.S. EPA, 1986/ CIIT, 1983; Gross, 1974; U.S. EPA, 1986
Phthalic anhydride subchronic (RfD_S)	NA; 12,019 ppm (1562 mg/kg/day) in diet for 104 weeks	NA	mouse	NA; lung and kidney histopathology	ND	2E+0	NA	1000	U.S. EPA, 1986/ NCI, 1979, U.S. EPA, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA; 12,019 ppm (1562 mg/kg/day) in diet for 104 weeks	NA	mouse	NA; lung and kidney histopathology (also see Table B)	ND	2E+0[a]	NA	1000	U.S. EPA, 1986/ NCI, 1979, U.S. EPA, 1990
Polybrominated biphenyls									
subchronic (RfD_S)	NA; Firemaster FF-1 0.1 mg/kg by gavage, 5 days/week for 25 weeks (0.07 mg/kg/day)	NA	rat	NA; elevated liver weight and liver lesions	ND	7E-5	NA	1000	U.S. EPA, 1989/ NTP, 1983; U.S. EPA, 1989
chronic (RfD)	NA; Firemaster FF-1 0.1 mg/kg by gavage, 5 days/week for 25 weeks (0.07 mg/kg/day)	NA	rat	NA; elevated liver weight and liver lesions (also see Table B)	ND	7E-6	NA	10,000	U.S. EPA, 1989/ NTP, 1983; U.S. EPA, 1989
Potassium cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (27 mg/kg/day)	NA	rat	NA; weight loss, thyroid effects, and myelin degeneration	ND	5E-2	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (27 mg/kg/day)	NA	rat	NA; weight loss, thyroid effects, and myelin degeneration	ND	5E-2[a]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Potassium silver cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (equivalent to potassium silver cyanide at 82.7 mg/kg/day)	NA	rat	NA; weight loss, thyroid effects, and myelin degeneration	ND	2E-1[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (equivalent to potassium silver cyanide at 82.7 mg/kg/day)	NA	rat	NA; weight loss, thyroid effects, and myelin degeneration	ND	2E-1[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Profluralin									
subchronic (RfD_S)	NA; subchronic feeding study; no details provided	NA	rat	NA; NA	ND	6E-3	NA	NA	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; subchronic feeding study; no details provided	NA	rat	NA; NA	ND	6E-3	NA	NA	U.S. EPA, 1984/ U.S. EPA, 1984
Pronamide									
subchronic (RfD_S)	NA; 300 ppm in diet for 2 years (7.5 mg/kg/day)	NA	dog	NA; none observed	ND	8E-2	NA	100	NA/Rohm & Haas, Co., 1970; U.S. EPA, 1990
chronic (RfD)	NA; 300 ppm in diet for 2 years (7.5 mg/kg/day)	NA	dog	NA; none observed	ND	8E-2[a]	NA	100	NA/Rohm & Haas, Co., 1970; U.S. EPA, 1990
Propachlor									
subchronic (RfD_S)	NA; 13.3 mg/kg/day in the diet for 90 days	NA	rat	NA; decreased body weight gain	ND	1.3E-1	NA	100	U.S. EPA, 1984/ Monsanto, 1964; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 13.3 mg/kg/day in the diet for 90 days	NA	rat	NA; decreased body weight gain	ND	1.3E-2[a]	NA	1000	U.S. EPA, 1984/ Monsanto, 1964; U.S. EPA, 1984, 1990
Propazine									
subchronic (RfD_S)	NA; 100 ppm in the diet for 2 years (5 mg/kg/day)	NA	rat	NA; decreased body weight gain	ND	2E-2	NA	300	U.S. EPA, 1990/ Geigy, 1980; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 100 ppm in the diet for 2 years (5 mg/kg/day)	NA	rat	NA; decreased body weight gain (also see Table 8)	ND	2E-2[a]	NA	300	U.S. EPA, 1990/ Geigy, 1980; U.S. EPA, 1984, 1990
2-Propenoic acid (see Acrylic acid)									
Propionitrile	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
n-Propyl alcohol	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Propylene glycol subchronic (RfD_S)	170-350 mg/m^3 (mean: 260 mg/m^3) continuously for 18 months (166 mg/kg/day); 6% in diet for 20 weeks (3 g/kg/day)	rat	rat	none observed; renal lesions	6E+0 (2E+0)	3E+1	100	100	Robertson, 1947; U.S. EPA, 1987/ Guerrant et al., 1947; U.S. EPA, 1987
chronic (RfD)	170-350 mg/m^3 (mean: 260 mg/m^3) continuously for 18 months (166 mg/kg/day); 50,000 ppm in diet for 2 years (2.1 g/kg/day)	rat	dog	none observed; decrease in RBC, hematocrit, hemoglobin in dogs	6E+0 (2E+0)	2E+1	100	100	Robertson, 1947; U.S. EPA, 1987/ Gaunt et al., 1972; U.S. EPA, 1987
Propylene glycol monoethyl ether subchronic (RfD_S)	NA; 30-day drinking water (680 mg/kg/day)	NA	rat	NA; reduced weight gain	ND	7E+0	NA	100	U.S. EPA, 1984/ Smyth and Carpenter, 1948; U.S. EPA, 1984
chronic (RfD)	NA; 30-day drinking water (680 mg/kg/day)	NA	rat	NA; reduced weight gain	ND	7E-1	NA	1000	U.S. EPA, 1984/ Smyth and Carpenter, 1948; U.S. EPA, 1984
Propylene glycol monomethyl ether subchronic (RfD_S)	1000 ppm (3685 mg/m^3) 6 hours/day, 5 days/ week for 13 weeks; 947 mg/kg, 5 days/week for 35 days (676 mg/ kg/day) by gavage	rat, rabbit	rat	mild CNS effects; liver and kidney histopathology	7E+0	7E+0	100	100	Landrey et al., 1983; Miller et al., 1984; U.S. EPA, 1984/ Rowe et al., 1954; U.S. EPA, 1984
chronic (RfD)	1000 ppm (3685 mg/m^3) 6 hours/day, 5 days/ week for 13 weeks; 947 mg/kg, 5 days/week for 35 days (676 mg/ kg/day) by gavage	rat, rabbit	rat	mild CNS effects; liver and kidney histopathology	7E-1[j]	7E-1	1000	1000	Landrey et al., 1984; Miller et al., 1984; U.S. EPA, 1984/ Rowe et al., 1954; U.S. EPA, 1984

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Pyrene									
subchronic (RfD_S)	NA; 75 mg/kg/day by gavage for 13 weeks	NA	mouse	NA; renal effects	ND	3E-1	NA	300	U.S. EPA, 1984/ U.S. EPA, 1989
chronic (RfD)	NA; 75 mg/kg/day by gavage for 13 weeks	NA	mouse	NA; renal effects	ND	3E-2[j]	NA	3000	U.S. EPA, 1984/ U.S. EPA, 1989
Pyridine									
subchronic (RfD_S)	NA; 1 mg/kg/day by gavage for 90 days	NA	rat	NA; increased liver weight	ND	1E-2	NA	100	U.S. EPA, 1990/ U.S. EPA, 1986a,b, 1990
chronic (RfD)	NA; 1 mg/kg/day by gavage for 90 days	NA	rat	NA; increased liver weight	ND	1E-3[a]	NA	1000	U.S. EPA, 1990/ U.S. EPA, 1986a,b, 1990
RDX (Cyclonite)									
subchronic (RfD_S)	NA; 0.3 mg/kg/day for 105 weeks	NA	rat	NA; prostate inflammation, hemosiderosis	ND	3E-3	NA	100	U.S. EPA, 1989/ Levine et al., 1984; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 0.3 mg/kg/day for 105 weeks	NA	rat	NA; prostate inflammation, hemosiderosis	ND	3E-3[a]	NA	100	U.S. EPA, 1989/ Levine et al., 1984; U.S. EPA, 1989, 1990
Ronnel									
subchronic (RfD_S)	NA; 5 mg/kg/day in the diet for 2 years	NA	rat	NA; liver and effects	ND	5E-2	NA	100	U.S. EPA, 1984/ McCollister et al., 1959; U.S. EPA, 1984
chronic (RfD)	NA; 5 mg/kg/day in the diet for 2 years	NA	rat	NA; liver and effects	ND	5E-2[g]	NA	100	U.S. EPA, 1984/ McCollister et al., 1959; U.S. EPA, 1984
Selenious acid									
subchronic (RfD_S)	NA; 3.2 mg/day from diet of seleniferous foodstuffs (0.046 mg/kg/day)	NA	human	ND; hair and nail loss, dermatitis	ND	3E-3	NA	15	U.S. EPA, 1989/ Yang et al., 1983; U.S. EPA, 1989, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
chronic (RfD)	NA: 3.2 mg/day from diet of seleniferous foodstuffs (0.046 mg/kg/day)	NA	human	ND; hair and nail loss, dermatitis	ND	3E-3[j]	NA	15	U.S. EPA, 1989/ Yang et al., 1983; U.S. EPA, 1989, 1990
Selenourea									
subchronic (RfD_S)	NA; 0.046 mg/kg/day, exposure to selenium in high-selenium areas, converted to 0.072 mg selenourea/kg/day	NA	human	NA; selenosis	ND	5E-3	NA	15	NA/Yang et al., 1983; U.S. EPA, 1990
chronic (RfD)	NA; 0.046 mg/kg/day, exposure to selenium in high-selenium areas, converted to 0.072 mg selenourea/kg/day	NA	human	NA; selenosis	ND	5E-3[z]	NA	15	NA/Yang et al., 1983; U.S. EPA, 1990
Silver									
subchronic (RfD_S)	NA; 0.9-1.5 g silver arsphenamine by i.v. for 2-3 years (average, 0.0031 mg/kg/day); 6.4 g total dosage silver nitrate in 1 year (0.077 mg/kg/day); ~6.4 g total dosage silver acetate over 2.5 years (0.0048 mg/kg/day) Average of 3 studies, 0.0052 mg/kg/day	NA	human	NA; argyria	ND	3E-3	NA	2	NA/Gaul and Staud, 1935; Blumberg and Carey, 1934; East et al., 1980; U.S. EPA, 1990
chronic (RfD)	NA; 0.9-1.5 g silver arsphenamine by i.v. for 2-3 years (average, 0.0031 mg/kg/day); 6.4 g total dosage silver nitrate in 1 year (0.077 mg/kg/day); ~6.4 g total dosage silver acetate over 2.5 years (0.0048 mg/kg/day) Average of 3 studies, 0.0052 mg/kg/day	NA	human	NA; argyria	ND	3E-3[a]	NA	2	NA/Gaul and Staud, 1935; Blumberg and Carey, 1934; East et al., 1980; U.S. EPA, 1990

Compound	Exposure	Species		Effect of Concern	Reference Dose		Uncertainty Factor		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation; Oral	Inhalation [mg/m^3 (mg/kg/day)]	Oral (mg/kg/day)	Inhalation	Oral	Inhalation/Oral
Silver cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (55.7 mg silver cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	1E-1[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (55.7 mg silver cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	1E-1[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
Simazine									
subchronic (RfD_S)	NA; 0.52 mg/kg/day in in the diet for 2 years	NA	rat	NA; decreased weight gain, hematological effects	ND	2E-3	NA	300	U.S. EPA, 1984/ Ciba-Geigy Corp., 1988; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 0.52 mg/kg/day in in the diet for 2 years	NA	rat	NA; decreased weight gain, hematological effects	ND	2E-3[a]	NA	300	U.S. EPA, 1984/ Ciba-Geigy Corp., 1988; U.S. EPA, 1984, 1990
Sodium cyanide									
subchronic (RfD_S)	NA; 10.8 mg CN/kg/day from diet containing HCN (equivalent to NaCN at 20.4 mg/kg/day)	NA	rat	NA; CNS	ND	4E-2[n]	NA	500	U.S. EPA, 1984/ Howard and Hanzal, 1955; U.S. EPA, 1984
chronic (RfD)	NA; 10.8 mg CN/kg/day from diet containing HCN (equivalent to NaCN at 20.4 mg/kg/day)	NA	rat	NA; CNS	ND	4E-2[a,n]	NA	500	U.S. EPA, 1984/ Howard and Hanzal, 1955; U.S. EPA, 1984, 1990
Sodium diethyldithio-carbamate									
subchronic (RfD_S)	NA; 30 mg/kg/day for 90 days	NA	rat	NA; decreased body weight gain, renal and hemotological effects	ND	3E-1	NA	100	U.S. EPA, 1988/ Sunderman et al., 1967; U.S. EPA, 1988

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 30 mg/kg/day for 90 days	NA	rat	NA; cataracts and reduced body weight in chronic study (Cancer: see Table B)	ND	3E-2[a]	NA	1000	U.S. EPA, 1988/ Sunderman et al., 1967; U.S. EPA, 1988 1990
Sodium metavanadate									
subchronic (RfD_S)	NA; 10 ppm sodium metavanadate in drinking water for 3 months (1.32 mg sodium metavanadate/kg/day)	NA	rat	NA; impaired kidney function	ND	1E-2	NA	100	U.S. EPA, 1987/ Domingo et al., 1985; U.S. EPA, 1987
chronic (RfD)	NA; 10 ppm sodium metavanadate in drinking water for 3 months (1.32 mg sodium metavanadate/kg/day)	NA	rat	NA; impaired kidney function	ND	1E-3	NA	1000	U.S. EPA, 1987/ Domingo et al., 1985; U.S. EPA, 1987
Strychnine									
subchronic (RfD_S)	NA; 2.5 mg/kg by gavage for 28 days	NA	rat	NA; toxicity histopathology	ND	3E-3	NA	1000	NA/Seidl and Zbinden, 1982; U.S. EPA, 1990
chronic (RfD)	NA; 2.5 mg/kg by gavage for 28 days	NA	rat	NA; toxicity histopathology	ND	3E-4[a]	NA	10000	NA/Seidl and Zbinden, 1982; U.S. EPA, 1990
Styrene									
subchronic (RfD_S)	NA; 200 mg/kg/day by gavage for 19 months	NA	dog	NA; red blood cell and liver effects	ND	2E+0	NA	100	U.S. EPA, 1990/ Quast et al., 1979; U.S. EPA, 1984, 1989, 1990
chronic (RfD)	NA; 200 mg/kg/day by gavage for 19 months	NA	dog	NA; red blood cell and liver effects (also see Table B)	ND	2E-1[z]	NA	1000	U.S. EPA, 1990/ Quast et al., 1979; U.S. EPA, 1984, 1989, 1990
Stirophos (see Tetrachlorvinphos)									
Succinonitrile	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Sulfuric acid									
subchronic (RfD_S)	0.066-0.098 mg/m^3 occupational; NA	human	NA	respiratory; NA	ND[v]	ND	NA	NA	Carson et al., 1981; U.S. EPA, 1984/NA
chronic (RfD)	0.066-0.098 mg/m^3 occupational; NA	human	NA	respiratory; NA	ND[v]	ND	NA	NA	Carson et al., 1981; U.S. EPA 1984/NA
Temephos									
subchronic (RfD_S)	NA; 200 ppm in the diet for 99 days (11-24 mg/kg/day)	NA	rat	NA; no effect	ND	2E-1	NA	100	U.S. EPA, 1984/ Gaines et al., 1967; U.S. EPA, 1984
chronic (RfD)	NA; 200 ppm in the diet for 99 days (11-24 mg/kg/day)	NA	rat	NA; no effect	ND	2E-2	NA	1000	U.S. EPA, 1984/ Gaines et al., 1967; U.S. EPA, 1984
Terbufos									
subchronic (RfD_S)	NA; 0.01 mg/kg/day in the diet for 6 months	NA	dog	NA; no effect	ND	1E-4[g]	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 0.01 mg/kg/day in the diet for 6 months	NA	dog	NA; no effect	ND	1E-4[g]	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
Terephthalic acid	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
1,2,4,5-Tetrachlorobenzene									
subchronic (RfD_S)	NA; 50 ppm in diet for 13 weeks (converted to 0.34 mg/kg/day by authors)	NA	rat	NA; kidney lesions	ND	3E-3	NA	100	NA/Chu et al., 1984; U.S. EPA, 1990
chronic (RfD)	NA; 50 ppm in diet for 13 weeks (converted to 0.34 mg/kg/day by authors)	NA	rat	NA; kidney lesions	ND	3E-4[a]	NA	1000	NA/Chu et al., 1984; U.S. EPA, 1990
Tetrachloroazoxybenzene (TCAOB)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1985
Tetrachlorocyclopentadiene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[l]								U.S. EPA, 1988

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Tetrachloroethylene (perchloroethylene)									
subchronic (RfD_S)	NA; 20 mg/kg 5 days/week for 6 weeks (14 mg/kg/day)	NA	mouse	NA; hepatotoxicity	ND	1E-1	NA	100	U.S. EPA, 1988/ Buben and O'Flaherty, 1985; U.S. EPA, 1990
chronic (RfD)	NA; 20 mg/kg 5 days/week for 6 weeks (14 mg/kg/day)	NA	mouse	NA; hepatotoxicity (Cancer: see Table B)	ND	1E-2[a]	NA	1000	U.S. EPA, 1988/ Buben and O'Flaherty, 1985; U.S. EPA, 1990
Tetrachlorohydrazobenzene (TCHB)			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1985
2,3,4,6-Tetrachlorophenol									
subchronic (RfD_S)	NA; 25 mg/kg/day for 90 days	NA	rat	NA; increased liver weights and centri-lobular hypertrophy	ND	3E-1	NA	100	U.S. EPA, 1987/ U.S. EPA, 1986, 1990
chronic (RfD)	NA; 25 mg/kg/day for 90 days	NA	rat	NA; increased liver weights and centri-lobular hypertrophy	ND	3E-2[a]	NA	1000	U.S. EPA, 1987/ U.S. EPA, 1986, 1990
Tetrachlorophenol, 2,3,4,5-, 2,3,5,6-			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987
1,1,2,3-Tetrachloropropene			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1983
Tetrachlorovinphos (Stirofos)									
subchronic (RfD_S)	NA; 125 ppm in the diet for 2 years (3.1 mg/kg/day)	NA	dog	NA; increased liver and kidney weights, reduced body weight gain	ND	3E-2	NA	100	U.S. EPA, 1990/ Shell Chem. Co., 1968; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 125 ppm in the diet for 2 years (3.1 mg/kg/day)	NA	dog	NA; increased liver and kidney weights, reduced body weight gain (Cancer: see Table B)	ND	3E-2[a]	NA	100	U.S. EPA, 1990/ Shell Chem. Co., 1968; U.S. EPA, 1984, 1990

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
Tetraethyl dithiopyrophosphate									
subchronic (RfD_S)	NA; 10 ppm in diet for 3 months (0.5 mg/kg/day)	NA	rat	NA; depressed RBC and plasma cholinesterase activity	ND	5E-3	NA	100	NA/Kimmerle and Klimmer, 1974; U.S. EPA, 1990
chronic (RfD)	NA; 10 ppm in diet for 3 months (0.5 mg/kg/day)	NA	rat	NA; depressed RBC and plasma cholinesterase activity	ND	5E-4[a]	NA	1000	NA/Kimmerle and Klimmer, 1974; U.S. EPA, 1990
Tetraethyl lead									
subchronic (RfD_S)	NA; 1.7 µg/kg/day in peanut oil by gavage for 20 weeks, 5 days/ week (1.2 µg/kg/day)	NA	rat	NA; histopathology of liver and thymus	ND	1E-7	NA	10,000	NA/Schepers, 1964; U.S. EPA, 1990
chronic (RfD)	NA; 1.7 µg/kg/day in peanut oil by gavage for 20 weeks, 5 days/ week (1.2 µg/kg/day)	NA	rat	NA; histopathology of liver and thymus	ND	1E-7[a]	NA	10,000	NA/Schepers, 1964; U.S. EPA, 1990
Thallic oxide [Thallium(III) oxide]									
subchronic (RfD_S)	NA; 0.02 mg thallium/kg/ day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	7E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986
chronic (RfD)	NA; 0.02 mg thallium/kg/ day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	7E-5[y]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986
Thallium (in soluble salts)									
subchronic (RfD_S)	NA; 0.20 mg thallium/kg/ day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	7E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986
chronic (RfD)	NA; 0.20 mg thallium/kg/ day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	7E-5	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986
Thallium(I) acetate									
subchronic (RfD_S)	NA; 0.20 mg thallium/kg/ day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-5[a]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
Thallium(I) carbonate									
subchronic (RfD_s)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-5[a]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
Thallium(I) chloride									
subchronic (RfD_s)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-5[a]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
Thallium(I) nitrate									
subchronic (RfD_s)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-5[a]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
Thallium selenite (Tl_2Se)									
subchronic (RfD_s)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 0.20 mg thallium/kg/day (from thallium sulfate) for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	9E-5[z]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
Thallium(I) sulfate									
subchronic (RfD_S)	NA; 0.25 mg/kg/day for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-4	NA	300	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
chronic (RfD)	NA; 0.25 mg/kg/day for 90 days	NA	rat	NA; increased SGOT and serum LDH levels, alopecia	ND	8E-5[a]	NA	3000	U.S. EPA, 1988/ MRI, 1986; U.S. EPA, 1986, 1990
2-(Thiocyanomethylthio)-benzothiazole (TCMTB)									
subchronic (RfD_S)	NA; 333 ppm in the diet diet, subchronic (25 mg/kg/day)	NA	rat	NA; stomach lesions	ND	3E-1	NA	100	U.S. EPA, 1984/ U.S. EPA, 1984
chronic (RfD)	NA; 333 ppm in the diet diet, subchronic (25 mg/kg/day)	NA	rat	NA; stomach lesions	ND	3E-2	NA	1000	U.S. EPA, 1984/ U.S. EPA, 1984
Thiofanox									
subchronic (RfD_S)	NA; 0.025 mg/kg/day for 8 days	NA	dog	NA; cholinesterase inhibition	ND	3E-4	NA	100	U.S. EPA, 1989/ U.S. EPA, 1989
chronic (RfD)	NA; 0.025 mg/kg/day for 8 days	NA	dog	NA; cholinesterase inhibition	ND	3E-4[g]	NA	100	U.S. EPA, 1989/ U.S. EPA, 1989
Thiram									
subchronic (RfD_S)	NA; 0.61 mg/kg/day for 24 weeks	NA	ferret	NA; impaired reproduction	ND	6E-3	NA	100	U.S. EPA, 1989/ Hornshaw et al., 1987; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 0.61 mg/kg/day for 24 weeks	NA	ferret	NA; impaired reproduction	ND	6E-3[a]	NA	100	U.S. EPA, 1989/ Hornshaw et al., 1987; U.S. EPA, 1989, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Tin and Compounds									
subchronic (RfD_S)	NA; 2000 ppm stannous chloride in diet for 2 years (62 mg Sn/kg/day)	NA	rat	NA; liver and kidney lesions	ND	6E-1	NA	100	U.S. EPA, 1987/ NTP, 1982; U.S. EPA, 1987
chronic (RfD)	NA; 2000 ppm stannous chloride in diet for 2 years (62 mg Sn/kg/day)	NA	rat	NA; liver and kidney lesions	ND	6E-1	NA	100	U.S. EPA, 1987/ NTP, 1982; U.S. EPA, 1987
Toluene									
subchronic (RfD_S)	40 ppm for 6 hours (151 mg/m^3); 590 mg/day 5 days/week for 138 doses (42 mg/kg/day) by gavage	human	rat	CNS effects, eyes and nose irritation; CNS effects	2E+0	4E-1	100	100	Andersen et al., 1983;CIIT, 1980; U.S. EPA, 1984/ Wolf et al., 1956
chronic (RfD)	40 ppm for 6 hours (151 mg/m^3); 300 ppm (1130 mg/m^3) 6 hours/day, 5 days/week for 24 months (29 mg/kg/day)[b]	human	rat	CNS effects, eyes and nose irritation; CNS effects[1]	2E+0[j]	3E-1[b,ff]	100	100	Andersen et al., 1983; CIIT, 1980; U.S. EPA, 1984/CIIT, 1980 U.S. EPA, 1984, 1985, 1990
Toluenediamine (2,3-, 3,4-)	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Toluene-2,5-diamine									
subchronic (RfD_S)	NA; 2000 ppm of the sulfate salt in the diet for 78 weeks (56 mg/kg/day)	NA	rat	NA; no effect	ND	6E-1	NA	100	U.S. EPA, 1984/ NCI, 1978; U.S. EPA, 1984
chronic (RfD)	NA; 2000 ppm of the sulfate salt in the diet for 78 weeks (56 mg/kg/day)	NA	rat	NA; no effect	ND	6E-1	NA	100	U.S. EPA, 1984/ NCI, 1978; U.S. EPA, 1984
Toluene-2,6-diamine									
subchronic (RfD_S)	NA; 500 ppm of the dihydrochloride in the diet for 2 years (16 mg/kg/day)	NA	rat	NA; no effect	ND	2E-1	NA	100	U.S. EPA, 1984/ NCI, 1980; U.S. EPA, 1980
chronic (RfD)	NA; 500 ppm of the dihydrochloride in the diet for 2 years (16 mg/kg/day)	NA	rat	NA; no effect	ND	2E-1	NA	100	U.S. EPA, 1984/ NCI, 1980; U.S. EPA, 1980

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
m-Toluidine	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1984
Triallate subchronic (RfD_S)	NA; 1.3 mg/kg/day in the diet for 24 months	NA	dog	NA; spleen and and liver	ND	1.3E-2	NA	100	U.S. EPA, 1990/ Monsanto Co., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 1.3 mg/kg/day in the diet for 24 months	NA	dog	NA; spleen and liver and liver	ND	1.3E-2[a,aa]	NA	100	U.S. EPA, 1990/ Monsanto Co., 1979; U.S. EPA, 1990
1,2,4-Tribromobenzene subchronic (RfD_S)	NA; 5 mg/kg/day in the diet for 45 or 90 days	NA	rat	NA; liver weight and enzyme induction	ND	5E-2	NA	100	U.S. EPA, 1990/ Carlson and Tardiff, 1977; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 5 mg/kg/day in the diet for 45 or 90 days	NA	rat	NA; liver weight and enzyme induction	ND	5E-3[a]	NA	1000	U.S. EPA, 1990/ Carlson and Tardiff, 1977; U.S. EPA, 1984, 1990
Tribromomethane (see Bromoform)									
1,2,4-Trichlorobenzene subchronic (RfD_S)	3 ppm (22 mg/m^3) 6 hours/day, 5 days/ week for 3 months (2.5 mg/kg/day); 20 mg/kg/day by gavage for 90 days	rat	rat	increased uropor-phyrin; increased liver-to-body weight ratio	9E-2 (3E-2)	2E-1	100	100	Watanabe et al., 1978; U.S. EPA, 1987/Carlson and Tardiff, 1976; U.S. EPA, 1987
chronic (RfD)	3 ppm (22 mg/m^3) 6 hours/day, 5 days/ week for 3 months (2.5 mg/kg/day); 20 mg/kg/day by gavage for 90 days	rat	rat	increased uropor-phyrin; increased liver-to-body weight ratio	9E-3 (3E-3)	2E-2[y]	1000	1000	Watanabe et al., 1978; U.S. EPA, 1987/Carlson and Tardiff, 1976; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Trichlorocyclopentadiene			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT[1]						U.S. EPA, 1988
1,1,1-Trichloroethane									
subchronic (RfD_S)	500 ppm (2730 mg/m^3) 7 hours/day, 5 days/ week for 6 months (304 mg/kg/day); 500 ppm (2730 mg/m^3) 7 hours/day for 6 months (90 mg/kg/day)[b]	guinea pig	guinea pig	hepatotoxicity; hepatotoxicity	1E+1 (3E+0)[s]	9E-1[b]	100	100	Torkelson et al., 1958; U.S. EPA, 1990/ Torkelson et al., 1958; U.S. EPA, 1990
chronic (RfD)	500 ppm (2730 mg/m^3) 7 hours/day, 5 days/ week for 6 months (304 mg/kg/day); 500 ppm (2730 mg/m^3) 7 hours/day for 6 months (90 mg/kg/day)[b]	guinea pig	guinea pig	hepatotoxicity; hepatotoxicity[1]	1E+0 (3E-1)[s]	9E-2[b,z]	1000	1000	Torkelson et al., 1958; U.S. EPA, 1990/ Torkelson et al., 1958; U.S. EPA, 1990
1,1,2-Trichloroethane									
subchronic (RfD_S)	NA; 3.9 mg/kg/day by drinking water for 90 days	NA	mouse	NA; clinical chemistry alterations	ND	4E-2	NA	100	U.S. EPA, 1984/ White et al., 1985; Sanders et al., 1985; U.S. EPA, 1990
chronic (RfD)	NA; 3.9 mg/kg/day by drinking water for 90 days	NA	mouse	NA; clinical chemistry alterations (Cancer: see Table B)	ND	4E-3[a]	NA	1000	U.S. EPA, 1984/ White et al., 1985; Sanders et al., 1985; U.S. EPA, 1990
Trichlorofluoromethane (F-11)									
subchronic (RfD_S)	5600 mg/m^3 continuously for 90 days (1940 mg/kg/day); 1000 mg/kg/day, 5 days/week for 6 weeks (714.3 mg/kg/day)	dog	rat	elevated BUN, lung lesions; mortality	7E+0 (2E+0)	7E-1	1000	1000	Jenkins et al., 1970; U.S. EPA, 1987/NCI, 1978; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	5600 mg/m^3 continuously for 90 days (1940 mg/kg/day); 488 mg/kg/day, 5 days/week for 66 weeks (348.6 mg/kg/day)	dog	rat	elevated BUN, lung lesions; mortality	7E-1 (2E-1)	3E-1[a]	10,000	1000	Jenkins et al., 1970; U.S. EPA, 1987/NCI, 1978; U.S. EPA, 1987, 1990
2,4,4'Trichloro-2'-hydroxydiphenyl ether									
subchronic (RfD_S)	NA; 500 mg/kg, 6 days/week for 4 weeks (429 mg/kg/day)	NA	rat	ND; ND	ND	4E+0	NA	100	U.S. EPA, 1987/ Lyman and Furia, 1969; U.S. EPA, 1987
chronic (RfD)	NA; NA	NA	NA	ND; ND	ND	ND	NA	NA	U.S. EPA, 1987/ U.S. EPA, 1987
Trichloromethane (see Chloroform)									
Trichlorophenol, 2,3,4-, 2,3,5-, 2,3,6-, and 3,4,5-				DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT					U.S. EPA, 1987
2,4,5-Trichlorophenol									
subchronic (RfD_S)	NA; 1000 ppm of diet for 98 days (100 mg/kg/day)	NA	rat	NA; hepatotoxicity, kidney effects	ND	1E+0	NA	100	U.S. EPA, 1984, 1987/McCollister et al., 1961; U.S. EPA, 1984, 1987
chronic (RfD)	NA; 1000 ppm of diet for 98 days (100 mg/kg/day)	NA	rat	NA; hepatotoxicity, kidney effects	ND	1E-1[a]	NA	1000	U.S. EPA, 1984, 1987/McCollister et al., 1961; U.S. EPA, 1984, 1987, 1990
2,4,6-Trichlorophenol - see Table B									
2,4,5-Trichlorophenoxyacetic acid									
subchronic (RfD_S)	NA; 10 mg/kg/day for 90 days	NA	rat	NA; liver and kidney weights	ND	1E-1	NA	100	U.S. EPA, 1989/ Gehring and Betso, 1978; U.S. EPA, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 3 mg/kg/day 3-generation study	NA	rat	NA; decreased survival	ND	1E-2[a]	NA	300	U.S. EPA, 1989/ Kociba et al., 1979; U.S. EPA, 1989, 1990
2(2,4,5-Trichlorophenoxy) propionic acid (Silvex)									
subchronic (RfD_S)	NA; 30 ppm in diet for 2 years (0.75 mg/kg/day)	NA	dog	NA; histopathological changes in liver	ND	8E-3	NA	100	NA/Mullison, 1966, Gehring and Betso, 1978; U.S. EPA, 1990
chronic (RfD)	NA; 30 ppm in diet for 2 years (0.75 mg/kg/day)	NA	dog	NA; histopathological changes in liver	ND	8E-3[a]	NA	100	NA/Mullison, 1966, Gehring and Betso, 1978; U.S. EPA, 1990
1,1,1-Trichloropropane			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987/ U.S. EPA, 1987
1,2,2-Trichloropropane			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987/ U.S. EPA, 1987
1,1,2-Trichloropropane									
subchronic (RfD_S)	NA; 100 mg/ℓ in drinking water for 13 weeks (15 mg/kg/day)	NA	rat	histopathological lesions in liver, kidney and thyroid	ND	5E-2	NA	300	U.S. EPA, 1987/ Villaneuve et al., 1985; U.S. EPA, 1990
chronic (RfD)	NA; 100 mg/ℓ in drinking water for 13 weeks (15 mg/kg/day)	NA	rat	histopathological lesions in liver, kidney and thyroid	ND	5E-3[a]	NA	3000	U.S. EPA, 1987/ Villaneuve et al., 1985; U.S. EPA, 1990
1,2,3-Trichloropropane									
subchronic (RfD_S)	NA; 8 mg/kg 5 days/week for 120 days (5.7 mg/kg/day)	NA	rat	NA; transient clinical signs, liver and kidney lesions, decrease in RBC, hematocrit and hemoglobin	ND	6E-2	NA	100	U.S. EPA, 1987/ NTP, 1983; U.S. EPA, 1987

Compound	Exposure Inhalation; Oral	Species Inhalation	Species Oral	Effect of Concern Inhalation; Oral	Reference Dose Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose Oral (mg/kg/day)	Uncertainty Factor Inhalation	Uncertainty Factor Oral	Reference Inhalation/Oral
chronic (RfD)	NA; 8 mg/kg 5 days/week for 120 days (5.7 mg/kg/day)	NA	rat	NA; transient clinical signs, liver and kidney lesions, decrease in RBC, hematocrit and hemoglobin	ND	6E-3[a]	NA	1000	U.S. EPA, 1987/ NTP, 1983; U.S. EPA, 1987, 1990
1,2,3-Trichloropropene subchronic (RfD_S)	3 ppm (18 mg/m^3), 6 hours/day, 5 days/week for 66 weeks; NA	dog	NA	eye irritation; NA	ND	5E-3[b]	NA	100	U.S. EPA, 1983/ McKenna et al., 1978; U.S. EPA, 1983
chronic (RfD)	3 ppm (18 mg/m^3), 6 hours/day, 5 days/week for 66 weeks; NA	dog	NA	eye irritation; NA	ND	5E-3[b]	NA	100	U.S. EPA, 1983/ McKenna et al., 1978; U.S. EPA, 1983
2,3,6-Trichlorotoluene subchronic (RfD_S)	NA; 0.5 ppm in diet (0.05 mg/kg/day) for 28 days	NA	rat	NA; liver kidney, thyroid lesions	ND	5E-5	NA	1000	U.S. EPA, 1987/ Chu et al., 1984; U.S. EPA, 1987
chronic (RfD)	NA; NA	NA	NA	NA; NA	ND	ND	NA	NA	U.S. EPA, 1987/ U.S. EPA, 1987
α,2,6-Trichlorotoluene subchronic (RfD_S)	NA; 0.5 ppm in diet (0.05 mg/kg/day) for 28 days	NA	rat	NA; liver, kidney, thyroid lesions	ND	5E-5	NA	1000	U.S. EPA, 1987/ Chu et al., 1984; U.S. EPA, 1987
chronic (RfD)	NA; NA	NA	NA	NA; NA	ND	ND	NA	NA	U.S. EPA, 1987/ U.S. EPA, 1987
1,1,2-Trichloro-1,2,2-trifluoroethane subchronic (RfD_S)	5358 mg/m^3 occupational for 2.77 years (273 mg/kg/day); NA	human	NA	psychomotor impairment; NA	ND	3E+1	NA	10	Imbus and Adkins, 1972; U.S. EPA, 1983, 1985/Imbus and Adkins, 1972; U.S. EPA, 1983, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	5338 mg/m^3 occupational for 2.77 years (273 mg/kg/day); NA	human	NA	psychomotor impairment; NA	ND	3E+1[b,z]	NA	10	Imbus and Adkins, 1972; U.S. EPA, 1983, 1985/Imbus and Adkins, 1972; U.S. EPA, 1983, 1990
Trifluralin									
subchronic (RfD_S)	NA; 30 ppm in the diet for 12 months (0.75 mg/kg/day)	NA	dog	NA; increased liver weight, methemoglobinemia	ND	7.5E-3	NA	100	U.S. EPA, 1990/ Hoechst, 1984; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 30 ppm in the diet for 12 months (0.75 mg/kg/day)	NA	dog	NA; increased liver weight, methemoglobinemia (Cancer: see Table B)	ND	7.5E-3[a]	NA	100	U.S. EPA, 1990/ Hoechst, 1984; U.S. EPA, 1984, 1990
Trimethylbenzenes			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1987
1,3,5-Trinitrobenzene									
subchronic (RfD_S)	NA; 3 ppm 1,3-dinitrobenzene in drinking water for 16 weeks (0.4 mg/kg/day equivalent to 0.51 mg/kg/day 1,3,5-trinitrobenzene)	NA	rat	NA; increased spleen weight	ND	5E-4	NA	1000	U.S. EPA, 1989/ Cody et al., 1981; U.S. EPA, 1989, 1990
chronic (RfD)	NA; 3 ppm 1,3-dinitrobenzene in drinking water for 16 weeks (0.4 mg/kg/day equivalent to 0.51 mg/kg/day 1,3,5-trinitrobenzene)	NA	rat	NA; increased spleen weight	ND	5E-5[a]	NA	10,000	U.S. EPA, 1989/ Cody et al., 1981; U.S. EPA, 1989, 1990
Trinitrophenols			DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT						U.S. EPA, 1984
Vanadium									
subchronic (RfD_S)	NA; 5 ppm vanadium from vanadyl sulfate in drinking water for lifetime (0.7 mg/kg/day)	NA	rat	NA; none observed	ND	7E-3	NA	100	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
chronic (RfD)	NA; 5 ppm vanadium from vanadyl sulfate in drinking water for lifetime (0.7 mg/kg/day)	NA	rat	NA; none observed	ND	7E-3[g]	NA	100	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1987, 1990
Vanadium pentoxide									
subchronic (RfD_S)	NA; 10 ppm vanadium in diet from vanadium pentoxide for lifetime (0.9 mg vanadium pentoxide/kg/day)	NA	rat	NA; none observed	ND	9E-3	NA	100	U.S. EPA, 1987/ Stokinger et al., 1953; U.S. EPA, 1987
chronic (RfD)	NA; 10 ppm vanadium in diet from vanadium pentoxide for lifetime (0.9 mg vanadium pentoxide/kg/day)	NA	rat	NA; none observed	ND	9E-3[a]	NA	100	U.S. EPA, 1987/ Stokinger et al., 1953; U.S. EPA, 1987, 1990
Vanadyl sulfate									
subchronic (RfD_S)	NA; 5 ppm vanadium from vanadyl sulfate in drinking water for lifetime (2.24 mg vanadyl sulfate/kg/day)	NA	rat	NA; none observed	ND	2E-2	NA	100	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1987
chronic (RfD)	NA; 5 ppm vanadium from vanadyl sulfate in drinking water for lifetime (2.24 mg vanadyl sulfate/kg/day)	NA	rat	NA; none observed	ND	2E-2	NA	100	U.S. EPA, 1987/ Schroeder et al., 1970; U.S. EPA, 1987
Vernolate (Vernam)									
subchronic (RfD_S)	NA; 20 ppm in the diet (1 mg/kg/day) reproductive	NA	rat	NA; decreased body weight	ND	1E-2	NA	100	U.S. EPA, 1983/ Stauffer Chem. Co., 1983; U.S. EPA, 1983, 1990
chronic (RfD)	NA; 20 ppm in the diet (1 mg/kg/day) reproductive	NA	rat	NA; decreased body weight	ND	1E-3[a]	NA	1000	U.S. EPA, 1983/ Stauffer Chem. Co., 1983; U.S. EPA, 1983, 1990
4-Vinyl-1-cyclohexene	DATA INADEQUATE FOR QUANTITATIVE RISK ASSESSMENT								U.S. EPA, 1983

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
m-Xylene									
subchronic (RfD_S)	4750 mg/m^3, 8 hours/day, 7 days/week for 1 year (1009 mg/kg/day)[w]; 500 mg/kg mixed xylenes 5 days/week for 103 weeks (357 mg mixed xylenes/kg/day)	rat	rat	hepatomegaly; none observed	4E+0 (1E+0)	4E+0	1000	100	Tatrai et al., 1981; U.S. EPA, 1989/NTP, 1986
chronic (RfD)	4750 mg/m^3, 8 hours/day, 7 days/week for 1 year (1009 mg/kg/day)[w]; 250 mg/kg mixed xylenes 5 days/week for 103 weeks (179 mg mixed xylenes/kg/day)	rat	rat	hepatomegaly; hyperactivity, decreased body weight, increased mortality at higher dosage	7E-1 (2E-1)	2E+0	5000	100	Tatrai et al., 1981; U.S. EPA, 1989/NTP, 1986; U.S. EPA, 1986
o-Xylene									
subchronic (RfD_S)	150 mg/m^3 continuous on days 7-14 of gestation (95.6 mg/kg/day); 500 mg/kg mixed xylenes 5 days/week by gavage for 13 weeks (357 mg mixed xylenes/kg/day)	rat	rat	fetotoxicity; none observed	3E+0 (1E+0)[bb]	4E+0	100	100	Ungvary et al., 1980; U.S. EPA, 1989/NTP, 1986
chronic (RfD)	4750 mg/m^3, 8 hours/day, 7 days/week for 1 year (1009 mg/kg/day); 250 mg/kg mixed xylenes 5 days/week for 103 weeks (179 mg mixed xylenes/kg/day)	rat	rat	hepatomegaly; hyperactivity, decreased body weight, increased mortality at higher dosage	7E-1 (2E-1)	2E+0	5000	100	Tatrai et al., 1981; U.S. EPA, 1989/NTP, 1986; U.S. EPA, 1986
p-Xylene									
subchronic (RfD_S)	20 ppm 7.5 hours/day for 5 days (27 mg/m^3); NA	human	rat	CNS effects, nose and throat irritation; NA	3E-1	ND	100	NA	Hake et al., 1981; U.S. EPA, 1989/ U.S. EPA, 1989
chronic (RfD)	20 ppm 7.5 hours/day for 5 days (27 mg/m^3); NA	human	NA	CNS effects, nose and throat irritation; NA	3E-1	ND	100	NA	U.S. EPA, 1989/ U.S. EPA, 1989

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Xylenes, mixed									
subchronic (RfD_S)	20 ppm 7.5 hours/day for 5 days (27 mg/m^3); 500 mg/kg mixed xylenes 5 days/week by gavage for 13 weeks (357 mg mixed xylenes/kg/day)	human	rat	CNS effects, nose and throat irritation; none observed	3E-1	4E+0	100	100	Hake et al., 1981; Litton Bionetics, 1978; U.S. EPA, 1989/ NTP, 1986; U.S. EPA, 1990
chronic (RfD)	20 ppm 7.5 hours/day for 5 days (27 mg/m^3); 250 mg/kg mixed xylenes 5 days/week for 103 weeks (179 mg mixed xylenes/kg/day)	human	rat	CNS effects, nose and throat irritation; hyperactivity, decreased body weight and increased mortality at higher dosage[l]	3E-1[l]	2E+0[a]	100	100	Hake et al., 1981; Carpenter et al. 1975; U.S. EPA, 1989/NTP, 1986; U.S. EPA, 1989, 1990
Zinc									
subchronic (RfD_S)	NA; 2.14 mg/kg/day therapeutic dosage	NA	human	NA; anemia	ND	2E-1	NA	10	U.S. EPA, 1984/ Pories et al., 1967; Prasad et al., 1975; U.S. EPA, 1984
chronic (RfD)	NA; 2.14 mg/kg/day therapeutic dosage	NA	human	NA; anemia	ND	2E-1[g]	NA	10	U.S. EPA, 1984/ Pories et al., 1967; Prasad et al., 1975; U.S. EPA, 1984, 1990
Zinc cyanide									
subchronic (RfD_S)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (67.5 mg zinc cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	5E-2[n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990
chronic (RfD)	NA; 10.8 mg/kg/day fumigated cyanide in food for 2 years (67.5 mg zinc cyanide/kg/day)	NA	rat	NA; weight loss, thyroid effects and myelin degeneration	ND	5E-2[a,n]	NA	500	NA/Howard and Hanzal, 1955; Philbrick et al., 1979; U.S. EPA, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Effect of Concern: Inhalation; Oral	Reference Dose: Inhalation [mg/m^3 (mg/kg/day)]	Reference Dose: Oral (mg/kg/day)	Uncertainty Factor: Inhalation	Uncertainty Factor: Oral	Reference: Inhalation/Oral
Zinc phosphide									
subchronic (RfD_S)	NA; 50 ppm in diet for 13 weeks, converted to 3.48 mg/kg/day by authors	NA	rat	NA; reduction of food intake and body weight	ND	3E-3	NA	1000	NA/Bai et al., 1980; U.S. EPA, 1990
chronic (RfD)	NA; 50 ppm in diet for 13 weeks, converted to 3.48 mg/kg/day by authors	NA	rat	NA; reduction of food intake and body weight	ND	3E-4[a]	NA	10,000	NA/Bai et al., 1980; U.S. EPA, 1990
Zineb									
subchronic (RfD_S)	NA; 500 ppm in the diet for 2 years (25 mg/kg/day)	NA	rat	NA; thyroid hyperplasia	ND	5E-2	NA	500	U.S. EPA, 1984/ Blackwell-Smith et al., 1953; U.S. EPA, 1984, 1990
chronic (RfD)	NA; 500 ppm in the diet for 2 years (25 mg/kg/day)	NA	rat	NA; thyroid hyperplasia	ND	5E-2[a]	NA	500	U.S. EPA, 1984/ Blackwell-Smith et al., 1953; U.S. EPA, 1984, 1990

[a]Verified, available on IRIS

[b]Based on route-to-route extrapolation

[c]Specifically related to organoleptic threshold and potential for respiratory tract irritation, not to systemic toxicity

[d]Specifically related to organoleptic threshold; safe concentration may be higher but data are inadequate to assess.

[e]Inhalation study with antimony trioxide in rats (Watt, 1980, 1981, 1983; ASARCO, Inc., 1980) provides qualitative evidence of lung cancer; cancer potency not estimated.

[f]Calculated by analogy to antimony by correcting for differences in molecular weight

[g]Under review by RfD Work Group

[h]Because of background dietary exposure, an RfD_S for the oral route was not estimated.

[i]Verified 2 separate RfD_S, 1E-3 for food and 5E-4 for water.

[j]Verified; Workgroup concurrence on final data base file and IRIS input pending

[k]Current d\ ing water standard of 1.3 mg/ℓ; Drinking Water Criteria Do\ t concluded toxicity data were inadequate for calculation n RfD for copper.

[l]CRAVE-verified as a CAG Group D substance

[m]These values differ from those in the HEED (U.S. EPA, 1987a) because the uncertainty factors for deriving the inhalation RfD values presented herein were changed to correspond to those used by IRIS (U.S. EPA, 1987b) for generating the oral RfD from the same (inhalation) study.

[n]Calculated by analogy to free cyanide by correcting for differences in molecular weight

[o]These values differ from those in the HEA (U.S. EPA, 1984) because the study chosen as the basis for the inhalation RfD values was changed to conform to the inhalation study chosen as the basis of the oral RfD derived in a more recent HEEP (U.S. EPA, 1986).

[p]Final Draft of Air Quality Criteria Document (600/8-83-028F) declines to derive an air quality criterion for lead.

[q]Not verified and further discussion not scheduled

[r]Based on RfD for methyl mercury

[s]These values differ from those in the HEA (U.S. EPA, 1984) because the study chosen as the basis for the inhalation RfD values was changed to conform to the inhalation study chosen as the basis of the oral RfD derived on IRIS.

[t]A minor calculation error in estimation of transformed dose in 1986 HEEP is corrected here.

[u]Verified as a Group C carcinogen; no quantitative estimate available.

[v]Reported effects occurred at portal of entry; estimates of mg/day reference doses are inappropriate because effects at portal of entry depend on concentration in air. An acceptable air concentration of 0.07 mg/m^3 was estimated by Carson et al. (1981) from available data.

[w]Experiment performed with o-xylene

[x]From toxicity data on tetraethyl lead

[y]Withdrawn from IRIS

[z]The oral RfD, while still available on IRIS, is being reconsidered by the RfD Workgroup.

[aa]The verified RfD appears on IRIS as 1.3E-3 because of a typographical error.

[bb]Developmental effects have been used as the basis of calculation.

[cc]Based on arsenic equivalents

[dd]This value for nitrogen dioxide-N is based on analogy to nitrate.

[ee]Calculated by analogy to mercury by correcting for differences in molecular weight.

[ff]A new RfD verified and the old number on IRIS will be changed.

NA = Not applicable or not available; ND = not determined

Notes: To estimate acceptable water concentrations from oral RfDs/RfD, multiply by 70 and divide by 2 ℓ.
If exposure occurs by both oral and inhalation routes, the route-specific RfDs/RfD must be proportionally reduced.

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Acephate	NA; 2-year dietary	NA	mouse	NA (also see Table A)	liver	ND	C/2.5E-7 [8.7E-3][a]	U.S. EPA, 1990/ Chevron Chemical Company, 1982; U.S. EPA, 1984; U.S. EPA, 1990; U.S. EPA, 1988, 1990
Acrolein	NA; NA	NA	NA	NA (also see Table A)	NA	C/ND[a]	C/ND[a]	U.S. EPA, 1987, 1990/U.S. EPA, 1987, 1990
Acrylamide	NA; 2-year drinking water	NA	rat	NA (also see Table A)	CNS, mammary and thyroid glands, uterus, oral cavity	B2/1.3E-3 [4.5E+0][a,b]	B2/1.3E-4 [4.5E+0][a]	U.S. EPA, 1990/ Johnson et al., 1986; U.S. EPA, 1985, 1990
Acrylonitrile	occupational; three drinking water studies	human	rat	lung	multiple	B1/6.8E-5 [2.4E-1][a]	B1/1.5E-5 [5.4E-1][a]	O'Berg, 1980; U.S. EPA, 1983, 1987a,b/Quast et al., 1980; Bio/dynamics, Inc., 1980a,b; U.S. EPA, 1983, 1987, 1990
Alachlor	NA; NA	NA	NA	NA (also see Table A)	NA	B2/ND[f]	B2/2.3E-6 [8.1E-2][f]	U.S. EPA, 1984, 1988/U.S. EPA, 1984, 1988
Aldrin	three dietary studies; three dietary studies	mouse	mouse	liver (also see Table A)	liver	B2/4.9E-3 [1.7E+1][a,b]	B2/4.9E-4 [1.7E+1][a]	NCI, 1977; Davis and Fitzhugh, 1962; Epstein, 1975; Davis, 1965; U.S. EPA, 1986, 1987b/ NCI, 1977; Davis and Fitzhugh, 1962; Epstein, 1975; Davis, 1965; U.S. EPA, 1986, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Reference: Inhalation/Oral
Allyl chloride	NA; NA	NA	NA	NA (also see Table A)	NA	C/ND[f]	C/ND[f]	U.S. EPA, 1983, 1989/U.S. EPA, 1983, 1989
Aniline	NA; 2-year dietary	NA	rat	NA	spleen	B2/ND	B2/1.6E-7 [5.7E-3][a]	U.S. EPA, 1987/ CIIT, 1982; U.S. EPA, 1985, 1989
Aramite	NA; 400 ppm in diet for 104 weeks (20 mg/kg/day)	NA	rat	increased incidence of liver tumors (also see Table A)	increased incidence of liver tumors	B2/7.1E-6 [2.5E-2][b]	B2/7.1E-6 [2.5E-2]	1990/ U.S.EPA, 1989; Popper et al., 1960; Oser and Oser, 1962
Arsenic	100-5000 $\mu g/m^3$ continuous; 0.01-1.8 mg/ℓ in drinking water	human	human	respiratory tract (also see Table A)	skin	A/4.3E-3 [5.0E+1][a,p]	A/NA[k]	Brown and Chu, 1983a,b,c; Lee-Feldstein, 1983; Higgins, 1982; Enterline and Marsh, 1982; U.S. EPA, 1984a,b, 1990/U.S. EPA, 1990
Asbestos	occupational; dietary	human	rat	lung and mesothelioma	large intestine	A/2.3E-1 $(fibers/m\ell)^{-1}$ m	A/ND	U.S. EPA, 1986, 1987/NTP, 1985; U.S. EPA, 1985, 1990
Azobenzene	NA; 2-year dietary	NA	rat	NA	abdominal cavity	B2/3.1E-5 [1.1E-1][a,b]	B2/3.1E-6 [1.1E-1][a]	U.S. EPA, 1990/ NCI, 1979; U.S. EPA, 1986, 1990
Benzene	occupational; occupational	human	human	leukemia	leukemia	A/8.3E-6 [2.9E-2][a]	A/8.3E-7 [2.9E-2][a,b]	Ott et al., 1978; Rinsky et al., 1981; Wong et al., 1983; U.S. EPA, 1985, 1987a, 1989/Ott et al., 1978; Rinsky et al., 1981; Wong et al., 1983; U.S. EPA, 1985, 1987a, 1989, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Benzidine	occupational; occupational	human	human	urinary bladder (also see Table A)	urinary bladder	A/6.7E-2 [2.3E+2][a]	A/6.7E-3 [2.3E+2][a,b]	Zavon et al., 1973; U.S. EPA, 1990/ Zavon et al., 1973; U.S. EPA, 1980, 1986, 1987, 1990
Benzo(a)anthracene	NA; NA	NA	NA	NA	NA	B2/NA[f,u]	B2/ND[f,u]	U.S. EPA, 1990
Benzo(a)pyrene	2.2-9.5 mg/m^3, 4.5 hours/day for ≤96.4 weeks; 1-250 ppm diet for ≈110 days	hamster	mouse	respiratory tract	stomach	B2/ND[a,u]	B2/ND[a,u]	Thyssen et al., 1990; U.S. EPA, 1987/Neal and Rigdon, 1967; U.S. EPA,1980, 1990
Benzo(b)fluoranthene	NA;NA	NA	NA	NA	NA	B2/ND[f,u]	B2/ND[f,u]	U.S. EPA, 1990
Benzo(k)fluoranthene	NA; NA	NA	NA	NA	NA	B2/ND[f,u]	B2/ND[f,u]	U.S. EPA, 1987
Benzotrichloride	NA; 0.26 mg/kg/day, 2 days/week by gavage for 25 weeks	mouse	mouse	lung	lungs	B2/NA[g]	B2/3.6E-4 [1.3E+1][f]	U.S. EPA, 1989/ Fukuda et al., 1978; U.S. EPA, 1986, 1989
Benzyl chloride	NA; 0, 15, 30 mg/kg, 3 days/week by gavage for 104 weeks	NA	rat	NA	thyroid	B2/ND	B2/4.9E-6 [1.7E-1][a]	U.S. EPA, 1990/ Lijinski, 1986; U.S. EPA, 1986, 1990
Beryllium	occupational; 5 ppm in drinking water for lifetime	human	rat	lung (also see Table A)	total tumors	B2/2.4E-3 [8.4E+0][a]	B2/1.2E-4 [4.3E+0][a]	Wagoner et al., 1980; U.S. EPA, 1987, 1990/ Schroeder and Mitchener, 1975; U.S. EPA, 1986, 1990

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Bis(2-chloroethyl) ether	560-day oral study; 560-day oral study	mouse	mouse	liver	liver	B2/3.3E-4 [1.1E+0][a,b]	B2/3.3E-5 [1.1E+0][a]	Innes et al., 1969; U.S. EPA, 1980, 1990;/Innes et al., 1969; U.S. EPA, 1980 1987, 1990
Bis(chloromethyl)-ether	inhalation 10-100 days; inhalation 10-100 days	rat	rat	respiratory tract	ND	A/6.2E-2 [2.2E+2][a]	A/6.2E-3 [2.2E+2][a,b]	Kuschner et al., 1975; U.S. EPA, 1990/U.S. EPA, 1990
Bis(2-chloro-1-methyl-ethyl)ether	2-year gavage study[b]; 2-year gavage study	mouse	mouse	liver, lung	liver, lung	C/2E-5 [7E-2][b]	C/2E-6 [7E-2]	NTP, 1982; U.S. EPA, 1987/ NTP 1982; U.S. EPA, 1987
Bis(2-ethylhexyl) phthalate	NA; 103-week dietary study	NA	mouse	NA (also see Table A)	liver	B2/ND[a]	B2/4E-7 [1.4E-2][a]	U.S. EPA, 1987/ NTP, 1982, U.S. EPA, 1986, 1988, 1990
Bromodichloromethane	NA; 102-week gavage study	NA	mouse	NA (also see Table A)	liver	B2/ND[f]	B2/3.7E-6 [1.3E-1][f]	U.S. EPA, 1987, 1989, 1990/NTP, 1986; U.S. EPA, 1987, 1990
Bromoethene (vinyl bromide)	2-year inhalation study; NA	rat	NA	liver	NA	B2/3.2E-5 [1.1E-1]	B2/ND	Benya et al., 1982; U.S. EPA, 1984/ U.S. EPA, 1984
Bromoform	NA; 103-week gavage study	NA	rat	NA	adenomatous polyps or adenocarcino-mas in the large intestine (also see Table A)	B2/1.1E-6 [3.9E-3][f]	B2/2.2E-7 [7.9E-3][f]	U.S. EPA, 1989, 1990/ NTP, 1988/ U.S. EPA, 1989, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
1,3-Butadiene	two inhalation studies; NA	mouse, rat	NA	hematopoietic system, Leydig cell, thyroid	NA	B2/2.8E-4 [1.8E+0][a,l]	ND	Hazelton Labs, 1981; U.S. EPA, 1985, 1987, 1989; U.S EPA, 1989, 1990
Butyl benzyl phthalate	NA; NA	NA	NA	NA (also see Table A)	NA	NA	C/ND[a]	U.S. EPA, 1987, 1990/U.S. EPA, 1987, 1990
Cadmium	occupational; NA	human	NA	respiratory tract (also see Table A)	NA	B1/1.8E-3 [6.1E+0][a]	ND/ND[c]	Thun et al., 1985; U.S. EPA, 1985, 1990/U.S. EPA, 1984, 1988
Captafol	NA; dietary study (CBI)	NA	mouse	NA (also see Table A)	lymphosarcoma	C/ND	C/2.4E-7 [8.6E-3]	U.S. EPA, 1984/ U.S. EPA, 1984
Captan	NA; NA	NA	NA	NA (also see Table A)	NA	B2/ND[f]	B2/1.0E-7 [3.5E-3][f]	U.S. EPA, 1984, 1988/U.S. EPA, 1984, 1988
Carbazole	NA; 96-week dietary study	NA	mouse	NA	liver	B2/ND	B2/2.8E-7 [2E-2]	U.S. EPA, 1986/ Tsuda et al., 1982; U.S. EPA, 1986
Carbon tetrachloride	several gavage studies; several gavage studies	several	several	liver (also see Table A)	liver	B2/1.5E-5[d] [1.3E-1][a,b]	B2/3.7E-6 [1.3E-1][a]	Della Porta et al., 1961; Edwards et al., 1942; NCI, 1976; U.S. EPA, 1984a,b, 1990/ Della Porta et al., 1961; Edwards et al., 1942; NCI, 1976; U.S. EPA, 1984, 1990
Chloranil	NA; 82-week oral study	NA	mouse	NA	liver and lung	C/ND	C/1.1E-5 [4.03E-1]	U.S. EPA, 1986/ BRL, 1968; U.S. EPA, 1986

HEALTH EFFECTS ASSESSMENTS SUMMARY TABLE B. CARCINOGENICITY
Update: June, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Chlordane	two dietary bioassays; two dietary bioassays	mouse	mouse	liver (also see Table A)	liver	B2/3.7E-4 [1.3E+0][a,b]	B2/3.7E-5 [1.3E+0][a]	IRDC, 1973; NCI, 1977; U.S. EPA, 1986, 1990/IRDC, 1973; NCI, 1977; U.S. EPA, 1986 1988, 1990
Chlorodibromoethane	NA; 105-week gavage study	NA	mouse	NA (also see Table A)	liver	B2/ND	B2/2.4E-6 [8.4E-2]	U.S. EPA, 1987/ NTP, 1985; U.S. EPA, 1987
Chloroethene (see vinyl chloride)								
Chloroform	138-477 mg/kg/day; 200-188 ppm in drinking water for 104 weeks	mouse	rat	liver (also see Table A)	kidney	B2/2.3E-5 [8.1E-2][a]	B2/1.7E-7 [6.1E-3][a]	NCI, 1976; U.S. EPA, 1985, 1988, 1990/ Jorgenson et al., 1985; U.S. EPA, 1988, 1990
Chloromethane	24 month inhalation study; 24-month inhalation study	mouse	mouse	kidney	kidney	C/1.8E-6 [6.3E-3]	C/3.7E-7 [1.3E-2][b]	CIIT, 1983; NIOSH, 1984; U.S. EPA, 1987/CIIT, 1983; NIOSH, 1984; U.S. EPA, 1986, 1987
4-Chloro-2 methyl-aniline	NA; 0-4000 ppm in the diet for 18 months	NA	mouse	NA	vascular hemangiomas and hemangio-sarcomas	B2/ND	B2/1.6E-4 [5.8E-1][o]	U.S. EPA, 1986/ U.S. EPA, 1986; Weisburger et al., 1978
4-Chloro-2-2-methyl-aniline hydrochloride	NA; 9-4000 ppm in the diet for 18 months	NA	mouse	NA	vascular hemangiomas and hemangio-sarcomas	B2/ND	B2/1.3E-5 [4.6E-1]	U.S. EPA, 1986/ U.S. EPA, 1986; Weisburger et al., 1978
Chloromethyl methyl ether	NA; NA	human	NA	lung	NA	A/ND[a]	A/ND[a]	U.S. EPA, 1987, 1990/U.S. EPA, 1990

HEALTH EFFECTS ASSESSMENTS SUMMARY TABLE B: CARCINOGENICITY
Update: June, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
o Chloronitrobenzene	NA; 18-month dietary study	NA	mouse	NA	liver	B2/ND	B2/3.5E-7 [2.5E-2]	U.S. EPA, 1985/ U.S. EPA, 1985; Weisburger et al., 1978
p Chloronitrobenzene	NA; 0-6000 ppm in the diet for 18 months	NA	mouse	NA	vascular tumors	B2/ND	B2/5.1E-7 [1.8E-2]	U.S. EPA, 1985/ U.S. EPA, 1985; Weisburger et al., 1978
Chlorthalonil	NA; 80-week dietary study	NA	rat	NA (also see Table A)	kidney	B2/ND	B2/8.2E-8 [2.9E-3][f]	U.S. EPA, 1984/ NCI, 1978; U.S. EPA, 1984
Chromium (VI)	occupational; NA	human	NA	lung (also see Table A)	NA	A/1.2E-2 [4.1E+1][a]	ND/ND[c]	Mancuso, 1975; U.S. EPA, 1984a,b, 1990/NA
Chrysene	NA; NA	NA	NA	NA (also see Table A)	NA	B2/ND[f]	B2/NA[f]	U.S. EPA, 1990
Coal tars	occupational, NA	human	NA	lung	NA	ND/6.2E-4 [2.2E+0][e]	ND/ND	Redmond et al., 1979; Mazumdar et al., 1975; U.S. EPA, 1984/NA
Creosote	NA; NA	NA	NA	NA	NA	B1/ND[a]	B1/ND[a]	U.S. EPA, 1990/ U.S. EPA, 1990
Cresol, o-, m- and p-	NA; NA	NA	NA	NA (also see Table A)	NA	C/ND[f]	C/ND[f]	U.S. EPA, 1984, 1985, 1990/U.S. EPA, 1984, 1985, 1990
Crotonaldehyde	113-week drinking water study; 113-week drinking water study	rat	rat	liver	liver	C/5.4E-4 [1.9E+0][b]	C/5.4E-5 [1.9E+0]	U.S. EPA, 1989/ Chung et al., 1986; U.S. EPA, 1989

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
DDD	NA; 250 ppm in diet for 130 weeks	NA	mouse	NA	liver	B2/ND	B2/6.9E-6 [2.4E-1][a]	NA/Tomatis et al., 1974; U.S. EPA, 1990
DDE	NA; doses of 0-1,000 ppm in diet in 3 studies	NA	mouse, hamster	NA	liver	B2/ND	B2/9.7E-6 [3.4E-1][a]	NA/NCI, 1978; Tomatis et al., 1974; Rossi et al., 1983; U.S. EPA, 1990
DDT	NA; several dietary studies	mouse, rat	mouse, rat	liver (also see Table A)	liver	B2/9.7E-5 [3.4E-1][a,b]	B2/9.7E-6 [3.4E-1][a]	U.S. EPA, 1986, 1990/U.S. EPA, 1984, 1986, 1990
Decabromodiphenyl oxide (Decabromodiphenyl ether)	NA; NA	NA	NA	NA (also see Table A)	NA	C/ND[a]	C/ND[a]	U.S. EPA, 1984, 1987, 1990/U.S. EPA, 1984, 1987 1990
Diallate	NA; 19-month oral study	NA	mouse	NA (also see Table A)	liver	B2/ND	B2/1.7E-6 [6.1E-2]	U.S. EPA, 1983/ BRL, 1968; Innes et al., 1969; U.S. EPA, 1983
Dibenzo(a,h) anthracene	NA; NA	NA	NA	NA	NA	B2/ND[f,u]	B2/ND[f,u]	U.S. EPA, 1990
Dibromochloromethane	NA; 105-week gavage study	NA	mouse	NA (also see Table A)	hepatocellular adenomas or carcinomas	C/ND[f]	C/2.4E-6 [8.4E-2][f]	U.S. EPA, 1989/ NTP, 1985; U.S. EPA, 1987, 1989a,b
1,2-Dibromo-3-chloropropane	Inhalation study; Studies include gavage and skin application	rat, mouse	rat, mouse	lung, nasal cavity, tongue, pharynx, adrenal cortex	forestomach, mammary gland, lung, skin	B2/6.3E-3 [2.2E+1]	B2/6.3E-4 [2.2E+1]	SRC, 1982; U.S. EPA, 1985, 1986/SRC 1982; U.S. EPA, 1985, 1986
1,2-Dibromoethane (ethylene dibromide)	88-103 week inhalation study; 49-week gavage study	rat	rat	nasal cavity	forestomach	B2/2.2E-4 [7.6E-1][a]	B2/2.5E-3 [8.5E+1][a]	NTP, 1982; U.S. EPA, 1984, 1990/NCI, 1978; U.S. EPA, 1984, 1987, 1990
1,4-Dichlorobenzene (p-dichlorobenzene)	NA; 103-week gavage study	NA	mouse	NA (also see Table A)	liver	B2/ND	B2/6.8E-7 [2.4E-2][g]	U.S. EPA, 1987/ NTP, 1986; U.S. EPA, 1987

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
3,3'-Dichloro-benzidine	NA; lifetime dietary study	NA	rat	NA	mammary	B2/ND[f]	B2/1.3E-5 [4.5E-1][f]	U.S. EPA, 1988/ Stula et al., 1975; U.S. EPA, 1988
1,4-Dichloro-2-butene	90-day inhalation study; NA	rat	NA	nasal passages (also see Table A)	NA	B2/2.6E-3 [9.3E+0]	B2/ND	EI Dupont de Nemours, 1986; U.S. EPA, 1987/ U.S. EPA, 1987
1,1-Dichloroethane	NA; gavage	NA	rat	NA (also see Table A)	hemangio-sarcoma	C/ND[f]	C/ND[f]	U.S. EPA, 1984, 1990/NCI, 1978; U.S. EPA, 1985, 1989
1,2-Dichloroethane (ethylene chloride)	gavage; gavage	rat	rat	circulatory system	circulatory system	B2/2.6E-5 [9.1E-2][a,b]	B2/2.6E-6 [9.1E-2][a]	NCI, 1978; U.S. EPA, 1985, 1990/NCI, 1978; U.S. EPA, 1985, 1990
1,1-Dichloroethylene (vinylidene chloride)	10 and 25 ppm for 12 months; gavage	mouse	rat	kidney (also see Table A)	adrenal	C/5E-5 [1.2E+0][a,i]	C/1.7E-5 [6E-1][a]	Maltoni et al., 1985; U.S. EPA, 1985, 1990/ NTP, 1982; U.S. EPA, 1985, 1988, 1990
1,2-Dichloropropane	NA; gavage	NA	mouse	NA (also see Table A)	liver	B2/ND	B2/1.9E-6 [6.8E-2][g]	U.S. EPA, 1987/ NTP, 1986; U.S. EPA, 1987
1,3-Dichloropropene	2-year inhalation bioassay; 104-week gavage study	mouse	rat	benign lung tumors (also see Table A)	forestomach, liver, adrenal, thyroid	B2/3.7E-5 [1.3E-1][t]	B2/5.1E-6 [1.8E-1][t]	Lomax et al., 1989; U.S. EPA, 1989/ NTP, 1985; U.S. EPA, 1985, 1989

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Dieldrin	several dietary studies; several dietary studies	mouse	mouse	liver (also see Table A)	liver	B2/4.6E-3 [1.6E+1][a,b]	B2/4.6E-4 [1.6E+1][a]	Thorpe and Walker, 1973; Davis, 1965; Walker et al., 1972; Tennekes et al., 1981; Meierhenrey et al., 1983; NCI, 1978; U.S. EPA, 1990/Thorpe and Walker, 1973; Davis, 1965; Walker et al., 1972; Tennekes et al., 1981; Meierhenrey et al., 1983; NCI, 1978; U.S. EPA, 1987, 1990
Diethylstilbesterol	Oral studies[b]; Oral studies	rat, mouse,	rat, mouse	mammary gland, uterus, cervix	mammary gland, uterus, cervix	A/1.4E-1 [4.9E+2][b]	A/1.4E-2 [4.9E+2]	SRC, 1983; U.S. EPA, 1986b/SRC, 1983; U.S. EPA, 1986
3,3'-Dimethoxybenzidine	NA; lifetime dietary study	NA	hamster	NA	forestomach	B2/ND	B2/4E-7 [1.4E-2]	U.S. EPA, 1987/ Sellakumar et al., 1969; OSHA/NIOSH, 1980; U.S. EPA, 1987
2,4-Dimethylaniline	NA; 18-month dietary study with the HCl salt	NA	mouse	NA	lung	C/ND	C/2.1E-5 [7.5E-1]	U.S. EPA, 1987/ Weisberger et al., 1978; U.S. EPA, 1987
2,4-Dimethylaniline hydrochloride	NA; 18-month dietary study	NA	mouse	NA	lung	C/ND	C/1.7E-5 [5.8E-1]	U.S. EPA, 1987/ Weisberger et al., 1978; U.S. EPA, 1987
7,12-Dimethylbenz(a) anthracene			Data Inadequate for Risk Assessment[u]					
3,3'-Dimethylbenzidine	NA; 30-day gavage study	NA	rat	NA	mammary	B2/ND	B2/2.6E-4 [9.2E+0]	U.S. EPA, 1987/ Griswold et al., 1968; U.S. EPA, 1987
1,1-Dimethylhydrazine	NA; lifetime drinking water study	NA	mouse	NA	vascular system	C/ND	C/2.5E-4 [8.7E+0][g]	U.S. EPA, 1984/Toth, 1972, 1973; U.S. EPA, 1984

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
1,2-Dimethylhydrazine	NA; 73-week drinking water study	NA	mouse	NA	vascular system	B1/ND	B1/4.0E-2 [1.4E+3][g]	U.S. EPA, 1984/Toth and Wilson, 1971; U.S. EPA, 1984
Dimethyl sulfate	NA; NA	NA	NA	NA	NA	B2/ND[a]	B2/ND[a]	U.S. EPA, 1985, 1990/U.S. EPA, 1985, 1990
2,4-Dinitrotoluene	NA; 2-year dietary study	NA	rat	NA	liver, mammary gland	B2/ND[f]	B2/1.9E-5 [6.8E-1][f,n]	U.S. EPA, 1987, 1990/Ellis et al., 1979; U.S. EPA, 1987, 1990
2,6-Dinitrotoluene	NA; NA	NA	NA	NA	NA	B2/ND[f]	B2/1.9E-5 [6.8E-1][f,n]	U.S. EPA, 1987, 1990/U..S. EPA, 1987, 1990
1,4-Dioxane	NA; 0-530 mg/kg/day for 110 weeks	NA	rat	NA	nasal cavity, liver	B2/ND	B2/3.1E-7 [1.1E-2][a]	NA/NCI, 1978; U.S. EPA, 1990
1,2-Diphenyl-hydrazine	2-year dietary study[b]; 2-year dietary study	rat	rat	liver	liver	B2/2.2E-4 [8.0E-1][a,b]	B2/2.2E-5 [8.0E-1][a]	NCI, 1978; U.S. EPA, 1980, 1990/NCI, 1978; U.S. EPA, 1980, 1987, 1988, 1990
Direct Black 38	NA; 190-1500 ppm in diet for 93 days	NA	rat	NA	liver	A/ND	A/2.4E-4 [8.7E+0][g]	U.S. EPA, 1987/ NCI, 1978; U.S. EPA, 1987
Direct Blue 6	NA; 190-1500 ppm in diet for 91 days	NA	rat	NA	liver	A/ND	A/2.3E-4 [8.7E+0][g]	U.S. EPA, 1987/ NCI, 1978; U.S. EPA, 1987
Direct Brown 95	NA; 190-1500 ppm in diet for 91 days	NA	rat	NA	liver	A/ND	A/2.6E-4 [9.3E+0][g]	U.S. EPA, 1987/ NCI, 1978; U.S. EPA, 1987
Direct Sky Blue 6B	NA; NA	NA	NA	NA	NA	B2/ND	B2/ND	U.S. EPA, 1987/ U.S. EPA, 1987

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Epichlorohydrin	inhalation exposure for 30 days, observed for lifespan; 81-week drinking water study	rat	rat	respiratory tract (also see Table A)	forestomach	B2/1.2E-6 [4.2E-3][a]	B2/2.8E-7 [9.9E-3][a]	Laskin et al., 1980; U.S. EPA, 1984, 1985, 1990/Komishi et al., 1980; U.S. EPA, 1984, 1985, 1990
Ethyl acrylate	NA; 104-week gavage study	NA	rat	NA	forestomach	B2/ND	B2/1.4E-6 [4.8E-2][g]	U.S. EPA, 1987/ NTP, 1986; U.S. EPA, 1987
Ethylene dibromide (see 1,2-Dibromoethane)								
Ethylene oxide	2-year inhalation study; NA	rat	NA	blood cells, brain	NA	B1/1E-4 [3.5E-1][g]	ND	Snellings et al., 1981; U.S. EPA, 1985/U.S. EPA, 1985
Ethylene thiourea	NA; 5-500 ppm in diet for 2 years	NA	rat	NA	thyroid	B2/ND	B2/1E-6 [3.6E-2][g]	U.S. EPA, 1984/ U.S. EPA, 1984
Folpet	NA; 112-113-week dietary study	NA	mouse	NA	digestive tract	B2/ND	B2/1E-7 [3.5E-3][a]	U.S. EPA, 1990/ Chevron Chemical Company, 1982; U.S. EPA, 1984, 1990
Formaldehyde	24-month inhalation study; NA	rat	rodent	nasal cavity	nasal cavity	B1/1.3E-5 [4.5E-2][a]	B1/8.6E-7 [3.0E-2]	U.S. EPA, 1985, 1990/U.S. EPA, 1985, 1988a,b
Furazolidone	NA; 45-week dietary study	NA	rat	NA	mammary	B2/ND	B2/1E-4 [3.8E+0]	U.S. EPA, 1987/ U.S. DHEW, 1976a,b; U.S. EPA, 1987
Furium	NA; 28-week dietary study	NA	mouse	NA	leukemia	B2/ND	B2/7.1E-4 [5.0E+1]	U.S. EPA, 1987/ Cohen et al., 1970; U.S. EPA, 1987
Glycidaldehyde	NA; 70-week study (gastric intubation)	NA	rat	NA	NA	B2/ND	B2/ND	U.S. EPA, 1989/ U.S. EPA, 1989

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Heptachlor	dietary studies; dietary studies	mouse	mouse	liver (also see Table A)	liver	B2/1.3E-3 [4.5E+0][a,b]	B2/1.3E-4 [4.5E+0][a]	Davis, 1965; Epstein, 1976; NCI, 1977; Reuber, 1977; U.S. EPA, 1986, 1990/Davis, 1965; Epstein, 1976; NCI, 1977; Reuber, 1977; U.S. EPA, 1986 1987, 1990
Heptachlor epoxide	0-10 ppm in diet for 2 years[b]; 0-10 ppm in diet for 2 years	mouse	mouse	liver	liver	B2/2.6E-3 [9.1E+0][a,b]	B2/2.6E-4 [9.1E+0][a]	Davis, 1965; Velsicol Chemical Corp., 1973; U.S. EPA, 1990/Davis, 1965; Velsicol Chemical Corp., 1973; U.S. EPA, 1990
Hexachlorobenzene	diet; diet	hamster	hamster	liver (also see Table A)	liver	B2/4E-4 [1.6E+0][b,f]	B2/4E-5 [1.6E+0][f]	Cabral et al., 1977; U.S. EPA, 1984, 1989/Cabral et al., 1977; U.S. EPA, 1984, 1985
Hexachlorobutadiene	diet; diet	rat	rat	kidney (also see Table A)	kidney	C/2.2E-5 [7.8E-2][a,b]	C/2.2E-6 [7.8E-2][a]	Kociba et al., 1977; U.S. EPA, 1990/Kociba et al., et al., 1977; U.S. EPA,1980, 1984, 1990
Hexachlorocyclohexane-alpha	NA; 24-week dietary study	NA	mouse	NA	liver	B2/1.8E-3 [6.3E+0][a,b]	B2/1.8E-4 [6.3E+0][a]	U.S. EPA, 1990/Ito et al., 1973; U.S. EPA, 1987, 1990
Hexachlorocyclohexane beta	NA; 110-week dietary study	NA	mouse	NA	liver	C/5.3E-4 [1.8E+0][a,b]	C/5.3E-5 [1.8E+0][a]	U.S. EPA, 1990/ Thorpe and Walker, 1973; U.S. EPA, 1987, 1990

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Hexachlorocyclohexane-delta	NA; 24-week dietary study	NA	mouse, rat	NA	liver	D/ND	D/ND[a]	U.S. EPA, 1990/ Ito et al., 1973, 1975; Nagasaki et al., 1972; U.S. EPA, 1987, 1990
Hexachlorocyclohexane-gamma (Lindane)	NA; diet	NA	mouse	NA (also see Table A)	liver	B2-C/ND	B2-C/3.7E-5 [1.3E+0][g]	U.S. EPA, 1984/ Thorpe and Walker, 1973; U.S. EPA, 1984, 1990
Hexachlorocyclohexane-epsilon	NA; mixture of delta and epsilon in the diet for 26 weeks	NA	mouse	NA	liver	D/ND	D/ND[a]	U.S. EPA, 1986/ Goto et al., 1972; U.S. EPA, 1987, 1990
Hexachlorocyclohexane-technical	NA; 6- to 20-month dietary study	NA	mouse	NA	liver	B2/5.1E-4 [1.8E+0][a,b]	B2/5.1E-5 [1.8E+0][a]	U.S. EPA, 1990/ Munir et al., 1983; U.S. EPA, 1987, 1990
Hexachloroethane	90-week gavage study; 90-week gavage study	mouse	mouse	liver (also see Table A)	liver	C/4.0E-6 [1.4E-2][a,b]	C/4.0E-7 [1.4E-2][a]	NCI, 1978; U.S. EPA, 1990, 1989/NCI, 1978; U.S. EPA, 1980a, 1987, 1989, 1990
Hydrazine/hydrazine sulfate	hydrazine vapor inhalation for 1 year; 25-week exposure by gavage to hydrazine sulfate	rat	mouse	nasal cavity	liver	B2/4.9E-3 [17.1E+0][a]	B2/8.5E-5 [3.0E+0][a]	MacEwen et al., 1981; U.S. EPA, 1984, 1990/ Bianciflori, 1970; U.S. EPA, 1984, 1990
Indeno(1,2,3-c,d) pyrene	NA; NA	NA	NA	NA	NA	B2/ND[f,u]	B2/ND[f,u]	U.S. EPA, 1990
Isophorone	NA; 2-year gavage study	NA	rat	NA (also see Table A)	kidney, preputial gland	C/ND[f]	C/1.1E-7 [3.9E-3][g]	U.S. EPA, 1987, 1989/ NTP, 1986; U.S. EPA, 1986, 1987, 1989
Lead	NA; NA	NA	NA	NA (also see Table A)	NA	B2/ND[a]	B2/ND[a]	U.S. EPA, 1984, 1990/U.S. EPA, 1984, 1990
2-Methoxy-5-nitro-aniline	NA; 0.4%, 0.8% in diet for 104 weeks	NA	rat	NA	skin	B2/ND	B2/1.3E-6 [4.6E-2]	U.S. EPA, 1987/NCI, 1978; U.S. EPA, 1987

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
2-Methylaniline	NA; 2-methylaniline-hydrochloride in diet for 93 weeks	NA	rat	NA	skin	B2/ND	B2/6.9E-6 [2.4E-1]	U.S. EPA, 1987/ Hecht et al., 1982; U.S. EPA, 1987
2-Methylaniline hydrochloride	NA; 93-week dietary study	NA	rat	NA	skin	B2/ND	B2/6.0E-6 [1.8E-1]	U.S. EPA, 1987/ Hecht et al., 1982; U.S. EPA, 1987
Methyl chloride (see Chloromethane)								
3-Methylchlol-anthracene	Data Inadequate for Risk Assessment[u]							
4,4-Methylenebis benzelamine	NA; 2-year drinking water	NA	rat	NA	liver	ND	ND/7.1E-6 [2.5E-1]	NA/NTP, 1983; U.S. EPA, 1984
4,4'-Methylene bis(N,N'-dimethyl) aniline	NA; in diet for 59 weeks	NA	rat	NA	thyroid	B2[a]/ND	B2[a]/1.3E-6 [4.6E-2][a]	U.S. EPA, 1985/ NCI, 1979; U.S. EPA, 1990
Methylene chloride (dichloromethane)	inhalation study; inhalation and drinking water studies	mouse	mouse	lung, liver (also see Table A)	liver	B2/4.1E-6 [1.4E-2][m]	B2/2.1E-7 [7.5E-3][m]	NTP, 1986; U.S. EPA, 1984, 1990/NTP, 1986; NCA, 1983; U.S. EPA, 1985, 1990
Methyl ethyl ketone	NA; NA	NA	NA	NA (also see Table A)	NA	D/ND[a]	D/ND[a]	U.S. EPA, 1985, 1988/ U.S. EPA, 1985, 1988
Methylhydrazine	NA; lifetime oral study	NA	hamster	NA	liver	NA/ND	NA/3.1E-5 [1.1E+0]	U.S. EPA, 1984/Toth and Shimizu, 1973; U.S. EPA, 1984
2-Methyl-5-nitroaniline	NA; in diet for 98 weeks	NA	mouse	NA	liver	C/ND	C/9.4E-7 [3.3E-2]	U.S. EPA, 1987/NCI, 1978; U.S. EPA, 1987
Mirex	NA; 2-year dietary study	NA	rat	NA (also see Table A)	liver, adrenal	B2/ND	B2/5.1E-5 [1.8E+0]	U.S. EPA, 1987/ NTP, 1987; U.S. EPA, 1987
Niagara Blue 4B	NA; NA	NA	NA	NA	NA	B2/ND	B2/ND	U.S. EPA, 1987/ U.S. EPA, 1987

Compound	Exposure	Species		Tumor Site		EPA Group/Unit Risk [Slope Factor]		Reference
	Inhalation; Oral	Inhalation	Oral	Inhalation	Oral	Inhalation $(\mu g/m^3)^{-1}$ $[(mg/kg/day)^{-1}]$	Oral $(\mu g/\ell)^{-1}$ $[(mg/kg/day)^{-1}]$	Inhalation/Oral
Nickel	occupational; NA	human	NA	respiratory tract (also see Table A)	NA	nickel refinery dust: A/ 2.4E-4 [8.4E-1][a] nickel subsulfide: A/4.8E-4 [1.7E+0][a]	ND/ND[c]	U.S. EPA, 1986; Chovil et al., 1981; Enterline and Marsh, 1982; Magnus et al., 1982; Peto et al., 1984; U.S. EPA, 1984/ U.S. EPA, 1990
Nitrofurazone	NA; 46-week dietary study	NA	rat	NA	mammary	B2/ND	B2/4.3E-5 [1.5E+0]	U.S. EPA, 1987/ Erturk et al., 1970; U.S. EPA, 1987
2-Nitropropane	22-month inhalation study; 22-month inhalation study	rat,	rat, rabbit	liver	liver	B2/2.7E-3 [9.4E+0][g]	2.7E-4 [9.5E+0][g]	Lewis et al., 1979; U.S. EPA, 1985/ U.S. EPA, 1985, 1986
N-Nitrosodi-n-butyl-amine	drinking water for life; drinking water for life	mouse	mouse	bladder esophagus	bladder esophagus	B2/1.6E-3 [5.4E+0][a,b]	B2/1.6E-4 [5.4E+0][a]	Bertram and Craig, 1970; U.S. EPA, 1986, 1990/Bertram and Craig, 1970; U.S. EPA, 1986, 1990
Nitrosodiethanol-amine	NA; 28 or 64 ppm in drinking water for 100 weeks	NA	rat	NA	liver	B2[a]/ND	B2/8.0E-5 [2.8E+0][a]	U.S. EPA, 1986, 1990/ Lijinsky and Kovatch, 1985; U.S. EPA, 1986, 1990
N-Nitrosodiethyl-amine	drinking water 6 or 12 months; drinking water for 6 or 12 months	rat	rat	liver	liver	B2/4.3E-2 [1.5E+2][a,b]	B2/4.3E-3 [1.5E+2][a]	Peto et al., 1984; U.S. EPA, 1986, 1990/ Peto et al., 1984; U.S. EPA, 1986, 1990
N-Nitrosodimethyl-amine	drinking water; drinking water;	rat	rat	liver	liver	B2/1.4E-2 [5.1E+1][a,b]	B2/1.4E-3 [5.1E+1][a]	Peto et al., 1984; U.S. EPA, 1986, 1990/ Peto et al., 1984; U.S. EPA, 1986, 1990
N-Nitrosodiphenyl-amine	NA; 700-day dietary study	NA	rat	NA	urinary bladder	B2/ND[a]	B2/1.4E-7 [4.9E-3][a]	U.S. EPA, 1987/ NCI, 1979; U.S. EPA, 1980, 1986, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
N-Nitrosodi-n-propylamine	NA; lifetime drinking water	NA	rat	NA	liver	B2[a]/ND	B2/2.0E-4 [7.0E+0][a]	U.S. EPA, 1986, 1990/ Druckrey, 1967; Druckrey et al., 1967; U.S. EPA, 1986, 1990
N-Nitrosomethylethylamine	NA; in drinking water for lifetime	NA	rat	NA	liver	B2[a]/ND	B2/6.3E-4 [2.2E+1][a]	U.S. EPA, 1986, 1990/ Druckrey et al., 1967; Druckrey, 1967; U.S. EPA, 1986, 1990
N-Nitrosomethylvinylamine	NA; NA	NA	NA	NA	NA	B2/ND	B2/ND	U.S. EPA, 1986/ U.S. EPA, 1986
N-Nitrospyrrolidine	0-3 mg/kg/day in drinking water[b]; 0-3 mg/kg/day in drinking water	rat	rat	liver	liver	B2/6.0E-4 [2.1E+0][a,b]	B2/6.0E-5 [2.1E+0][a]	Preussman et al., 1977; U.S. EPA, 1990/ Preussman et al., 1977; U.S. EPA, 1990
Parathion	NA; NA	NA	NA	NA (also see Table A)	NA	C/ND[a]	C/ND[a]	U.S. EPA, 1987, 1990/ U.S. EPA, 1987, 1990
PCBs (see Polychlorinated biphenyls)								
1,2,3,4,5-Pentabromo-6-chlorocyclohexane	NA; 0-70 mg/kg/day in the diet for 2 years	NA	rat	NA	large intestine	C/ND	C/6.6E-7 [2.3E-2][g]	U.S. EPA, 1985/ Blair, 1981; U.S. EPA, 1985
Pentachloronitrobenzene	NA; 72-week oral study	NA	mouse	NA (also see Table A)	liver	C/ND	C/7.4E-6 [2.6E-1][g]	U.S. EPA, 1986/ Innes et al., 1969; U.S. EPA, 1986
o-Phenylenediamine	NA; o-phenylenediamine dihydrochloride in diet for 548 days	NA	rat	NA	liver	B2/ND	B2/1.3E-6 [4.7E-2]	U.S. EPA, 1985/ U.S. EPA, 1985; Weisburger et al., 1978
2-Phenylphenol	NA; 2-phenylphenol sodium salt in diet for 637 days	NA	rat	NA	urinary bladder	C/ND	C/5.5E-8 [1.9E-3]	U.S. EPA, 1984/ Hiraga and Fujii, 1981; U.S. EPA, 1984

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Polybrominated biphenyls	NA; Firemaster FF-1 by gavage for 25 weeks followed by 23-month observation	NA	rat	NA	hepato-cellular carcinoma and neo-plastic nodules (also see Table A)	B2/ND	B2/2.5E-4 [8.9E+0]	U.S. EPA, 1989/ NTP, 1983; U.S. EPA, 1989
Polychlorinated biphenyls	NA; Aroclor 1260 in diet	NA	rat	NA	liver	B2/ND	B2/2.2E-4 [7.7E+0][a]	U.S. EPA, 1984, 1990/Norback and Weltman, 1985; U.S. EPA, 1987, 1990
Propylene oxide	2-year inhalation study; 150-week gavage study	mouse	rat	nasal cavity	forestomach	B2/3.7E-6 [1.3E-2][f]	B2/6.8E-6 [2.4E-1][f]	NTP, 1985; Renne et al., 1986; U.S. EPA, 1985, 1990/ Dunkelberg, 1982; U.S. EPA, 1985, 1990
RDX (Cyclonite)	NA; 2-year diet study	NA	mouse	NA	liver hepato-cellular carcinomas and adenomas (also see Table A)	C/ND[f]	C/3.1E-6[f] [1.1E-1][f]	U.S. EPA, 1988, 1989/Lish et al., 1984; U.S. EPA, 1988, 1989
Quinoline	NA; 20-40-week dietary study	NA	rat	NA	liver	C/ND	C/3.5E-4 [1.2E+1]	U.S. EPA, 1985/ Hirao et al., 1976; U.S. EPA, 1985
Selenium sulfide	NA; 2-year oral study	NA	rat, mouse	NA	liver, lung	B2/ND[f]	B2/ND[f]	U.S. EPA, 1989/ NCI/NTP, 1980; U.S. EPA, 1989
Simazine	NA; NA	NA	NA	NA	NA	C/ND[f]	C/3.4E-6 [1.2E-1][f]	U.S. EPA, 1984, 1988/U.S. EPA, 1984, 1987
Sodium diethyldithio-carbamate	NA; diet	NA	mouse	NA (also see Table A)	hepatoma	C/ND	C/7.7E-6 [2.7E-1]	U.S. EPA, 1988/ BRL, 1968; U.S. EPA, 1988
Stirophos (see Tetrachlorvinphos)								

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Styrene	20-month inhalation study; gavage study	rat	mouse	leukemia (also see Table A)	lung and bronchi	B2/5.7E-7 [2.0E-3][g]	B2/8.6E-7 [3.0E-2][g]	Jersey et al., 1978; U.S. EPA, 1989/NCI, 1979; U.S. EPA, 1989a,b
2,3,7,8-TCDD	diet; diet	rat	rat	several	several	B2[j]/3.3E-5[s] $(pg/m^3)^{-1}$ [1.5E+5][b,f]	B2[j]/4.5E+0 [1.5E+5][f]	Kociba et al., 1978; U.S. EPA, 1984/Kociba et al., 1978; U.S. EPA, 1984 1985a,b
1,1,1,2-Tetrachloroethane	0-500 mg/kg/day in corn oil by gavage 5 days/week for 103 weeks[b]; 0-500 mg/kg/day in corn oil by gavage 5 days/week for 103 weeks	mouse	mouse	liver	liver	C/7.4E-6 [2.6E-2][a,b]	C/7.4E-7 [2.6E-2][a]	NTP, 1983; U.S. EPA, 1990/NTP, 1983; U.S. EPA, 1990
1,1,2,2-Tetrachloroethane	gavage; gavage	mouse	mouse	liver	liver	C/5.8E-5 [2.0E-1][a,b]	C/5.8E-6 [2.0E-1][a]	NCI, 1978; U.S. EPA, 1980, 1986/NCI, 1978; U.S. EPA, 1980, 1990
Tetrachloroethylene (perchloroethylene)	inhalation; gavage	rat, mouse	mouse	leukemia, liver (also see Table A)	liver	B2/9.5E-7 [3.3E-3]	B2/1.5E-6 [5.1E-2][g]	NTP, 1986; U.S. EPA 1986, 1988/NCI, 1977; U.S. EPA, 1985, 1988
p,α,α,α-Tetrachlorotoluene	gavage study; gavage study	mouse	mouse	lung	lung	B2	B2/5.7E-4 [2.0E+1]	Fukada et al., 1979; U.S. EPA, 1987/ Fukada et al., 1979; U.S. EPA, 1987
Tetrachlorvinphos (stirophos)	NA; 560-day dietary study	NA	mouse	NA (also see Table A)	liver	C/ND	C/6.9E-7 [2.4E-2]	U.S. EPA, 1984/ NCI, 1978; U.S. EPA, 1984
2,4-Toluenediamine	NA; in the diet for 103 weeks	NA	rat	NA	mammary gland	B2/ND	B2/9.1E-5 [3.2E+0]	U.S. EPA, 1986/ NCI, 1979; U.S. EPA, 1986

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
o-Toluidine	NA; 511-day dietary study with HCl salt	NA	rat	NA	skin fibroma	B2/ND	B2/6.9E-6 [2.4E-1]	U.S. EPA, 1984/ Hecht et al., 1982; U.S. EPA, 1984
p-Toluidine	NA; 6-12 month dietary study with the HCl salt	NA	mouse	NA	liver	C/ND	C/2.6E-5 [1.9E-1]	U.S. EPA, 1984/ Weisburger et al., 1978; U.S. EPA, 1984
Toxaphene	735-day dietary study; 735-day dietary study	mouse	mouse	liver	liver	B2/3.2E-4 [1.1E+0][a,b]	B2/3.2E-5 [1.1E+0][a]	Litton Bionetics, Inc., 1978; U.S. EPA,1990/ Litton Bionetics, Inc.,1978; U.S. EPA, 1980, 1987, 1990
2,4,6-Trichloroaniline	NA; diet, HCl salt	NA	mouse	NA	unspecified tumors of the vascular system	C/ND	C/1.0E-6 [3.4E-2]	U.S. EPA, 1987/ Weisburger et al., 1978; U.S. EPA, 1987
2,4,6-Trichloroaniline hydrochloride	NA; diet	NA	mouse	NA	unspecified tumors of the vascular system	C/ND	C/8.2E-7 [2.9E-2]	U.S. EPA, 1987/ Weisburger et al., 1978; U.S. EPA, 1987
1,1,2-Trichloroethane	gavage; gavage	mouse	mouse	liver (also see Table A)	liver	C/1.6E-5 [5.7E-2][a,b]	C/1.6E-6 [5.7E-2][a]	NCI, 1978; U.S. EPA, 1980, 1990/NCI, 1978; U.S. EPA, 1980, 1984, 1990
Trichloroethylene	two inhalation studies; two gavage studies	mouse	mouse	lung	liver	B2/1.7E-6 [1.7E-2][f,i]	B2/3.1E-7 [1.1E-2][f,i]	Maltoni et al., 1986; Fukuda et. al., 1983/ NCI, 1976; NTP, 1983; U.S. EPA, 1985, 1987, 1988
2,4,6-Trichlorophenol	diet; diet	mouse	mouse	liver	liver	B2/3.1E-6 [1.1E-2][a]	B2/3.1E-7 [1.1E-2][a]	NCI, 1979; U.S. EPA, 1980, 1990, 1987/NCI, 1979; U.S. EPA, 1980, 1984, 1987, 1990

Compound	Exposure: Inhalation; Oral	Species: Inhalation	Species: Oral	Tumor Site: Inhalation	Tumor Site: Oral	EPA Group/Unit Risk [Slope Factor]: Inhalation $(\mu g/m^3)^{-1}$ [$(mg/kg/day)^{-1}$]	EPA Group/Unit Risk [Slope Factor]: Oral $(\mu g/\ell)^{-1}$ [$(mg/kg/day)^{-1}$]	Reference: Inhalation/Oral
Trifluralin	NA; in the diet for 2 years	NA	rat	NA (also see Table A)	kidney, bladder and thyroid	C/ND	C/2.2E-7 [7.7E-3][a]	U.S. EPA, 1990/ Emmerson et al., 1980; U.S. EPA, 1984, 1990
Trimethyl phosphate	NA; 10-week gavage study	NA	mouse	NA	uterus	B2/ND	B2/1.1E-6 [3.7E-2]	U.S. EPA, 1985/ NCI, 1978; U.S. EPA, 1985
Vinyl bromide (see bromoethene)								
Vinyl chloride	1-year inhalation study; 10-50 ppm diet	rat	rat	liver	lung	A/4.2E-5 [2.95E-1][i,f]	A/6.5E-5 [2.3E+0][f]	Maltoni et al., 1980, 1981; U.S. EPA, 1985b; ATSDR, 1988/Feron et al., 1981; U.S. EPA, 1984, 1985a

[a]Verified, available on IRIS

[b]Based on route-to-route extrapolation

[c]There is inadequate evidence for carcinogenicity of this compound by the oral route.

[d]Incorporates an absorption factor of 0.4

[e]Based on occupational data for coke-oven workers

[f]Verified; Workgroup concurrence on final data base file and IRIS input pending

[g]Under review by CRAVE Workgroup

[h]Values removed from IRIS pending further review; new verified values are pending input into IRIS.

[i]Based on metabolized dose

[j]B2 classification is for 2,3,7,8-TCDD alone. Mixtures consisting of phenoxy herbicides and/or chlorophenols with 2,3,7,8-TCDD as a contaminant are classified as B1 carcinogens.

[k]A unit risk of 5E-5 $(\mu g/\ell)^{-1}$ has been proposed by the Risk Assessment Forum and this recommendation has been scheduled for SAB review.

[l]Slope fa is for internal dose; ambient concentration was calculated by ming an absorption factor of 54%.

[m]The slope factor, while still available on IRIS, is being reconsidered by CRAVE Workgroup.

[n]This value applies to the mixture of 2,4- and 2,6-dinitrotoluene isomers

[o]Based on results with 4-chloro-2-methylaniline hydrochloride

[p]An absorption factor of 30% is used to calculate the unit risk from the slope factor.

[q]Based on results with the alpha isomer

[s]An absorption factor of 75% used to calculate the unit risk from the slope factor

[t]EPA group verified and available on IRIS; quantitative estimates, derived more recently than IRIS evaluation, have not been verified.

[u]For RCRA activities only, contact Sue Griffin of Office of Solid Waste (FTS 382-6392 or (202)382-6392) for RCRA-approved numeric assessment for this compound

NA = Not applicable; ND = not determined

USER'S GUIDE: RADIONUCLIDE CARCINOGENICITY

The Health Effects Assessment Summary Table C summarizes the cancer slope factors and unit risk values for selected radionuclides of potential concern at Superfund sites contaminated with radioactive materials. These values were calculated by the Office of Radiation Programs (ORP) and are intended for use by EPA risk assessors during human health risk assessments conducted as part of the Superfund remedial investigation/feasibility study (RI/FS) process. HEAST users should apply these values as specified by the radiation risk assessment guidance provided in this section and in Chapter 10 of the Risk Assessment Guidance for Superfund; Volume I, Human Health Evaluation Manual, Part A (EPA/540/1-89/002), which is available from the Center for Environmental Research Information at (513) 569-7562. As risk assessment methodologies are refined, slope factors and unit risk values will be revised and updated in Table C.

EPA classifies all radionuclides as Group A carcinogens based on their property of emitting ionizing radiation and on the extensive weight of evidence provided by epidemiological studies of radiation-induced cancers in humans. Data derived from both human studies and animal experiments are used by EPA to construct mathematical models of exposure, dose, and risk to estimate radionuclide slope factor values. These models consider pathways of exposure, the distinct metabolic behavior of each element by compound and the radiological characteristics of each nuclide of

concern, the time and duration of exposure, the radiosensitivity of each target organ in the body, the latency period for cancer expression in these organs, and the age and sex of individuals in the exposed population.

Similar to chemical risk models, radiation models extrapolate cancer risks at low dose and dose rate exposures from risks observed at higher doses using non-threshold, linear dose-response relationships. Because of the radiation risk models employed, slope factors for radionuclides are characterized as best estimates (i.e., maximum likelihood estimates) of the age-averaged lifetime total excess cancer risk per unit intake or exposure. HEAST users should consult Volume I of the Background Information Document for the Draft Environmental Impact Statement for Proposed NESHAPs for Radionuclides (EPA 520/1-89-005) for a more detailed discussion of EPA's current radiation risk assessment methodology.

Quantitative carcinogenic estimates listed in Table C* include the following:

slope factor = risk per unit intake or exposure = risk per pCi inhaled or ingested or as risk per year per pCi/m^2 due to external exposure.

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* Slope factors and risk estimates are reported in Table C in units of activity, both in the customary units of picocuries (1 pCi = 10^{-12} curies (Ci) = 3.7×10^{-2} nuclear transformations per second) for consistency with the system used for radionuclides in the IRIS database, and in the International System (SI) units of becquerels (1 Bq = 1 nuclear transformation per second; approximately 27 pCi). Users can calculate cancer risks using slope factors expressed in either customary units or SI units with equivalent results, provided that they also use air, water and soil concentration values in the same system units. For simplicity, examples presented in text are shown in picocuries only.

pathway-specific unit risk = risk per unit concentration in air, drinking water or soil (external exposure) = risk per pCi/m^3 (air), risk per pCi/L (water), risk per pCi/g (external exposure), or risk pCi/g (soil ingestion).

Unit risk estimates for air, drinking water, and soil ingestion pathways provided in Table C were calculated by multiplying the appropriate inhalation and ingestion slope factors by the inhalation rate (20 m^3/day), the water consumption rate (2 L/day), or the soil ingestion rate*, respectively, and by multiplying all values by the total number of days in 70 years (i.e., by the lifetime exposure = 365 days/yr x 70 yrs = 25,550 days). Hence,

risk per pCi/m^3 (air)	=	slope factor (risk per pCi inhaled) x 20 m^3/day x 25,550 days
risk per pCi/L (water)	=	slope factor (risk per pCi ingested) x 2 L/day x 25,550 days
risk per pCi/g (soil) (soil ingestion)	=	slope factor (risk per pCi ingested) x [(0.2 g/day x 1,825 days) + (0.1 g/day x 23,360 days)]

The designations "D", "W", and "Y" presented under the heading "ICRP Lung Class" in Table C refer to the lung clearance times for

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* Soil ingestion rates of 0.2 gram per day for children aged 1 year through 6 years and 0.1 gram per day for older age groups were taken from EPA's Interim Final Guidance for Soil Ingestion Rates (OSWER Directive 9850.4; January 27, 1989), available from the Office of Waste Enforcement Programs at (202) 382-4814. Accordingly, for lifetime exposures, an individual would be expected to consume 365 grams of soil starting at age 1 to age 6 (i.e., 0.2 g/day x 365 days/year x 5 years), plus 2,336 grams after age 6 to age 70 (i.e., 0.1 g/day x 365 days x 64 years) for a total of approximately 2,700 grams.

inhaled particulate radionuclides expressed as days (D), weeks (W), or years (Y), as recommended by the International Commission on Radiological Protection (ICRP). Gaseous radionuclides, e.g., Rn-222, are assigned to class "g". "GI Absorption Factors, f_1" are the fractional amounts of each radionuclide that may be absorbed from the gastrointestinal (GI) tract into blood following an oral intake. The ICRP lung clearance rates and GI absorption factors provided in Table C are default values used by the EPA to calculate radionuclide slope factors for inhalation and ingestion exposures, respectively. Application of values other than those specified in Table C will result in slope factors and unit risk estimates different from those provided in the table. At this time, EPA recommends that risk assessors should not replace or substitute for the default values listed.

Values listed in Table C for external exposure are best estimates of the lifetime cancer risk due to the irradiation of an individual exposed to gamma-emitting radionuclides uniformly mixed in soil. Unit risk estimates for this pathway were calculated by multiplying the appropriate ground surface slope factors by the effective surface density of soil (i.e., 143 kg/m^2 = 0.10 m (soil depth) x 1.43×10^3 kg/m^3 (soil density)), and by multiplying all values by 70 years (i.e., by the lifetime exposure). Hence,

risk per pCi/g (soil) = slope factor (risk per year per pCi/m^2) x 143 kg/m^2 x 10^3 (g/kg) x 70 years

External exposure factors do not include contributions from decay products, i.e., any radionuclides formed during radioactive decay. In some cases, these contributions can be substantial and should be factored into the risk calculations. For example, to estimate the total lifetime excess cancer risk due to continuous, lifetime external exposure to soil contaminated with Cs-137 at a level of 1 pCi/g, risk values must be calculated for Cs-137 and Ba-137m in equilibrium concentrations of 1 pCi/g each (assuming a uniformly mixed source in soil and using the values listed under "External Exposure" in Table C as follows;

Total risk = Risk from Cs-137 + Risk from Ba-137m

= (pCi/g Cs-137 x Risk per pCi/g Cs-137)
+ (pCi/g Ba-137m x Risk per pCi/g Ba-137m)

= (1 pCi/g x 0.0E+00 risk per pCi/g Cs-137)
+ (1 pCi/g x 3.4E-04 risk per pCi/g Ba-137m)

= 3.4×10^{-4} total lifetime excess cancer risk

This calculation must be performed in this manner because the external exposure risk from Cs-137 is due to the photon radiation emitted by Ba-137m, its immediate short-lived decay product. In the same manner, the total lifetime excess cancer risk due to continuous external exposure to soil contaminated with Ra-226 and progeny (assuming secular equilibrium) should be calculated as the summation of the risks contributed by Ra-226 and each decay product that emits photon radiation, such as Pb-214 and Bi-214.

To estimate risk-specific concentrations in air from the unit risk in air as presented in Table C, the specified level of risk is divided by the unit risk for air. Hence, the air concentration (in pCi/m^3) corresponding to a best estimate of the increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$pCi/m^3 \text{ in air} = \frac{1x10^{-5}}{\text{unit risk in } (pCi/m^3)^{-1}}$$

Similarly, to estimate risk-specific concentrations in water and in soil (ingestion exposure), the specified level of risk is divided by the unit risk for drinking water or soil ingestion. Hence, the water concentration (in pCi/L) corresponding to a best estimate of the increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$pCi/L \text{ in water} = \frac{1x10^{-5}}{\text{unit risk in } (pCi/L)^{-1}}$$

and the soil concentration (in pCi/g) corresponding to a best estimate of the increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$\text{pCi/g in soil (ingestion exposure)} = \frac{1x10^{-5}}{\text{unit risk in } (pCi/g)^{-1} \text{ (soil ingestion)}}$$

To estimate risk-specific concentrations in soil from the unit risk from external exposure as presented in Table C, the specified level of risk is divided by the unit risk for soil. Hence, the soil concentration (in pCi/g) corresponding to a best estimate of the increased lifetime cancer risk of $1x10^{-5}$ is calculated as follows:

$$\text{pCi/g in soil (external exposure)} = \frac{1x10^{-5}}{\text{unit risk in } (\text{pCi/g})^{-1} \text{ (external exposure)}}$$

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in picocuries (pCi)*)

			Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Inhalation $(pCi)^{-1}$	Ingestion $(pCi)^{-1}$	Ground Surface $(yr/(pCi/m^2))^{-1}$	Air $(pCi/m^3)^{-1}$	Drinking Water $(pCi/L)^{-1}$	External Exposure $(pCi/g)^{-1}$	Soil Ingestion $(pCi/g)^{-1}$
Ac-225	Y	1.0E-03	2.4E-09	1.7E-11	9.4E-13	1.2E-03	8.7E-07	9.4E-06	4.6E-08
Ac-227	Y	1.0E-03	8.3E-08	3.5E-10	1.3E-14	4.2E-02	1.8E-05	1.3E-07	9.5E-07
Ac-228	Y	1.0E-03	2.6E-11	5.1E-13	5.1E-11	1.3E-05	2.6E-08	5.1E-04	1.4E-09
Am-241	W	1.0E-03	4.0E-08	3.1E-10	1.6E-12	2.1E-02	1.6E-05	1.6E-05	8.4E-07
Am-243	W	1.0E-03	4.0E-08	3.0E-10	3.6E-12	2.1E-02	1.5E-05	3.6E-05	8.1E-07
At-217	D	9.5E-01	5.6E-17	4.5E-18	1.4E-14	2.9E-11	2.3E-13	1.4E-07	1.2E-14
Ba-137m	D	1.0E-01	6.0E-16	2.4E-15	3.4E-11	3.0E-10	1.2E-10	3.4E-04	6.5E-12
Bi-210	W	5.0E-02	8.1E-11	1.9E-12	0.0E+00	4.1E-05	9.7E-08	0.0E+00	5.1E-09
Bi-211	W	5.0E-02	1.9E-13	1.2E-14	2.8E-12	9.7E-08	6.1E-10	2.8E-05	3.2E-11
Bi-212	W	5.0E-02	6.9E-12	3.6E-13	1.0E-11	3.5E-06	1.8E-08	1.0E-04	9.7E-10
Bi-213	W	5.0E-02	3.2E-13	2.3E-13	8.1E-12	1.6E-07	1.2E-08	8.1E-05	6.2E-10
Bi-214	W	5.0E-02	2.2E-12	1.4E-13	8.0E-11	1.1E-06	7.2E-09	8.0E-04	3.8E-10
C-14	g	9.5E-01	6.4E-15	9.1E-13	0.0E+00	3.2E-09	4.7E-08	0.0E+00	2.5E-09
Ce-144	Y	3.0E-04	3.4E-10	6.1E-12	1.2E-12	1.7E-04	3.0E-07	1.2E-05	1.6E-08
Cm-243	W	1.0E-03	3.1E-08	2.3E-10	8.2E-12	1.6E-02	1.2E-05	8.2E-05	6.2E-07
Cm-244	W	1.0E-03	2.7E-08	2.0E-10	5.8E-14	1.4E-02	1.0E-05	5.9E-07	5.4E-07
Co-60	Y	3.0E-01	1.6E-10	1.5E-11	1.3E-10	8.1E-05	7.8E-07	1.3E-03	4.1E-08

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in picocuries (pCi)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(pCi)^{-1}$	Ingestion $(pCi)^{-1}$	Ground Surface $(yr/(pCi/m^2))^{-1}$	Air $(pCi/m^3)^{-1}$	Drinking Water $(pCi/L)^{-1}$	External Exposure $(pCi/g)^{-1}$	Soil Ingestion $(pCi/g)^{-1}$
Cr-51	Y	1.0E-01	3.0E-13	4.2E-14	1.9E-12	1.5E-07	2.1E-09	1.9E-05	1.1E-10
Cs-134	D	9.5E-01	2.8E-11	4.2E-11	8.9E-11	1.4E-05	2.1E-06	8.9E-04	1.1E-07
Cs-135	D	9.5E-01	2.7E-12	4.0E-12	0.0E+00	1.4E-06	2.1E-07	0.0E+00	1.1E-08
Cs-137	D	9.5E-01	1.9E-11	2.8E-11	0.0E+00	9.6E-06	1.4E-06	0.0E+00	7.6E-08
Eu-152	W	1.0E-02	1.2E-08	2.1E-12	6.3E-11	6.1E-03	1.1E-07	6.3E-04	5.7E-09
Eu-154	W	1.0E-02	1.4E-10	3.0E-12	6.8E-11	7.2E-05	1.5E-07	6.8E-04	8.1E-09
Fe-59	W	1.0E-01	9.8E-12	2.8E-12	6.2E-11	4.9E-06	1.4E-07	6.3E-04	7.6E-09
Fr-221	D	9.5E-01	9.2E-13	5.9E-14	1.9E-12	4.7E-07	3.0E-09	1.9E-05	1.6E-10
H-3	g	9.5E-01	7.8E-14	5.5E-14	0.0E+00	4.0E-08	2.8E-09	0.0E+00	1.5E-10
I-125	D	9.5E-01	1.7E-11	2.6E-11	1.7E-12	8.7E-06	1.3E-06	1.7E-05	7.0E-08
I-129	D	9.5E-01	1.2E-10	1.9E-10	1.5E-12	6.1E-05	9.6E-06	1.5E-05	5.1E-07
I-131	D	9.5E-01	2.4E-11	3.6E-11	2.9E-11	1.2E-05	1.8E-06	2.9E-04	9.7E-08
I-133	D	9.5E-01	1.2E-11	2.1E-11	3.5E-11	6.1E-06	1.1E-06	3.5E-04	5.7E-08
K-40	D	9.5E-01	7.6E-12	1.1E-11	7.8E-12	4.0E-06	5.7E-07	7.8E-05	3.0E-08
Mn-54	W	1.0E-01	5.3E-12	1.1E-12	4.7E-11	2.6E-06	5.7E-08	4.8E-04	3.0E-09
Mo-99	Y	8.0E-01	2.6E-12	1.7E-12	9.0E-12	1.3E-06	8.7E-08	8.9E-05	4.6E-09

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in picocuries (pCi)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(pCi)^{-1}$	Ingestion $(pCi)^{-1}$	Ground Surface $(yr/(pCi/m^2))^{-1}$	Air $(pCi/m^3)^{-1}$	Drinking Water $(pCi/L)^{-1}$	External Exposure $(pCi/g)^{-1}$	Soil Ingestion $(pCi/g)^{-1}$
Nb-94	Y	1.0E-02	2.1E-10	2.1E-12	8.9E-11	1.1E-04	1.1E-07	8.9E-04	5.7E-09
Ni-59	W	5.0E-02	6.9E-13	8.7E-14	3.4E-14	3.5E-07	4.4E-09	3.4E-07	2.3E-10
Ni-63	W	5.0E-02	1.7E-12	2.3E-13	0.0E+00	8.7E-07	1.2E-08	0.0E+00	6.2E-10
Ni-65	W	5.0E-02	1.9E-13	2.6E-13	2.8E-11	9.7E-08	1.3E-08	2.8E-04	7.0E-10
Np-237	W	1.0E-03	3.6E-08	2.7E-10	1.8E-12	1.8E-02	1.4E-05	1.8E-05	7.3E-07
Np-239	W	1.0E-03	1.5E-12	9.3E-13	1.1E-11	7.7E-07	4.8E-08	1.1E-04	2.5E-09
P-32	D	8.0E-01	3.0E-12	3.5E-12	0.0E+00	1.5E-06	1.8E-07	0.0E+00	9.5E-09
Pa-231	Y	1.0E-03	4.0E-08	1.9E-10	2.0E-12	2.0E-02	9.7E-06	2.0E-05	5.1E-07
Pa-233	Y	1.0E-03	8.7E-12	1.0E-12	1.3E-11	4.4E-06	5.1E-08	1.3E-04	2.7E-09
Pa-234	Y	1.0E-03	5.4E-13	6.8E-13	1.1E-10	2.8E-07	3.5E-08	1.1E-03	1.8E-09
Pa-234m	Y	1.0E-03	1.6E-15	5.8E-15	6.4E-13	8.2E-10	3.0E-10	6.4E-06	1.6E-11
Pb-209	D	2.0E-01	7.0E-14	8.5E-14	0.0E+00	3.6E-08	4.3E-09	0.0E+00	2.3E-10
Pb-210	D	2.0E-01	1.7E-09	6.5E-10	1.8E-13	8.7E-04	3.4E-05	1.8E-06	1.8E-06
Pb-211	D	2.0E-01	2.9E-12	1.8E-13	2.9E-12	1.5E-06	9.2E-09	2.9E-05	4.9E-10
Pb-212	D	2.0E-01	4.7E-11	7.2E-12	9.2E-12	2.4E-05	3.7E-07	9.2E-05	1.9E-08
Pb-214	D	2.0E-01	2.9E-12	1.8E-13	1.5E-11	1.5E-06	9.2E-09	1.5E-04	4.9E-10
Po-210	W	1.0E-01	2.7E-09	2.6E-10	4.8E-16	1.4E-06	1.3E-05	4.8E-09	7.0E-07
Po-212	W	1.0E-01	6.1E-22	2.2E-23	0.0E+00	3.1E-16	1.1E-18	0.0E+00	5.9E-20
Po-213	W	1.0E-01	8.0E-21	3.2E-22	1.7E-15	4.1E-15	1.6E-17	1.7E-08	8.6E-19
Po-214	W	1.0E-01	2.8E-19	1.0E-20	4.7E-15	1.4E-13	5.1E-16	4.7E-08	2.7E-17
Po-215	W	1.0E-01	5.7E-18	2.8E-19	8.7E-15	2.9E-12	1.4E-14	8.7E-08	7.6E-16

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in picocuries (pCi)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(pCi)^{-1}$	Ingestion $(pCi)^{-1}$	Ground Surface $(yr/(pCi/m^2))^{-1}$	Air $(pCi/m^3)^{-1}$	Drinking Water $(pCi/L)^{-1}$	External Exposure $(pCi/g)^{-1}$	Soil Ingestion $(pCi/g)^{-1}$
Pu-238	Y	1.0E-03	4.2E-08	2.8E-10	6.1E-14	2.1E-02	1.4E-05	5.9E-07	7.6E-07
Pu-239	Y	1.0E-04	4.1E-08	3.1E-11	2.6E-14	2.6E-02	1.6E-06	2.6E-07	8.4E-08
Pu-240	Y	1.0E-04	4.1E-08	3.1E-11	5.9E-14	2.1E-02	1.6E-06	5.9E-07	8.4E-08
Pu-241	Y	1.0E-03	2.9E-10	4.8E-12	0.0E+00	1.5E-04	2.5E-07	0.0E+00	1.3E-08
Pu-242	Y	1.0E-04	3.9E-08	3.0E-11	4.9E-14	2.1E-02	1.5E-06	4.8E-07	8.1E-08
Ra-223	W	2.0E-01	3.1E-09	8.0E-11	8.4E-12	1.6E-03	4.1E-06	8.4E-05	2.2E-07
Ra-224	W	2.0E-01	1.2E-09	4.8E-11	6.2E-13	6.1E-04	2.5E-06	6.2E-06	1.3E-07
Ra-225	W	2.0E-01	1.6E-09	6.6E-11	8.0E-13	8.2E-04	3.4E-06	8.0E-06	1.8E-07
Ra-226	W	2.0E-01	3.0E-09	1.2E-10	4.2E-13	1.5E-03	6.1E-06	4.1E-06	3.2E-07
Ra-228	W	2.0E-01	6.5E-10	1.0E-10	5.4E-20	3.4E-04	5.1E-06	5.6E-13	2.7E-07
Rn-219	g	--	4.6E-14	--	3.5E-12	2.4E-08	--	3.5E-05	--
Rn-220	g	--	1.2E-13	--	3.0E-14	6.1E-08	--	3.0E-07	--
Rn-222	g	--	7.2E-13	--	2.2E-14	3.7E-07	--	2.2E-07	--
Ru-106	Y	5.0E-02	4.4E-10	9.6E-12	0.0E+00	2.3E-04	4.9E-07	0.0E+00	2.6E-08
S-35	D	8.0E-01	1.9E-13	2.2E-13	0.0E+00	9.6E-08	1.1E-08	0.0E+00	5.9E-10
Sr-89	D	3.0E-01	2.9E-12	3.0E-12	7.8E-15	1.5E-06	1.5E-07	7.8E-08	8.1E-09
Sr-90	D	3.0E-01	5.6E-11	3.3E-11	0.0E+00	2.8E-05	1.7E-06	0.0E+00	8.9E-08
Tc-99	W	8.0E-01	8.3E-12	1.3E-12	3.4E-17	4.2E-06	6.6E-08	3.4E-10	3.5E-09
Tc-99m	W	8.0E-01	2.7E-14	5.1E-14	8.1E-12	1.4E-08	2.6E-09	8.2E-05	1.4E-10

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in picocuries (pCi)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(pCi)^{-1}$	Ingestion $(pCi)^{-1}$	Ground Surface $(yr/(pCi/m^2))^{-1}$	Air $(pCi/m^3)^{-1}$	Drinking Water $(pCi/L)^{-1}$	External Exposure $(pCi/g)^{-1}$	Soil Ingestion $(pCi/g)^{-1}$
Th-227	Y	2.0E-04	4.9E-09	4.8E-12	6.6E-12	2.5E-03	2.5E-07	6.6E-06	1.3E-08
Th-228	Y	2.0E-04	7.7E-08	1.5E-11	1.6E-13	3.9E-02	7.7E-07	1.6E-06	4.1E-08
Th-229	Y	2.0E-04	7.7E-08	3.9E-11	5.8E-12	3.9E-02	2.0E-06	5.8E-05	1.1E-07
Th-230	Y	2.0E-04	3.1E-08	2.4E-11	5.9E-14	1.6E-02	1.2E-06	5.9E-07	6.5E-08
Th-231	Y	2.0E-04	4.9E-13	4.0E-13	1.1E-12	2.5E-07	2.0E-08	1.1E-05	1.1E-09
Th-232	Y	2.0E-04	3.1E-08	2.2E-11	4.6E-14	1.6E-02	1.1E-06	4.5E-07	5.9E-08
Th-234	Y	2.0E-04	3.2E-11	4.0E-12	5.6E-13	1.6E-05	2.0E-07	5.6E-06	1.1E-08
Tl-207	D	9.5E-01	4.5E-15	1.3E-14	1.2E-13	2.3E-09	6.6E-10	1.2E-06	3.5E-11
Tl-208	D	9.5E-01	5.1E-15	1.8E-14	1.7E-10	2.6E-09	9.2E-10	1.7E-03	4.9E-11
Tl-209	D	9.5E-01	4.3E-15	1.4E-14	1.1E-10	2.2E-09	7.2E-10	1.1E-03	3.8E-11
U-233	Y	2.0E-01	2.7E-08	1.4E-10	3.2E-14	1.4E-02	7.2E-06	3.2E-07	3.8E-07
U-234	Y	2.0E-01	2.7E-08	1.4E-10	5.7E-14	1.4E-02	7.2E-06	5.6E-07	3.8E-07
U-235	Y	2.0E-01	2.5E-08	1.3E-10	9.6E-12	1.3E-02	6.6E-06	9.7E-05	3.5E-07
U-238	Y	2.0E-01	2.4E-08	1.3E-10	4.6E-14	1.2E-02	6.6E-06	4.5E-07	3.5E-07
Y-90	Y	1.0E-04	5.5E-12	3.2E-12	0.0E+00	2.8E-06	1.6E-07	0.0E+00	8.6E-09

* A picocurie is a unit of activity equal to 3.7E-02 nuclear transformations per second: 1 pCi = 1.0E-12 curies (Ci) = 3.7E-02 becquerels (Bq).

** Lung clearance classifications recommended by the International Commission on Radiological Protection (ICRP); "D" (days), "W" (weeks), "Y" (years), "g" (gas).

*** Gastrointestinal (GI) absorption factors, i.e, fractional uptake of a radionuclide from the gut into blood.

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in Becquerels (Bq)*)

			Slope Factor			Pathway-Specific Unit Risk			
			Age-averaged lifetime excess total cancer risk per unit intake or exposure			Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Inhalation $(Bq)^{-1}$	Ingestion $(Bq)^{-1}$	Ground Surface $(yr/(Bq/m^2))^{-1}$	Air $(Bq/m^3)^{-1}$	Drinking Water $(Bq/L)^{-1}$	External Exposure $(Bq/g)^{-1}$	Soil Ingestion $(Bq/g)^{-1}$
Ac-225	Y	1.0E-03	6.5E-08	4.6E-10	2.5E-11	3.3E-02	2.3E-05	2.5E-04	1.2E-06
Ac-227	Y	1.0E-03	2.2E-06	9.5E-09	3.5E-13	1.1E+00	4.9E-04	3.5E-06	2.6E-05
Ac-228	Y	1.0E-03	7.0E-10	1.4E-11	1.4E-09	3.6E-04	7.0E-07	1.4E-02	3.7E-08
Am-241	W	1.0E-03	1.1E-06	8.4E-09	4.3E-11	5.6E-01	4.3E-04	4.3E-04	2.3E-05
Am-243	W	1.0E-03	1.1E-06	8.1E-09	9.7E-11	5.6E-01	4.1E-04	9.7E-04	2.2E-05
At-217	D	9.5E-01	1.5E-15	1.2E-16	3.8E-13	7.7E-10	6.2E-12	3.8E-06	3.3E-13
Ba-137m	D	1.0E-01	1.6E-14	6.5E-14	9.2E-10	8.2E-09	3.3E-09	9.2E-03	1.8E-10
Bi-210	W	5.0E-02	2.2E-09	5.1E-11	0.0E+00	1.1E-03	2.6E-06	0.0E+00	1.4E-07
Bi-211	W	5.0E-02	5.1E-12	3.2E-13	7.6E-11	2.6E-06	1.6E-08	7.6E-04	8.6E-10
Bi-212	W	5.0E-02	1.9E-10	9.7E-12	2.7E-10	9.5E-05	4.9E-07	2.7E-03	2.6E-08
Bi-213	W	5.0E-02	8.6E-12	6.2E-12	2.2E-10	4.3E-06	3.2E-07	2.2E-03	1.7E-08
Bi-214	W	5.0E-02	5.9E-11	3.8E-12	2.2E-09	3.3E-05	1.9E-07	2.2E-02	1.0E-08
C-14	g	9.5E-01	1.7E-13	2.5E-11	0.0E+00	8.7E-08	1.3E-06	0.0E+00	6.8E-08
Ce-144	Y	3.0E-04	9.2E-09	1.6E-10	3.2E-11	4.7E-03	8.2E-06	3.2E-04	4.3E-07
Cm-243	W	1.0E-03	8.4E-07	6.2E-09	2.2E-10	4.3E-01	3.2E-04	2.2E-03	1.7E-05
Cm-244	W	1.0E-03	7.3E-07	5.4E-09	1.6E-12	3.7E-01	2.8E-04	1.6E-05	1.5E-05
Co-60	Y	3.0E-01	4.3E-09	4.1E-10	3.5E-09	2.2E-03	2.1E-05	3.5E-02	1.1E-06

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in Becquerels (Bq)*)

			Slope Factor			Pathway-Specific Unit Risk			
			Age-averaged lifetime excess total cancer risk per unit intake or exposure			Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Inhalation $(Bq)^{-1}$	Ingestion $(Bq)^{-1}$	Ground Surface $(yr/(Bq/m^2))^{-1}$	Air $(Bq/m^3)^{-1}$	Drinking Water $(Bq/L)^{-1}$	External Exposure $(Bq/g)^{-1}$	Soil Ingestion $(Bq/g)^{-1}$
Cr-51	Y	1.0E-01	8.1E-12	1.1E-12	5.1E-11	4.1E-06	5.6E-08	5.1E-04	3.0E-09
Cs-134	D	9.5E-01	7.6E-10	1.1E-09	2.4E-09	3.9E-04	5.6E-05	2.4E-02	3.0E-06
Cs-135	D	9.5E-01	7.3E-11	1.1E-10	0.0E+00	3.7E-05	5.6E-06	0.0E+00	3.0E-07
Cs-137	D	9.5E-01	5.1E-10	7.6E-10	0.0E+00	2.6E-04	3.9E-05	0.0E+00	2.1E-06
Eu-152	W	1.0E-02	3.2E-07	5.7E-11	1.7E-09	1.7E-01	2.9E-06	1.7E-02	1.5E-07
Eu-154	W	1.0E-02	3.8E-09	8.1E-11	1.8E-09	1.9E-03	4.1E-06	1.8E-02	2.2E-07
Fe-59	W	1.0E-01	2.6E-10	7.6E-11	1.7E-09	1.3E-04	3.9E-06	1.7E-02	2.1E-07
Fr-221	D	9.5E-01	2.5E-11	1.6E-12	5.1E-11	1.3E-05	8.1E-08	5.1E-04	4.3E-09
H-3	g	9.5E-01	2.1E-12	1.5E-12	0.0E+00	1.1E-06	7.7E-08	0.0E+00	4.1E-09
I-125	D	9.5E-01	4.6E-10	7.0E-10	4.6E-11	2.3E-04	3.6E-05	4.6E-04	1.9E-06
I-129	D	9.5E-01	3.2E-09	5.1E-09	4.1E-11	1.6E-03	2.6E-04	4.1E-04	1.4E-05
I-131	D	9.5E-01	6.5E-10	9.7E-10	7.8E-10	3.3E-04	5.0E-05	7.8E-03	2.6E-06
I-133	D	9.5E-01	3.2E-10	5.7E-10	9.5E-10	1.7E-04	2.9E-05	9.5E-03	1.5E-06
K-40	D	9.5E-01	2.1E-10	3.0E-10	2.1E-10	1.1E-04	1.5E-05	2.1E-03	8.1E-07
Mn-54	W	1.0E-01	1.4E-10	3.0E-11	1.3E-09	7.2E-05	1.5E-06	1.3E-02	8.1E-08
Mo-99	Y	8.0E-01	7.0E-11	4.6E-11	2.4E-10	3.6E-05	2.4E-06	2.4E-03	1.2E-07

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in Becquerels (Bq)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(Bq)^{-1}$	Ingestion $(Bq)^{-1}$	Ground Surface $(yr/(Bq/m^2))^{-1}$	Air $(Bq/m^3)^{-1}$	Drinking Water $(Bq/L)^{-1}$	External Exposure $(Bq/g)^{-1}$	Soil Ingestion $(Bq/g)^{-1}$
Nb-94	Y	1.0E-02	5.7E-09	5.7E-11	2.4E-09	2.9E-03	2.9E-06	2.4E-02	1.5E-07
Ni-59	W	5.0E-02	1.9E-11	2.4E-12	9.2E-13	9.5E-06	1.2E-07	9.2E-06	6.4E-09
Ni-63	W	5.0E-02	4.6E-11	6.2E-12	0.0E+00	2.3E-05	3.2E-07	0.0E+00	1.7E-08
Ni-65	W	5.0E-02	5.1E-12	7.0E-12	7.6E-10	2.6E-06	3.6E-07	7.6E-03	1.9E-08
Np-237	W	1.0E-03	9.7E-07	7.3E-09	4.9E-11	5.0E-01	3.7E-04	4.9E-04	2.0E-05
Np-239	W	1.0E-03	4.1E-11	2.5E-11	3.0E-10	2.1E-05	1.3E-06	3.0E-03	6.8E-08
P-32	D	8.0E-01	8.1E-11	9.5E-11	0.0E+00	4.1E-05	4.9E-06	0.0E+00	2.6E-07
Pa-231	Y	1.0E-03	1.1E-06	5.1E-09	5.4E-11	5.5E-01	2.6E-04	5.4E-04	1.4E-05
Pa-233	Y	1.0E-03	2.4E-10	2.7E-11	3.5E-10	1.2E-04	1.4E-06	3.5E-03	7.3E-08
Pa-234	Y	1.0E-03	1.5E-11	1.8E-11	3.0E-09	7.5E-06	9.4E-07	3.0E-02	5.0E-08
Pa-234m	Y	1.0E-03	4.3E-14	1.6E-13	1.7E-11	2.2E-08	8.0E-09	1.7E-04	4.2E-10
Pb-209	D	2.0E-01	1.9E-12	2.3E-12	0.0E+00	9.7E-07	1.2E-07	0.0E+00	6.2E-09
Pb-210	D	2.0E-01	4.6E-08	1.8E-08	4.9E-12	2.4E-02	9.2E-04	4.9E-05	4.9E-05
Pb-211	D	2.0E-01	7.8E-11	4.9E-12	7.8E-11	4.0E-05	2.5E-07	7.8E-04	1.3E-08
Pb-212	D	2.0E-01	1.3E-09	1.9E-10	2.5E-10	6.5E-04	9.9E-06	2.5E-03	5.3E-07
Pb-214	D	2.0E-01	7.8E-11	4.9E-12	4.2E-10	4.0E-05	2.5E-07	4.2E-03	1.3E-08
Po-210	W	1.0E-01	7.3E-11	7.0E-09	1.3E-14	3.7E-05	3.6E-04	1.3E-07	1.9E-05
Po-212	W	1.0E-01	1.6E-20	5.9E-22	0.0E+00	8.4E-15	3.0E-17	0.0E+00	1.6E-18
Po-213	W	1.0E-01	2.2E-19	8.6E-21	4.6E-14	1.1E-13	4.4E-16	4.6E-07	2.3E-17
Po-214	W	1.0E-01	7.6E-18	2.7E-19	1.3E-13	3.9E-12	1.4E-14	1.3E-06	7.3E-16
Po-215	W	1.0E-01	1.5E-16	7.6E-18	2.4E-13	7.9E-11	3.9E-13	2.4E-06	2.0E-14

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in Becquerels (Bq)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(Bq)^{-1}$	Ingestion $(Bq)^{-1}$	Ground Surface $(yr/(Bq/m^2))^{-1}$	Air $(Bq/m^3)^{-1}$	Drinking Water $(Bq/L)^{-1}$	External Exposure $(Bq/g)^{-1}$	Soil Ingestion $(Bq/g)^{-1}$
Pu-238	Y	1.0E-03	1.1E-06	7.6E-09	1.6E-12	5.6E-01	3.9E-04	1.6E-05	2.1E-05
Pu-239	Y	1.0E-04	1.1E-06	8.4E-10	7.0E-13	5.6E-01	4.3E-05	7.0E-06	2.3E-06
Pu-240	Y	1.0E-04	1.1E-06	8.4E-10	1.6E-12	5.6E-01	4.3E-05	1.6E-05	2.3E-06
Pu-241	Y	1.0E-03	7.8E-09	1.3E-10	0.0E+00	4.0E-03	6.6E-06	0.0E+00	3.5E-07
Pu-242	Y	1.0E-04	1.1E-06	8.1E-10	1.3E-12	5.6E-01	4.1E-05	1.3E-05	2.2E-06
Ra-223	W	2.0E-01	8.4E-08	2.2E-09	2.3E-10	4.3E-02	1.1E-04	2.3E-03	5.8E-06
Ra-224	W	2.0E-01	3.2E-08	1.3E-09	1.7E-11	1.7E-02	6.6E-05	1.7E-04	3.5E-06
Ra-225	W	2.0E-01	4.3E-08	1.8E-09	2.2E-11	2.2E-02	9.1E-05	2.2E-04	4.8E-06
Ra-226	W	2.0E-01	8.1E-08	3.2E-09	1.1E-11	4.1E-02	1.6E-04	1.1E-04	8.6E-06
Ra-228	W	2.0E-01	1.8E-08	2.7E-09	1.5E-18	9.2E-03	1.4E-04	1.5E-11	7.3E-06
Rn-219	g	--	1.2E-12	--	9.5E-11	6.4E-07	--	9.5E-04	--
Rn-220	g	--	3.2E-12	--	8.1E-13	1.7E-06	--	8.1E-06	--
Rn-222	g	--	1.9E-11	--	5.9E-13	9.9E-06	--	6.0E-06	--
Ru-106	Y	5.0E-02	1.2E-08	2.6E-10	0.0E+00	6.1E-03	1.3E-05	0.0E+00	7.0E-07
S-35	D	8.0E-01	5.1E-12	5.9E-12	0.0E+00	2.6E-06	3.0E-07	0.0E+00	1.6E-08
Sr-89	D	3.0E-01	7.8E-11	8.1E-11	2.1E-13	4.0E-05	4.1E-06	2.1E-06	2.2E-07
Sr-90	D	3.0E-01	1.5E-09	8.9E-10	0.0E+00	7.7E-04	4.5E-05	0.0E+00	2.4E-06
Tc-99	W	8.0E-01	2.2E-10	3.5E-11	9.2E-16	1.1E-04	1.8E-06	9.2E-09	9.5E-08
Tc-99m	W	8.0E-01	7.3E-13	1.4E-12	2.2E-10	3.7E-07	7.2E-08	2.2E-03	3.8E-09

HEALTH EFFECTS ASSESSMENT SUMMARY TABLE C: RADIONUCLIDE CARCINOGENICITY (Expressed in Becquerels (Bq)*)

Nuclide	ICRP** Lung Class	GI*** Absorption Factor (f_1)	Slope Factor: Age-averaged lifetime excess total cancer risk per unit intake or exposure			Pathway-Specific Unit Risk: Age-averaged lifetime excess total cancer risk per unit daily intake or exposure for 70 years			
			Inhalation $(Bq)^{-1}$	Ingestion $(Bq)^{-1}$	Ground Surface $(yr/(Bq/m^2))^{-1}$	Air $(Bq/m^3)^{-1}$	Drinking Water $(Bq/L)^{-1}$	External Exposure $(Bq/g)^{-1}$	Soil Ingestion $(Bq/g)^{-1}$
Th-227	Y	2.0E-04	1.3E-07	1.3E-10	1.8E-10	6.8E-02	6.6E-06	1.8E-03	3.5E-07
Th-228	Y	2.0E-04	2.1E-06	4.1E-10	4.3E-12	1.1E+00	2.1E-05	4.3E-05	1.1E-06
Th-229	Y	2.0E-04	2.1E-06	1.1E-09	1.6E-10	1.1E+00	5.4E-05	1.6E-03	2.8E-06
Th-230	Y	2.0E-04	8.4E-07	6.5E-10	1.6E-12	4.3E-01	3.3E-05	1.6E-05	1.8E-06
Th-231	Y	2.0E-04	1.3E-11	1.1E-11	3.0E-11	6.8E-06	5.5E-07	3.0E-04	2.9E-08
Th-232	Y	2.0E-04	8.4E-07	5.9E-10	1.2E-12	4.3E-01	3.0E-05	1.2E-05	1.6E-06
Th-234	Y	2.0E-04	8.6E-10	1.1E-10	1.5E-11	4.4E-04	5.5E-06	1.5E-04	2.9E-07
Tl-207	D	9.5E-01	1.2E-13	3.5E-13	3.2E-12	6.2E-08	1.8E-08	3.2E-05	9.5E-10
Tl-208	D	9.5E-01	1.4E-13	4.9E-13	4.6E-09	7.0E-08	2.5E-08	4.6E-02	1.3E-09
Tl-209	D	9.5E-01	1.2E-13	3.8E-13	3.0E-09	5.9E-08	1.9E-08	3.0E-02	1.0E-09
U-233	Y	2.0E-01	7.3E-07	3.8E-09	8.6E-13	3.7E-01	1.9E-04	8.7E-06	1.0E-05
U-234	Y	2.0E-01	7.3E-07	3.8E-09	1.5E-12	3.7E-01	1.9E-04	1.5E-05	1.0E-05
U-235	Y	2.0E-01	6.8E-07	3.5E-09	2.6E-10	3.5E-01	1.8E-04	2.6E-03	9.5E-06
U-238	Y	2.0E-01	6.5E-07	3.5E-09	1.2E-12	3.3E-01	1.8E-04	1.2E-05	9.5E-06
Y-90	Y	1.0E-04	1.5E-10	8.6E-11	0.0E+00	7.6E-05	4.4E-06	0.0E+00	2.3E-07

* A Becquerel is a unit of activity equal to one nuclear transformation per second: 1 Bq = 2.7E-11 curies (Ci) = 27.027 picocuries (pCi).

** Lung clearance classifications recommended by the International Commission on Radiological Protection (ICRP); "D" (days), "W" (weeks), "Y" (years), "g" (gas).

*** Gastrointestinal (GI) absorption factors, i.e., fractional uptake of a radionuclide from the gut into blood.

REFERENCES

HEA SUMMARY TABLE A: NONCARCINOGENS

Acenaphthene

U.S. EPA. 1987. Health Effects Assessment for Acenaphthene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Mouse oral subchronic study with acenaphthene. Study conducted by Hazelton Laboratories, Inc. for the Office of Solid Waste, Washington, DC.

Acenaphthylene

U.S. EPA. 1987. Health Effects Assessment for Acenaphthylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Acephate

Chevron Chemical Company. 1987. Confidential Business Information; unpublished data. MRID No. 40504819.

U.S. EPA. 1984. Health and Environmental Effects Profile for Acephate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Integrated Risk Information System (IRIS). Reference Dose (RfD) for Oral Exposure for Acephate. Online. (Verification date 01/18/89.) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acetone

U.S. EPA. 1986. Ninety-day gavage study in albino rats using acetone. Office of Solid Waste, Washington, DC. (Cited in U.S. EPA, 1986b)

U.S. EPA. 1988. Updated Health Effects Assessment for Acetone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acetone cyanohydrin

Blank, T.L. and D.C. Thake. 1984. Three-Month Inhalation Toxicity of Acetone Cyanohydrin in Male and Female Sprague-Dawley Rats. Monsanto Report Nop. MSL-4423. TSCA 8(d) submission 878216397 (OTS0510325).

Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. J. Agric. Food Chem. 3: 325-329. (Cited in U.S. EPA, 1985a)

U.S. EPA. 1985a. Drinking Water Criteria Document for Cyanide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Draft.

U.S. EPA. 1985b. Health and Environmental Effects Profile for Acetone Cyanohydrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1988. Health and Environmental Effects Document for Cyanohydrins. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Acetonitrile

Coate, W.B. 1983. 90-Day subchronic toxicity study of acetonitrile in B6C3F1 mice. Final Report (revised). Submitted to National Toxicology Program by Hazelton Laboratories America, Inc.

U.S. EPA. 1987. Health Effects Assessment for Acetonitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS): Online.(RfD) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acetophenone

Imasheva, N.B. 1966. Threshold concentrations of acetophenone during short- and long-term inhalation. In: AICE Survey of USSR Air Pollution Literature, VIII, 1971, A compilation of technical reports of the biological effect and the public health aspects of atmospheric pollutants, M.Y. Nuttonson, Ed. p. 79-93.

Hagan, E.C., W.H. Hansen, D.G. Fitzhugh, et al. 1967. Food flavorings and compounds of related structure. II. Subacute and chronic toxicity. Food Cosmet. Toxicol. 5(2): 141-157.

U.S. EPA. 1987. Health Effects Assessment for Acetophenone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acrolein
Costa, D.L., R.S. Kutzman, J.R. Lehmann and R.T. Drew. 1986. Altered lung function and structure in the rat after subchronic exposure to acrolein. Am. Respir. Dis. 133(2): 286-291.

Kutzman, R.S. 1981. A subchronic inhalation study of Fischer 344 rats exposed to 0, 0.4, 1.4 or 4.0 ppm acrolein. Brookhaven National Laboratory, National Toxicology Program. Interagency Agreement No. 222-Y01-ES-9-0043.

Kutzman, R.S., E.A. Popenoe, M. Schmaeler and R.T. Drew. 1985. Changes in rat lung structure and composition as a result of subchronic exposure to acrolein. Toxicology. 34: 139-151.

U.S. EPA. 1987. Health Effects Assessment for Acrolein. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Acrylamide
Burek, J.D., R.R. Albee, J.E. Beyer, et al. 1980. Subchronic toxicity of toxicity of acrylamide administered to rats in the drinking water followed by up to 144 days of recovery. J. Environ. Pathol Toxicol. 4: 157-182.

U.S. EPA. 1985. Health and Environmental Effects Profile for Acrylamide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acrylic acid
DePass L.R., M.D. Woodside, R.H. Garman and C.S. Weil. 1983. Subchronic and reproductive toxicology studies on acrylic acid in drinking water of the rat. Drug Chem. Toxicol. 6(1): 1-20.

U.S. EPA. 1984. Health and Environmental Effects Profile for Acrylic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Adiponitrile
U.S. EPA. 1987. Health Effects Assessment for Adiponitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Alachlor
Monsanto Company. 1984. Confidential Business Information; unpublished study. Accession No. 255953.

U.S. EPA. 1984. Health and Environmental Effects Profile for Alachlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Aldicarb
U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Weil, C.S. and C.P. Carpenter. 1968. Temik sulfoxide. Results of feeding in the diet of rats for six months and dogs for three months. Mellon Institute Report No. 31-141. EPA Pesticide Petition No. 9F0798.

Aldrin
Fitzhugh, O.G., A.A. Nelson and M.L. Quaife. 1964. Chronic oral toxicity of aldrin and dieldrin in rats and dogs. Food Cosmet. Toxicol. 2: 551-562.

U.S. EPA. 1987. Health Effects Assessment for Aldrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Allidochlor
U.S. EPA. 1984. Health and Environmental Effects Profile for Allidochlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Allyl alcohol
Carpanini, F.M.B., I.F. Gaunt, J. Hardy, et al. 1978. Short-term toxicity of allyl alcohol in rats. Toxicology. 9: 29-45.

U.S. EPA. 1985. Health and Environmental Effects Profile for Allyl Alcohol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Allyl chloride (3-Chloropropene)
ACGIH (American Conference of Governmental Industrial Hygienists). 1980. Documentation of the Threshold Limit Values for Substances in the Workroom Air, 4th ed. Concinnati, OH. p. 12.

U.S. EPA. 1983. Health and Environmental Effects Profile for Chloropropenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Aluminum
U.S. EPA. 1987. Health Effects Assessment for Aluminum. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Aluminum phosphide
Hackenburg, U. 1972. Chronic ingestion by rats of standard diet treated with aluminum phosphide. Toxicol. Appl. Pharmacol. 23(1): 147-158.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ametryn
Ciba-Geigy. 1961. Confidential Business Information; unpublished study. MRID No. 00034843.

U.S. EPA. 1984. Health and Environmental Effects Profile for Ametryn. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1-Amino-2-naphtol and 1-Amino-2-naphtol hydrochloride
U.S. EPA. 1986. Health and Environmental Effects Profile for 1-Amino-2-naphtol and 1-Amino-2-naphtol hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

m-Aminophenol
Re, T.A., R.F. Loehr, S.C. Rodriguez, et al. 1984. Results of teratogenicity testing of m-aminophenol in Sprague-Dawley rats. Fund. Appl. Toxicol. 4: 98-104.

U.S. EPA. 1985. Health and Environmental Effects Profile for Aminophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

o-Aminophenol
U.S. EPA. 1985. Health and Environmental Effects Profile for Aminophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

p-Aminophenol
U.S. EPA. 1985. Health and Environmental Effects Profile for Aminophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

4-Aminopyridine
Kohn, F.E. 1968. Four-week Subacute Oral Toxicity of Compound 1861 Hydrochloride -- Albino Rats. (Unpublished study). Prepared by Industrial Biotest Laboratories, Inc. under 224-12. Submitted by Phillips Petroleum Co., Bartlesville, OK. CDL: 229844-E. (Cited in U.S. EPA, 1980)

U.S. EPA. 1980. 4 Aminopyridine. Avitrol Pesticide Registration Standard. OPTS, U.S. EPA, Washington, DC. NTIS PB84-209907.

U.S. EPA. 1989. Health and Environmental Effects Document for 4-Aminopyridine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ammonia
Campbell, C.L., R.K. Dawes, S. Deolalkar and M.C. Merritt. 1958. Effect of certain chemicals in water on the flavor of brewed coffee. Food Res. 23: 575-579. (Cited in U.S. EPA, 1981)

Carson, B.L., C.M. Beall, H.V. Ellis, III and L.H. Baker. 1981. Ammonia Health Effects. Prepared by Midwest Research Institute for Office of Mobile Source Air Pollution Control, Emission Control Technology Division, U.S. EPA, Ann Arbor, MI. EPA 460/3-81-027.

U.S. EPA. 1981. Ambient Water Quality Criterion for the Protection of Human Health: Ammonia. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Ammonia. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

WHO (World Health Organization). 1986. Environmental Health Criteria. 54. Ammonia. WHO, Geneva, Switzerland.

Anthracene

U.S. EPA. 1987. Health and Environmental Effects Profile for Anthracene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Subchronic toxicity in mice with anthracene. Final Report. Hazelton Laboratories America, Inc. Prepared for the Office of Solid Waste, Washington, DC.

Antimony and Compounds

ASARCO, Inc. 1980. TSCA 8(e) submission 8EHQ-0580-0342. Bio/tox data on antimony trioxide. OTS, U.S. EPA, Washington, DC.

Schroeder, H.A., M. Mitchener and A.P. Nason. 1970. Zirconium, nioblium, antimony and lead in rats: Life time studies. J. Nutr. 100: 59-69.

U.S. EPA. 1985. Health and Environmental Effects Profile for Antimony Oxides. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Antimony and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, EnvironmentalCriteria and Assessment Office, Cincinnati, OH.

Watt, W.D. 1980. Chronic inhalation toxicity of antimony trioxide and validation of the TLV. Progress report -- Summary of results. TSCA 8(e) submission 8#HQ-0980-0342. Study submitted by ASARCO, Inc., New York. Microfiche No. OTS0204846.

Watt, W.D. 1981. FYI submission TY-OTS-00081 0121 regarding pathology report on rat inhalation study on antimony trioxide. OTS, U.S. EPA, Washington, DC. (Cited in U.S. EPA, 1985)

Watt, W.D. 1983. Chronic inhalation toxicity of antimony trioxide: Validation of the threshold limit value. Diss. Abstr. Int. B 1983. 44(3): 739-740.

Aramite

Oser, B.L. and M. Oser. 1962. 2-(p-tert-butylphenoxy)isopropyl 2-chloroethyl sulfite (aramite). II. Carcinogenicity. Toxicol. Appl. Pharmacol. 4: 70-88.

Popper, H., S.S. Sternberg, B.L. Oser and M. Oser. 1960. The carcinogenic effect of aramite in rats. Cancer. 13(5): 1035-1046.

U.S. EPA. 1989. Health and Environmental Effects Document for Aramite. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Arsenic
Tseng, W.P. 1977. Effects and Dose-response relationships of skin cancer and blackfoot disease with arsenic. Environ. Health Perspect. 19: 109-119.

U.S. EPA. 1984. Health Effects Assessment for Arsenic. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Atrazine
Ciba-Geigy Corporation. 1987. Confidential Business Information; unpublished study. MRID No. 40431303.

U.S. EPA. 1984. Health and Environmental Effects Profile for Atrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Barium
Perry, H.M., S.J. Kopp, M.W. Erlanger and E.F. Perry. 1983. Cardiovascular effects of chronic barium ingestion. In: Trace Substances in Environmental Health, XVII, D.D. Hemphill, Ed. Proc. Univ. Missouri's 17th Ann. Conf. on Trace Substances in Environmental Health. University of Missouri Press, Columbia, MO.

Tarasenko, M., O. Promin and A. Silayev. 1977. Barium compounds as industrial poisons (an experimental study). J. Hyg. Epidem. Microbiol. Immunol. 21: 361.

U.S. EPA. 1984. Health Effects Assessment for Barium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. EPA/540/1-86-021.

U.S. EPA. 1985. Drinking Water Criteria Document for Barium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, 6 shington, DC. External Review Draft. Final Draft (on Public Comment). NTIS PB 86-118031/AS.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Barium cyanide
Perry, H.M., E.F. Perry, M.N. Erlanger and S.J. Kopp. 1983. Cardiovascular effects of chronic barium ingestion. IN: Proc. 17th Ann. Conf. Trace Substances in Environmental Health, Vol. 17. University of Missouri Press, Columbia, MO. p. 155-164.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benefin
Eli Lilly and Co. 1972. Confidential Business Information; unpublished study. MRID No. 00037678.

U.S. EPA. 1984. Health and Environmental Effects Profile for Benefin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzal chloride
U.S. EPA. 1985. Health and Environmental Effects Profile for Benzal Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Benzaldehyde
Kluwe, W.M., C.A. Montgomery, H.D. Giles and J.D. Prejeau. 1983. Encephalopathy in rats and nephropathy in rats and mice after subchronic oral exposure to benzaldehyde. Food Chem. Toxicol. 21: 245-250.

U.S. EPA. 1985. Health and Environmental Effects Profile for Benzaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990 Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzaldehyde cyanohydrin
U.S. EPA. 1988. Health and Environmental Effects Document for Cyanohydrins. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Benzidine
Littlefield, N.A., C.J. Nelson and C.H. Futh. 1983. Benzidine dihydrochloride: Toxicological assessments in mice during chronic exposure. J. Toxicol. Environ. Health. 12: 671-68.

U.S. EPA. 1987. Health Effects Assessment for Benzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzoic acid

FASEB (Federation of American Societies for Experimental Biology). 1973. Evaluation of the Health Aspects of Benzoic Acid and Sodium Benzoate as Food Ingredients. Report No. SCOGS-7 PB-223 837/6. p. 17.

U.S. EPA. 1987. Health and Environmental Effects Document for Benzoic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzyl Alcohol

NTP (National Toxicology Program). 1988. Toxicology and carcinogenesis studies of benzyl alcohol (CAS No. 100-51-6) in F344/N rats and B6C3F1 mice (gavage studies). NTP Technical Report, NTP TR 343. p. 1-161.

U.S. EPA. 1989. Health and Environmental Effects Document for Benzyl Alcohol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Beryllium

Schroeder, H.A. and M. Mitchner. 1975. Life-time studies in rats: Effects of aluminum, barium, beryllium and tungsten. J. Nutr. 105: 421-427.

U.S. EPA. 1987. Health Effects Assessment for Beryllium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1'-Biphenyl

Ambrose, A.M., A.N. Booth, F. De Eds and A.J. Cos, Jr. 1960. A toxicological study of biphenyl, a vitrous fungistat. Food Res. 25: 328-336.

U.S. EPA. 1984. Health and Environmental Effects Profile for 1,1-Biphenyl. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bis (2-chloro-isopropyl) ether
Mitsumori, K., T. Usui, K. Takahashi and Y. Shirasu. 1979. Twenty-four month chronic toxicity studies of dichlorodiisopropyl ether in mice. Nippon NoYaku Gakkaishi. 4(3): 323-335.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati. OH.

Bis(2-ethylhexyl) phthalate
Carpenter, C.P., C.S. Weil and H.F. Smyth. 1953. Chronic oral toxicity of di(2-ethylhexyl) phthalate for rats, guinea pigs and dogs. Arch. Ind. Hyg. Occ. Med. 8: 219-226.

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bisphenol A
NTP (National Toxicology Program). 1982. Carcinogenesis Bioassay of Bisphenol A in F344 rats and B6C3F1 mice (feed study) NTP Tech Rep Ser. No. 80-35 NTIS PB 84-1555308 p.192.

U.S. EPA. 1984. Reproduction and ninety-day oral toxicity study in rats U.S. EPA/OPTS Public Files Fiche No. OTS0509954.

U.S. EPA. 1988. Health and Environmental Effects Document for Bisphenol A. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Boron
U.S. EPA. 1987. Health Effects Assessment for Boron. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Weir, R.J., Jr. and R.S. Fisher. 1972. Toxicologic studies on borax and boric acid. Toxicol. Appl. Pharmacol. 23(3): 351-364.

Brominated dibenzo-p-dioxins and Dibenzofurans
U.S. EPA. 1985a. Health and Environmental Effects Profile for Brominated Dibenzofurans. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1985b. Health and Environmental Effects Profile for Brominated Dibenzo-p-dioxins. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Brominated Dibenzo-p-dioxins and Dibenzofurans. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bromoacetone
U.S. EPA. 1986. Health and Environmental Effects Profile for Bromoacetone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bromochloroethanes
U.S. EPA. 1985. Health and Environmental Effects Profile for Bromochloroethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bromodichloromethane
NTP (National Toxicology Program). 1986. Toxicology and Carcinogenesis Studies of Bromodichloromethane in F344/N Rats and B6C3F1 Mice (Gavage Studies). NTP Tech. Report, Ser. No. 321, NIH Publ. No. 87-2537.

U.S. EPA. 1985. Health and Environmental Effects Profile for Bromochloromethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Trihalogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bromoform
NTP (National Toxicology Program). 1988. Technical Report on the toxicology and carcinogenesis studies of trihalomethane (bromoform) (CAS No. 75-25-2) in F344 rats and B6C3F1 mice (gavage studies). Board Draft.

U.S. EPA. 1987. Health Effects Assessment for Trihalogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for Bromoform. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bromomethane

Danse, L.H., F.L. van Velsen and C.A. vander Heijden. 1984. Methyl bromide: Carcinogenic effects in the rat forestomach. Toxicol. Appl. Pharmacol. 72: 262-271.

Russo, J.M., W.K. Anger, J.V. Setzer and W.S. Brightwell. 1984. Neurobehavioral assessment of chronic low-level methyl bromide exposure in the rabbit. J. Toxicol. Environ. Health. 14: 247-255.

U.S. EPA. 1986. Health and Environmental Effects Profile for Methyl Bromide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Bromomethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Criteria and Assessment Office, Cincinnati, OH.

4-Bromophenyl phenyl ether

U.S. EPA. 1986. Health and Environmental Effects Profile for 4-Bromophenyl Phenyl Ether. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bromophos

Leuschner, F., A. Leuschner and E. Poppe. 1967. Chronischer Reproduktionsversuch über 3 Generationen an Wistar-Ratten bei fortdauernder Verabreichung von Bromophos. Report C.H. Boehringer Sohn. (Unpublished). (Cited in U.S. EPA, 1986).

U.S. EPA. 1986. Health and Environmental Effects Profile for Bromophos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bromoxynil
Union Carbide Agriculture Products, Inc. 1982. Confidential Business Information; unpublished study. MRID No. 00096521.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromoxynil. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bromoxynil octanoate
Union Carbide Agriculture Products, Inc. 1982. Confidential Business Information; unpublished study. MRID No. 00096521.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromoxynil Octanoate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Busan-77
U.S. EPA. 1984. Health and Environmental Effects Profile for Busan-77. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Busan-90
U.S. EPA. 1984. Health and Environmental Effects Profile for Busan-90. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

1-Butanol
U.S. EPA. 1986. Butanol: Rat oral subchronic toxicity study. Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for 1-Butanol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Butylate
Stauffer Chemical Company. 1987. Confidential Business Information; unpublished study. MIRD No. 40289101.

U.S. EPA. 1984. Health and Environmental Effects Profile for Butylate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Butyl benzyl phthalate
NTP (National Toxicology Program). 1985. Project No. 12307-02, -03. Hazelton Laboratories America, Inc; unpublished study.

U.S. EPA. 1986. Drinking Water Criteria Document for Phthalic Acid Esters (PAE)s. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. External Review Draft.

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

t-Butylchloride
U.S. EPA. 1988. Health and Environmental Effects Document for Monochlorobutanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Butyrolactone, gamma
U.S. EPA. 1984. Health and Environmental Effects Profile for Gamma-butyrolactone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Cacodylic Acid
Nees, P.O. 1968. Report on cacodylic acid toxicity to animals. Wisconsin Alumni Res. Found. EPA Pesticide Petition No. OF0911.

U.S. EPA. 1989. Health and Environmental Effects Document for Cacodylic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Cadmium
U.S. EPA. 1980. Ambient Water Quality Criteria Document for Cadmium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-025. NTIS PB 81-117368.

U.S. EPA. 1984. Health Effects Assessment for Cadmium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Calcium cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Envoronmental Criteria and Assessment Office, Cincinnati. OH.

Caprolactam
Powers, W.J.J, J.C. Peckham, K.M. Siino and S.C. Gad. 1984. Effects of subchronic dietary caprolactam on renal function. In: Proc Symp. Ind. approach Chem Risk Assessment: Caprolactam Relat. Compd. Case Study 77-96 Ind. Health Found., Pittsburgh, PA.

Serota, D.G., A.M. Hoberman and S.C. Gad. 1984. A three generation reproduction study with caprolactam in rats. In: Proc Symp Ind Approach Chem Risk Assessment: Caprolactam RElat Compl. Case study 191-204 Ind, Health Found. Pittsburgh, PA.

U.S. EPA. 1988. Health and Environmental Effects Document for Caprolactam. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Captafol
Ortho-Chevron Chemical Company. 1985. Confidential Business Information; unpublished study. Accession No. 260671.

U.S. EPA. 1984. Health and Environmental Effects Profile for Captafol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Captan
Chevron Chemical Company. 1982. Confidential Business Information; unpublished study. MRID No. 0012.

Stauffer Chemical Company. 1982. Confidential Business Information; unpublished study. MRID No. 00120315.

U.S. EPA. 1984. Health and Environmental Effects Profile for Captan. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Carbaryl
Carpenter, C.P., C.W. Weil, P.E. Polin, et al. 1961. Mammalian toxicity of 1-naphthayl-n-methylcarbamate (Sevin insecticide). J. Agric. Food Chem. 9: 30-39.

U.S. EPA. 1984. Health and Environmental Effects Profile for Carbaryl. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Carbofuran
FMC Corporation. 1983. Confidential Business Information; unpublished study. Accession No. 250740-250755.

U.S. EPA. 1984. Health and Environmental Effects Profile for Carbofuran. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Carbon disulfide
Hardin, B.D., G.P. Bond, M.R. Sikor, F.D. Andrew, R.P. Belliles and R.W. Niemeir. 1981. Testing of selected work place chemicals for teratogenic potential. Scand. J. Work Environ. Health. 7(Suppl. 4): 66-75.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Carbon tetrachloride
Bruckner, J.V., W.F. MacKenzie, S. Muralidhara, et al. 1986. Oral toxicity of carbon tetrachloride: Acute, subacute and subchronic studies in rats. Fund. Appl. Toxicol. 6(1): 16-34.

U.S. EPA. 1984. Health Effects Assessment for Carbon Tetrachloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS): Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chloral
Sanders, V.M., B.M. Kauffmann, K.L. White, Jr. 1982. Toxicology of chloral hydrate in the mouse. Environ. Health Perspect. 44: 146-173.

U.S. EPA. 1988. Health and Environmental Effects Document for Chloral. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chlordane
Versicol Chemical Corp. 1983. Acc. No. 252267 Available from EPA under FOI.

U.S. EPA. 1988. Health Effects Assessment for Chlordane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Enviromental Criteria and Assessment Office, Cincinnati, OH.

Chlorine cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chloroacetaldehyde
U.S. EPA. 1988. Health and Environmental Effects Document for Chloroacetaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chloroacetic Acid
IRDC (International Research and Development Corporation). 1982a. Subchronic oral toxicity test with monochloroacetic acid in rats. National Toxicology Program, Bethesda, MD. p. 1-101.

U.S. EPA. 1988. Health and Environmental Effects Document for Chloroacetic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Chloroaniline
U.S. EPA. 1987. Health and Environmental Effects Document for Chloroanilines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

3-Chloroaniline
U.S. EPA. 1987. Health and Environmental Effects Document for Chloroanilines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

4-Chloroaniline
NCI (National Cancer Institute). 1979. Bioassay of p-chloroaniline for possible carcinogenicity. NCI Carcinogenesis Tech Rep. Ser. No. 189. NTIS PB295896.

U.S. EPA. 1987. Health and Environmental Effects Document for Chloroanilines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chlorobenzene
Dilley, J.V. 1977. Toxic Evaluation of Inhaled Chlorobenzene. NIOSH, DHEW, Cincinnati, OH. Contract 210-76-0126. (Cited in U.S. EPA, 1985)

U.S. EPA. 1984. Health Effects Assessment for Chlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. EPA 540/1-86-040.

U.S. EPA. 1985. Health Assessment Document for Chlorinated Benzenes. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. EPA 600/8/84/015F. NTIS PB85-150332.

U.S. EPA. 1989. Updated Health Effects Assessment for Chlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chlorobenzilate
Ciba-Geigy Corporation. 1984. MRID No, 00144691.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

p-Chlorobenzoic acid
Kieckebusch, W., W. Griem and K. Lang. 1960. The tolerability of p-chlorobenzoic acid. Arzneimi Hel-Forsch. 10: 999-10001. (In German; English translation)

U.S. EPA. 1987. Health and Environmental Effects Document for p-Chlorobenzoic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergence Response, Washington, DC.

4-Chlorobenzotrifluoride
Hooker Chemical Corp. 1981. Modified 90-day gavage and reproduction study in rats PCBTF. Conducted by Elars Bioresearch Laboratories, Inc., Fort Collins, CO. U.S. EPA/OPTS Public Files. Microfiche #OTS0508148.

U.S. EPA. 1988. Health and Environmental Effects Document for 4-Chlorobenzotrifluoride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Chloro-1,3-butadiene
Du Pont de Nemours and Company, Inc. 1985. 2-Year Inhalation Carcinogenicity Study of Chloroprene in Rats. E.I. Du Pont De Nemours and Co., Inc., Wilmington, DE.

U.S. EPA. 1989. Health and Environmental Effects Document for 2-Chloro-1,3-butadiene (Chloroprene). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1-Chlorobutane
NTP (National Toxicology Program). 1986. Toxicology and Carcinogenesis studies of n-butyl chloride in F344/N rats and B6C3F1 mice (gavage studies). CAS No. 109-69-3. NTP-TR-312. 198 p.

U.S. EPA. 1988. Health and Environmental Effects Document for Monochlorobutanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Chlorobutane
U.S. EPA. 1988. Health and Environmental Effects Document for Monochlorobutanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chlorocyclopentadiene
U.S. EPA. 1988. Health and Environmental Effects Document for Chlorinated Cyclopentadienes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

p-Chloro-m-cresol
Madsen, C., P.H. Andersen, O. Meyer and G. Wurtzen. 1986. 4-Chloroemethylphenol: Salmonella/mammalian-microsome mutagenicity test and subacute toxicity test in rats. Bull. Environ. Contam. Toxicol. 37(5): 651-654.

U.S. EPA. 1988. Health and Environmental Effects Document for p-Chloro-m-cresol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chloroform
Heywood, R., R.J. Sortwell, P.R.B. Noel, et al. 1979. Safety evaluation of toothpaste containing chloroform. III. Long-term study in beagle dogs. J. Environ. Pathol. Toxicol. p. 835-851.

U.S. EPA. 1988. Updated Health Effects Assessment for Chloroform. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

m-Chloronitrobenzene
U.S. EPA. 1985. Health and Environmental Effects Profile for Chloronitrobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chlorophenol, 3- and 4-
U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Chlorophenol
Exon, J.H. and L.D. Koller. 1982. Effects of transplacental exposure to chlorinated phenols. Environ. Health Perspect. 46: 137-140.

U.S. EPA. 1987a. Health Effects Assessment for 2-Chlorophenol and 2,4-Dichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987b. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-Chloropropane

Gage, J.C. 1970. The subacute inhalation toxicity of 109 industrial chemicals. Br. J. Ind. Med. 27(1): 1-18.

U.S. EPA. 1987. Health and Environmental Effects Document for 2-Chloropropane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chlorotoluenes, m- and p-

U.S. EPA. 1985. Health and Environmental Effects Profile for Chlorotoluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

o-Chlorotoluene

Gibson, W.R., F.O. Gossett, G.R. Koenig and F. Marroquin. 1974. The toxicity of daily oral doses of o-chlorotoluene in the rat. Toxicology Division, Lilly Research Laboratories. Submitted to Test Rules Development Branch, Office of Toxic Substances, U.S. EPA, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment office, Cincinnati, OH.

Chlorpyrifos

Dow Chemical Company. 1972. Confidential Business Information; unpublished study. Accession No. 112118.

U.S. EPA. 1984. Health and Environmental Effects Profile for Chlorpyrifos and Chlorpyrifos-methyl. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chlorpyrifos-methyl
U.S. EPA. 1984. Health and Environmental Effects Profile for Chlorpyrifos and Chlorpyrifos-methyl. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Chlorthalonil
Diamond Shamrock Chemical Company. 1970. Confidential Business Information; unpublished study. Accession No. 111253.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chlorthiophos
Worthing, C.R. and S.B. Walker, Ed. 1983. The Pesticide Manual, 7th ed. British Crop Protection Council, The Lavenham Press Ltd., Suffolk, England. p. 130.

U.S. EPA. 1986. Health and Environmental Effects Profile for Chlorthiophos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chromium (III)
Ivankovic, S. and R. Preussman. 1975. Absence of toxic and carcinogenic effects after administrations of high doses of chromic oxide pigment in subacute and long-term feeding experiments in rats. Food Cosmet Toxicol. 13: 347-351.

U.S. EPA. 1984. Health Effects Assessment for Trivalent Chromium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chromium (VI)
MacKenzie, R.D., R.U. Byerrum, C.F. Decker et al. 1958. Chronic toxicity studies. II. Hexavalent and trivalent chromium administered in drinking water to rats. Am. Med Assoc. Arch. Ind. Health. 18: 232-234.

U.S. EPA. 1984. Health Effects Assessment for Hexavalent Chromium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chrysene
U.S. EPA. 1984. Health and Environmental Effects Profile for Chrysene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Copper
U.S. EPA. 1984. Health Effects Assessment for Copper. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Drinking Water Criteria Document for Copper. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. External Review Draft.

Copper cyanide
U.S. EPA. 1986. 90-Day oral toxicity study of copper cyanide. Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

m-Cresol
Microbiological Associates. 1986. o,m,p-Cresol. 90-Day oral subchronic toxicity studies in rats. Sponsored by the Office of Solid Waste, Washington, DC.

Toxicity Research Laboratories. 1987. o,m,p-Cresol. 90-Day oral subchronic neurotoxicity study in rats. Sponsored by the Office of Solid Waste, Washington, DC.

U.S. EPA. 1984. Health Effects Assessment for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

o-Cresol
Microbiological Associates. 1986. o,m,p-Cresol. 90-Day oral subchronic toxicity studies in rats. Sponsored by the Office of Solid Waste, Washington, DC.

Toxicity Research Laboratories. 1987. o,m,p-Cresol. 90-Day oral subchronic neurotoxicity study in rats. Sponsored by the Office of Solid Waste, Washington, DC.

U.S. EPA. 1984. Health Effects Assessment for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

p-Cresol

Microbiological Associates. 1986. o,m,p-Cresol. 90-Day oral subchronic toxicity studies in rats. Sponsored by the Office of Solid Waste, Washington, DC.

Toxicity Research Laboratories. 1987. o,m,p-Cresol. 90-Day oral subchronic neurotoxicity study in rats. Sponsored by the Office of Solid Waste, Washington, DC.

U.S. EPA. 1984. Health Effects Assessment for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cumene

Monsanto Company. 1986. One month study of cumene vapor administered to male and female Sprague-Dawley rats by inhalation. U.S. EPA/OTS Public Files, 8D submission. Microfiche # OTS 0513229.

U.S. EPA. 1987. Health and Environmental Effects Document for Cumene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Wolf, M.A., V.K. Rowe, D.D. McCollister, R.L. Hollingsworth and F. Oyen. 1956. Toxicological Studies of certain alkylated benzene and benzenes AMA Arch. Ind. Health. 14: 387-398.

Cyanazine
Shell Chemical Company. 1986. Confidential Business Information; unpublished study. MRID No. 40081901 and 40229001.

U.S. EPA. 1984. Health and Environmental Effects Profile for Cyanazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. J. Agric. Food Chem. 3:325-329. (Cited in U.S. EPA, 1985)

U.S. EPA. 1984. Health Effects Assessment for Cyanide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. EPA 540/1-86-011.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cyanogen
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cyanogen bromide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cycloate
U.S. EPA. 1984. Health and Environmental Effects Profile for Cycloate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Cyclohexanol
U.S. EPA. 1985. Health and Environmental Effects Profile for Cyclohexanol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Cyclohexylamine
Gaunt, I.F., M. Sharratt, P.G. Grasso, A.B. Lansdown and S.D. Gangolli. 1974. Short-term toxicity of cyclohexylamine HCl in the rat. Food Cosmet. Toxicol. 12: 609-624.

Gaunt, I.F., J. Hardy, P. Grasso, S.D. Gangolli and K.R. Butterworth. 1976. Long-term toxicity of cyclohexylamine hydrochloride in the rat. Food Cosmet. Toxicol. 14(4): 255-268.

U.S. EPA. 1987. Health and Environmental Effects Document for Cyclohexylamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cyclopentadiene
Dow. 1987. Confidential Business Information; unpublished data. Dow Chemical U.S.A., Midland, MI.

U.S. EPA. 1987. Health and Environmental Effects Document for Cyclopentadiene and Dicyclopentadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dacthal
Diamond Shamrock Agricultural Chemicals. 1963. Confidential Business Information; unpublished study. MRID No. 00083584.

U.S. EPA. 1984. Health and Environmental Effects Profile for Dacthal. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dalapon (sodium salt)
Paynter, O.E., T.W. Tusing, D.D. McCollister and V.K. Rowe. 1960. Toxicology of dalapon sodium (2,2-dichloropropoionic acid, sodium salt). J. Agric. Food Chem. 8: 47-51.

U.S. EPA. 1984. Health and Environmental Effects Profile for Dalapon. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,4-DB
Rhodia Inc. 1969. Confidential Business Information; unpublished study. MRID No. 0092165.

U.S. EPA. 1984. Health and Environmental Effects Profile for 2,4-DB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

DDT
Laug, E.P., A.A. Nelson, O.G. Fitzhugh and F.M. Kunze. 1950. Liver cell alteration and DDT storage in the fat of the rat induced by dietary levels of 1-50 ppm DDT. J. Pharmacol. Exp. Therap. 98: 268-273.

U.S. EPA. 1984. Health Effects Assessment for DDT. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1988. Updated Health Effects Assessment for DDT. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Decabromodiphenyl ether
Kociba, R.J., L.O. Frauson, C.G. Humiston, et al. 1975. Results of a two-year dietary feeding study with decabromodiphenyl oxide (DBDPO) in rats. Combust. Toxicol. 2: 267-285.

U.S. EPA. 1983. Health and Environmental Effects Profile for Brominated Diphenyl Ether. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1900. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Decabromodiphenyl oxide
Kociba, R.J., L.O. Frauson, C.G. Humiston, et al. 1975. Results of a two-year dietary feeding study with decabromodiphenyl oxide (DCDPO) in rats. Combust. Toxicol. 2: 267-285.

Norris, J.M., J.W. Ehrmantraut, C.L. Gibbons, et al. 1973. Toxicological and environmental factors involved in the selection of decadibromophenyl oxide as a fire retardant chemical. Appl. Polym. Symp. 22: 195-219.

Norris, J.M., J.W. Ehrmantraut, C.L. Gibbons, et al. 1975. Toxicology of octabromobiphenyl and decabromodiphenyl oxide. Environ. Health Perspect. 11: 153-161.

U.S. EPA. 1987. Health and Environmental Effects Document for Decabromodiphenyl oxide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Diazinon
Davies, D.B. and B.J. Holub. 1979. Comparative susceptibility of male and female rats to dietary diazinon toxicity. J. Nutr. 109(6): xxviii.

Davies, D.B. and B.J. Holub. 1980a. Comparative subacute toxicity of dietary diazinon in the male and female rat. Toxicol. Appl. Pharmacol. 54(3): 359-367.

Davies, D.B. and B.J. Holub. 1980b. Toxicological evaluation of dietary diazinon in the rat. Arch. Environ. Contam. Toxicol. 9(6): 637-650.

U.S. EPA. 1984. Health and Environmental Effects Profile for Diazinon. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Dibenzofuran
U.S. EPA. 1987. Health Effects Assessment for Dibenzofuran. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

1,4-Dibromobenzene
Carlson, G.P. and R.G. Tradiff. 1977. Effect of 1,4-dibromobenzene and 1,2,4-tribromobenzene on xenobiotic metabolism. Toxicol. Appl. Pharmacol. 42: 189-196.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dibromochloromethane

NTP (National Toxicology Program). 1985. Toxicology and Carcinogenesis Studies of Chlorodibromomethane in F344/N Rats and B6C3F1 mice (Gavage Studies). NTP TR282.

U.S. EPA. 1985. Health and Environmental Effects Profile for Bromochloromethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for Dibromochloromethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Di-n-butyl phthalate

Smith, C.C. 1953. Toxicity of butyl stearate, dibutyl sebacate, dibutyl phthalate and methoxyethyl oleate. Arch. Hyg. Occup. Med. 7: 310-318.

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2-Dichlorobenzene

Hollingsworth, R.L., V.K. Rowe, F. Oyen, T.R. Torkelson and E.M. Adams. 1958. Toxicity of o-dichlorobenzene. Am. Med. Assoc. Arch. Ind. Health. 17(1): 180-187.

NTP (National Toxicology Program). 1985. Toxicology and Carcinogenesis studies of 1,2-dichlorobenzene in F344/N rats and B6C3F1 mice. U.S. DHHS, NIH Tech. Rep. Ser. No. 255. (Also publ. as NIH Publ. No. 86-2511 and PB86-144888)

U.S. EPA. 1987. Health Effects Assessment for Dichlorobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,3-Dichlorobenzene
U.S. EPA. 1987. Health Effects Assessment for Dichlorobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

1,4-Dichlorobenzene
Riley, R.A., I.S. Chart, A. Doss, et al. 1980. Para-dichlorobenzene: Long-Term Inhalation Study in the Rat. ICI Report Nso. CTL/P/447. August, 1980.

U.S. EPA. 1987. Health Effects Assessment for Dichlorobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Dichlorobutenes
U.S. EPA. 1987. Health and Environmental Effects Document for Dichlorobutenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dichlorodifluoromethane
Clayton, W.J., Jr. 1967. Fluorocarbon toxicity and biological action. Fluorine Chem. Rev. 1(2): 197-252.

Prendergast, J.A., R.A. Jones, L.J. Jenkins and J. Siegal. 1967. Effects on experimental animals of long-term inhalation of trichloroethylene, carbon tetrachloride, 1,1,1-trichloroethane, dichlorodifluoromethane and 1,1-dichloroethylene. Toxicol. Appl. Pharmacol. 10: 270-289.

Sherman, H. 1974. Long-term feeding studies in rats and dogs with dichlorodifluoromethane (Freon 12 Food Freezant). Haskell Laboratory Report No. 24-74. Unpublished, courtesy duPont de Nemours Co.

U.S. EPA. 1982. Errata: Halomethanes Ambient Water Quality Criteria Document for the Protection of Human Health. Environmental Criteria and Assessment Office, Cincinnati, OH. ECAO-CIN-D023.

U.S. EPA. 1987. Health Effects Assessment for Fully Halogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1-Dichloroethane
Hofmann, H.T., H. Birnstiel and P. Jobst. 1971. The inhalation toxicity of 1,1- and 1,2-dichloroethane. Arch. Toxikol. 27: 248-265. (Cited in U.S. EPA, 1983b)

U.S. EPA. 1983. Drinking Water Criteria Document for 1,1-Dichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Draft.

U.S. EPA. 1984. Health Effects Assessment for 1,1-Dichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

1,1-Dichloroethylene
Quast, J.F., C.G. Humiston, C.E. Wade, et al. 1983. A chronic toxicity and oncogenicity study in rats and subchronic toxicity study in dogs on ingested vinylidene chloride. Fund. Appl. Toxicol. 3: 55-62.

U.S. EPA. 1984. Health Effects Assessment for 1,1-Dichloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1988. Updated Health Effects Assessment for 1,1-Dichloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2-c-Dichloroethylene
McCauley, P.T., M. Robinson, L.W. Condie and M. Parvell. n.d. The effects of subacute and subchronic oral exposure to cis-1,2-dichloroethylene in rats. Health Effects Research Laboratory, U.S. EPA, Cincinnati, OH.

U.S. EPA. 1984. Health Effects Assessment for 1,2-c-Dichloroethylene. Prepared by the Office of Health and Environment Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2-t-Dichloroethylene
Barnes, D.W., W.M. Sanders, K.L. Shite, Jr., et al. 1985. Toxicology of trans-1,2-dichloroethylene in the mouse. Drug Chem. Toxicol. 8: 373-392.

U.S. EPA. 1984. Health Effects Assessment for 1,2-t-Dichloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,4-Dichlorophenol

Exon, J.H. and L.D. Koller. 1985. Toxicity of 2-chlorophenol, 2,4-dichlorophenol and 2,4,6-trichlorophenol. Water Chlorination. Chem. Environ. Impact Health Eff. Proc. Conf. 5: 307-330.

U.S. EPA. 1986. Integrated Risk Information System (IRIS): Reference Dose (RfD) for oral exposure for 2,4-dichlorophenol. Online. (Verification date 01/22/86.) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1987a. Health Effects Assessment for 2-Chlorophenol and 2,4-Dichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987b. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dichlorophenol, 2,3-, 2-5, 2,6-, 3-4-, 3,5-

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4-Dichlorophenoxy acetic acid (2,4-D)

Dow Chemical Co. 1983. Acc. No. 251473.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dichloroprop

U.S. EPA. 1984. Health and Environmental Effects Profile for Dichloroprop. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Dichloropropanes
U.S. EPA. 1985. Health and Environmental Effects Profile for Dichloropropanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,3-Dichloropropene
Dow Chemical Co. 1973. MRID Nos. 0067977, 0039684. U.S. EPA, Washington, DC.

Stott, W.T., J.T. Young, L.L. Calhoun and J.E. Battjes. 1988. Subchronic toxicity of inhaled technical grade 1,3-dichloropropene in rats and mice. Fund. Appl. Toxicol. 11: 207-220.

U.S. EPA. 1985. Health and Environmental Effects Profile for 1,3-Dichloropropene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for 1,3-Dichloropropene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dicyclopentadiene
Dodd, D.E., L.C. Longo and D.L. Eisler. 1982. Dicyclopentadiene vapor ninety-day inhalation study on rats and mice. Bushy Run Research Center, Export, PA. PSCA 8e submission by Exxon Chem. Amer. Doc. I.D. 88-8300464, Odd Doc. I.D. 8EHQ-0283-0364. Microfiche No. OTS204864.

Litton Bionetics, Inc. 1980. Mammalian Toxicological Evaluation of DIMP and DCPD. (Phase 2). Litton Bionetics, Inc., Kensington, MD. Contract DAMB. 17-77-C-7003. NTIS AD-A082685.

U.S. EPA. 1987. Health and Environmental Effects Document for Cyclopentadiene and Dicyclopentadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dieldrin
Walker, A.I.T., D.E. Stevenson, J. Robinson, et al. 1969. The toxicology and pharmacodynamics of dieldrin (HEOD): Two-year oral exposures of rats and dogs. Toxicol. Appl. Pharmacol. 15: 345-373.

U.S. EPA. 1987. Health Effects Assessment for Dieldrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N,N-Diethylaniline
U.S. EPA. 1987. Health and Environmental Effects Profile for N,N-Diethylaniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Diethylene glycol monoethyl ether
Hall, D.E., F.S. Lee, P. Austin and F.A. Fairweather. 1966. Short-term feeding study with diethylene glycol monoethyl ether in rats. Food Cosmet. Toxicol. 4: 263.

Smyth, H.F., C.P. Carpenter and C.B. Shaffer. 1964. A 2-year study of diethylene glycol monoethyl ether in rats. Food Cosmet. Toxicol. 2: 641-642.

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC. EPA 540/1-86-052.

Diethylformamide
Argus, M.F., J.C. Arcos and C. Hoch-Ligeti. 1965. The carcinogenic aciivity of protein-denaturing agents hepatocarcinogenicity of dioxane. J. Natl. Cancer Inst. 35: 949-958.

U.S. EPA. 1986. Health and Environmental Effects Profile for Diethylformamide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,2-Diethylhydrazine
U.S. EPA. 1984. Health and Environmental Effects Profile for 1,2-Diethylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Diethyl-p-nitrophenylphosphate (Paraoxon)
U.S. EPA. 1989. Health and Environmental Effects Document for Diethyl-p-nitrophenylphosphate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Diethyl phthalate
Brown, D., K.R. Butterworth, I.F. Gaunt et al. 1978. Short-term oral toxicity study of diethyl phthalate in the rat. Food Cosmet. Toxicol. 16: 415-422.

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dimethoate
American Cyanimid Company. 1986. MRID No. 00164177. U.S. EPA, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for Dimethoate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N,N-Dimethylaniline
Abdo, K., M. Wolfe and R. Hiles. 1984. Subchronic toxicity of N,N-dimethylaniline to F-344 rats and B6C3F1 mice. Fed. Proc. 43(3): 1698.

U.S. EPA. 1986. Health and Environmental Effects Profile for N,N-Dimethylaniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N,N-Dimethylformamide
Becci, P.J., K.A. Voss, W.D. Johnson, M.A. Gallo and J.G. Babish. 1983. Subchronic feeding study of N,N-dimethylformamide in rats and mice. J. Am. Coll. Toxicol. 2(6): 371-378.

U.S. EPA. 1986. Health and Environmental Effects Profile for N,N-Dimethylformamide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dimethylphenols (2,3-; 2,5-)
U.S. EPA. 1986. Health and Environmental Effects Profile for Dimethylphenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4-Dimethylphenol
American Biogenics Corporation. 1989. Ninety-day gavage study in albino mice using 2,4-dimethylphenol. Study 410-2831.

U.S. EPA. 1986. Health and Environmental Effects Profile for Dimethylphenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,6-Dimethylphenol
Veldre, I.A. and H.J. Janes. 1979. Toxicological studies of shale oils, some of their components and commercial products. Environ. Health Perspect. 30: 141-146.

U.S. EPA. 1987. Health Effects Assessment for Dimethylphenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

3,4-Dimethylphenol
Veldre, I.A. and H.J. Janes. 1979. Toxicological studies of shale oils, some of their components and commercial products. Environ. Health Perspect. 30: 141-146.

U.S. EPA. 1987. Health Effects Assessment for Dimethylphenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dimethyl phthalate
Lehman, A.J. 1955. Insect repellants. Assoc. Food Drug Office, U.S. Quart Bull. 19: 87.

U.S. EPA. 1987. Health and Environmental Effects Profile for Phthalic Acid Alkyl, Aryl and Alkyl/Aryl Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dimethyl terephthalate
NCI (National Cancer Institute). 1979. Bioassay of dimethyl terephthalate for possible carcinogenicity. DHEW/PUB/NIH 79-1376, NCI-CG-TR121.

U.S. EPA. 1984. Health and Environmental Effects Profile for Dimethyl and Methyl Terephthalate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N,N-Dimethylurea
U.S. EPA. 1984. Health and Environmental Effects Profile for N,N-Dimethylurea. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

m-Dinitrobenzene
Cody, T.E., S. Witherup, L. Hastings, K. Stemmer and R.T. Christian. 1981. 1,3-Dinitrobenzene: Toxic effect in vivo and in vitro. J. Toxicol. Environ. Health. 7(5): 829-847.

U.S. EPA. 1985. Health and Environmental Effects Profile for Dinitrobenzenes (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dinitrobenzene (o-, p-)
Cody, T.E., S. Witherup, L. Hastings, K. Stemmer and R.T. Christian. 1981. 1,3-Dinitrobenzene: Toxic effect in vivo and in vitro. J. Toxicol. Environ. Health. 7(5): 829-847.

U.S. EPA. 1985. Health and Environmental Effects Profile for Dinitrobenzenes (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,6-Dinitro-p-cresol
U.S. EPA. 1984. Health and Environmental Effects Profile for 2,6-Dinitro-p-cresol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

4,6-Dinitro-o-cresol
U.S. EPA. 1986. Health and Environmental Effects Profile for Dinitrocresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4-Dinitrophenol
Horner, W.D. 1942. Dinitrophenol and its relation to formation of cataracts. Arch. Ophthalmol. 27: 1097-1121.

U.S. EPA. 1984. Health and Environmental Effects Profile for Dinitrophenols (Selected). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Dinitrophenols
U.S. EPA. 1984. Health and Environmental Effects Profile for Dinitrophenols (Selected). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Dinitrotoluenes
U.S. EPA. 1986. Health and Environmental Effects Profile for Dinitrotoluene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Di-n-octyl phthalate
Piekacz, H. 1971. Effect of dioctyl and dibutyl phthalates on the organism of rats after oral administration in prolonged experiment. II. Subacute and chronic toxicity. Rocz. Panstw. Zakl. Hig. 22(3): 295-307. (CA 75:96911v)

U.S. EPA. 1987. Health and Environmental Effects Profile for Phthalic Acid Alkyl, Aryl and Alkyl/Aryl Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dinoseb
Dow Chemical Company. 1981. Confidential Business Information; unpublished study. NRID No. 00152675.

U.S. EPA. 1984. Health and Environmental Effects Profile for Dinoseb. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N,N-Diphenylamine
Thomas, J.O., W.E. Ribelin, J.R. Woodward and F. DeEds. 1967. The chronic toxicity of diphenylamine for dogs. Toxicol. Appl. Pharmacol. 11: 184-194.

U.S. EPA. 1985. Health and Environmental Effects Profile for N,N-Diphenylamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Direct lightfast blue
U.S. EPA. 1987. Health and Environmental Effects Profile for Direct Lightfast Blue. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Disulfoton
Mobay Chemical Company. 1985. MRID No. 00129456, 00146873, 41115401. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

U.S. EPA. 1990a. Health and Environmental Effects Document for Disulfoton. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990b. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Endosulfan
Huntington Research Center. 1984. Effect of Endosulfan-Technical on Reproductive Function of Multiple Generations in the Rat. Report submitted by J.A. Edwards et al. to OPP, U.S. EPA.

U.S. EPA. 1987. Health Effects Assessment for Alpha- and Beta-Endosulfan. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Endothall
Keller, J. 1965. Two-year chronic feeding study of disodium endothall to beagle dogs. Scientific Associates Report. EPA Pesticide Petition 6G0503, redesignated No. 7F0570, June 1966. Accession No. 24601.

Pennwalt Agchem. n.d. MRID No. 00101735. Available from U.S. EPA. Write to FOI, EPA, Washington, DC 20460.

U.S. EPA. 1989. Health and Environmental Effects Document for Endothall. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Endrin
Treon, J.F., F.P. Cleveland and J. Cappel. 1955. Toxicity of endrin for laboratory animals. Agric. Food Chem. 3: 842-848.

U.S. EPA. 1985. Drinking Water Criteria Document for Endrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. EPA 600/X-84-176. NTIS PB 86-117967.

U.S. EPA. 1987. Health Effects Assessment for Endrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Epichlorohydrin

Laskin, S., A.R. Sellakumar, M. Kuschner, et al. 1980. Inhalation carcinogenicity of epichlorohydrin in non-inbred Sprague-Dawley rats. J. Natl. Cancer Inst. 65(4): 751-757.

Quast, J.F., J.W. Henck, B.J. Postma, et al. 1979. Epichlorohydrin subchronic studies. I. A 90-day Inhalation study in Laboratory Rodents. 8D submission. Microfiche #206200.

U.S. EPA. 1984. Health Assessment Document for Epichlorohydrin. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-83-032F. NTIS PB85-132363.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ethoprop

U.S. EPA. 1984. Health and Environmental Effects Profile for Ethoprop. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

2-Ethoxyethanol

Barbee, S.J., J.B. Terrill, D.J. DeSousa and C.C. Conaway. 1984. Subchronic inhalation toxicology of ethylene glycol monoethyl ether in the rat and rabbit. Environ. Health Perspect. 57: 157-163.

Doe, J.E. 1984. Ethylene glycol monoethyl ether and ethylene glycol monoethyl ether acetate teratology studies. Environ. Health Perspect. 57: 33-41.

Melnick, R.L. 1984. Toxicities of ethylene glycol and ethylene glycol monoethyl ether in Fischer 344/N rats and B6C3F1 mice. Environ Health Perspect. 57: 147-155.

Stenger, E.G., A. Lislott, D. Mueller et al. 1971. Toxicology of ethylene glycol monoethylether. Arzneim.-Forsch. 21(6): 880-885. (In German with English translation)

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for 2-Ethoxyethanol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Ethoxyethanol acetate
Union Carbide. 1984. A teratogenic evaluation of Cellosolve Acetate in Fisher 344 rats and New Zealand White rabbits following inhalation exposure. Bushy Run Research Center, Export, PA, October 1984. FYI-AX-1184-0360.

U.S. EPA. 1985. Health and Environmental Effects Profile for 2-Ethoxyethanol Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Ethoxyethanol esters
U.S. EPA. 1985. Health and Environmental Effects Profile for 2-Ethoxyethanol Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethyl acetate
U.S. EPA. 1986a. Rat oral subchronic study with ethyl acetate. Office of Solid Waste, Washington, DC.

U.S. EPA. 1986b. Health and Environmental Effects Profile for Ethylacetate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Ethylaniline
U.S. EPA. 1986. Health and Environmental Effects Profile for N-Ethylaniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethylbenzene
U.S. EPA. 1984. Health Effects Assessment for Ethylbenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Ethylbenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Wolf, M.A., V.K. Rowe, D.D. McCollister et al. 1956. Toxicological studies of certain alkylated benzenes and benzene. Arch. Ind. Health. 14: 387-398. (Cited in U.S. EPA, 1985)

Ethyl chloride
U.S. EPA. 1987. Health Effects Assessment for Ethyl Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

S-Ethyl dipropylthiocarbamate (EPTC)
PPG Industries, Inc. 1986. Confidential Business Information; unpublished study. Accession No. 263695, 262696. (Cited in U.S. EPA, 1987)

U.S. EPA. 1984. Health and Environmental Effects Profile for EPTC. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ethylene cyanohydrin
Sauerhoff, M.W., W.H. Braun, J.C. Ramsey, C.B. Humiston and G.C. Jersey. 1976. Toxicological evaluation and pharmacokinetic profile of β-hydroxypropionitrile in rats. J. Toxicol. Environ. Health. 2(1): 31-44.

U.S. EPA. 1988. Health and Environmental Effects Document for Cyanohydrins. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethylenediamine
Pozzani, U.C. and C.P. Carpenter. 1954. Response of rats to repeated inhalation of ethylenediamine vapors. Arch. Ind. Hyg. Occ. Med. 9: 223-226.

U.S. EPA. 1988. Health and Environmental Effects Document for Ethylenediamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Yang, R.S., R.H. Garman, R.R. Maronpot, et al. 1983. Acute and subchronic toxicity of ethylenediamine in laboratory animals. Fund. Appl. Toxicol. 3(6): 512-520.

Ethylene glycol
DePass, L.R., R.H. Garman, M.D. Woodside et al. 1986a. Chronic toxicity and oncogenicity studies of ethylene glycol in rats and mice. Fund. Appl. Toxicol. 7: 547-565.

Maronpot, R.R., J.P. Zelenak, E.V. Weaver and N.J. Smith. 1983. Teratogenicity study of ethylene glycol in rats. Drug. Chem. Toxicol. 6(6): 579-594.

U.S. EPA. 1987. Health Effects Assessment for Ethylene Glycol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ethylene glycol monobutyl ether
Dodd, D.E., W.M. Snellings, R.R. Maronpot and B. Balantyne. 1983. Ethylene glycol monobutyl ether: Acute, 9-day and 90-day vapor inhalation studies in Fischer 344 rats. Toxicol. Appl. Pharmacol. 68: 405-414.

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC. EPA 540/1-86-052.

Ethylene thiourea
U.S. EPA. 1984. Health and Environmental Effects Profile for Ethylene Thiourea. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Ethyl ether
American Biogenics Corp. 1986. 90-Day gavage study in rats using ehtyl ether. Status Report for ABC Study No. 410-2343. 3/18/86.

U.S. EPA. 1987. Health Effects Assessment for Ethyl Ether. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethyl methacrylate
Borzelleca, J.F., P.S. Larson, G.R. Hennigar, et al. 1964. Studies on the chronic oral toxicity of monomeric ethyl acrylate and methyl methacrylate. Toxicol. Appl. Pharmacol. 6: 29-36.

U.S. EPA. 1986. Health and Environmental Effects Profile for Ethyl Methacrylate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethyl Toluene
U.S. EPA. 1984. Health and Environmental Effects Profile for Methyl Ethyl Benzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

4-Ethyl-o-xylene
U.S. EPA. 1984. Health and Environmental Effects Profile for Methyl Ethyl Benzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Fluoranthene
U.S. EPA. 1988. 13-week mouse oral subchronic toxicity study. Prepared by Toxicity Research Laboratories, LTD. Muskegon, MI for the Office of Solid Waste, Washington, DC.

Fluorene
U.S. EPA. 1989. Mouse oral subchronic study. Prepared by Toxicity Research Laboratories, LTD, Muskegon, MI for the Office of Solid Waste, Washington, DC.

Fluoride
Hodge, H.C. and F.A. Smith. 1965. In: Fluorine Chemistry, Vol. IV, J.H. Simons, Ed. Academic Press, New York, NY. 789 p.

U.S. EPA. 1989. Health and Environmental Effects Document for Fluoride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Fluridone
Eli Lilly and Company. 1980. Confidential Business Information; unpublished study. Accession Nos. 070933, 070939.

U.S. EPA. 1984. Health and Environmental Effects Profile for Fluridone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Folpet
Chevron Chemical Corporation. 1986. Confidential Business Information; unpublished study. Accession No. 263772.

U.S. EPA. 1984. Health and Environmental Effects Profile for Folpet. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Formaldehyde cyanohydrin
U.S. EPA. 1988. Health and Environmental Effects Document for Cyanohydrins. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Formic acid
Malorny, G. 1969. Acute and chronic toxicity of formic acid and formate. Z. Ernachrungswiss. 9: 332-339.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Furan
SRI (Southern Research Institute). 1982. Subchronic toxicity report on furan (C56202) in B6C3F1 mice. Prepared for National Toxicology Program under Contract No. 1-CP-95641-01, Bethesda, MD.

U.S. EPA. 1987. Health and Environmental Effects Document for Furan. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Furfural
Feron, V.J., A. Kruysse and H.C. Dreef Vander Meulen. 1979. Repeated exposure to furfural vapor: 13 week study in Syrian golden hamsters. Zentrase. Bakteviol Pavasiten Kd Infection SKV. Hyg. Abt 1 orig Reihe B. 168(5-6): 442-451.

SRI (Southern Research Institute). 1981. 90 day rat report. Unpublished study performed for NTP.

U.S. EPA. 1988. Health and Environmental Effects Document for Furfural. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Glycidaldehyde
Hine, C.H., R.J. Guzman, M.K. Dunlap, R. Lima and G.S. Loquvam. 1961. Studies on the toxicity of glycidaldehyde. Arch. Environ. Health. 2: 23-30.

U.S. EPA. 1989. Health and Environmental Effects Document for Glycidaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

n-Heptane
U.S. EPA. 1989. Health and Environmental Effects Document for n-Heptane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Heptachlor
Velsicol Chemical Corp. 1955. MRID No. 00062599. Available under FOI.

U.S. EPA. 1987. Health Effects Assessment for Heptachlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexabromobenzene
Mendoza, C.E., H.M. Vijay, J.B. Shields and G.W. Laver. 1977. Effects of hexabromobenzene on the male rat. Toxicol. Appl. Pharmacol. 41: 127-130.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorobenzene
Arnold, D.L., C.A. Moodie, S.M. Charbonneau et al. 1985. Long-term toxicity of hexachlorobenzene in the rat and the effect of dietary vitamin A. Food Chem. Toxicol. (In press). (Cited in U.S. EPA, 1985)

U.S. EPA. 1984. Health Effects Assessment for Hexachlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorobutadiene
Kociba, R.J., D.G. Keys, G.C. Jersey, et al. 1977. Results of a 2-year chronic toxicity study with hexachlorobutadiene in rats. Am. Ind. Hyg. Assoc. J. 38: 589-602.

U.S. EPA. 1984. Health Effects Assessment for Hexachlorobutadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane, gamma (Lindane)
Zoecon Corporation. 1983. MRID No. 00128356. Available under FOI.

U.S. EPA. 1984. Health Effects Assessment for Lindane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclopentadiene
Abdo, K.M., C.A. Montgomery, W.M. Kluwe et al. 1984. Toxicity of hexachlorocyclopentadiene: Subchronic (13-week) administration by gavage to F344 rats and B6C3F1 mice. J. Appl. Toxicol. 4: 75-81.

Battelle Northwest Laboratories. 1984. Inhalation Carcinogenesis Bioassay Study: Subchronic Study Report on Hexachlorocyclopentadiene in Rats. Submitted to the National Toxicology Program.

SRI (Southern Research Institute). 1981a. Subchronic Toxicity Report on Hexachlorocyclopentadiene (C53607) in B6C3F1 Mice. Report for the NTP. Project No. 4419-XXXVIX. Doc. #40-8349230. Microfiche #OTS0507497.

U.S. EPA. 1984. Health Effects Assessment for Hexachlorocyclopentadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachloroethane
Gorzinski, S.J., R.J. Nolan, S.B. McCollister, et al. 1985. Subchronic oral toxicity, tissue distribution and clearance of hexachloroethane in the rat. Drug Chem. Toxicol. 8(3): 155-169.

U.S. EPA. 1987. Health Effects Assessment for Hexachloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for Hexachloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorophene
Nationwide Chemical Corporation. 1974. Confidential Business Information; unpublished study. MRID No. 00055365.

U.S. EPA. 1986. Health and Environmental Effects Profile for Hexachlorophene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexamethylenediamine
U.S. EPA. 1985. Health and Environmental Effects Profile for Hexamethylenediamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

n-Hexane
Krasavage, W.J., J.L. O'Donoghue, G.D. Divincenzo and Terhaar. 1980. Relative neurotoxicity of methyl-n-butyl ketone, n-hexane and their metabolites. Toxicol. Appl. Pharmacol. 52(3): 433-441.

Sanagi, S., Y. Seki, K. Sugimoto and M. Hirata. 1980. Peripheral nervous system functions of workers exposed to n-hexane at a low level. Int. Arch. Occup. Environ. Health. 47: 69-79.

U.S. EPA. 1989. Health and Environmental Effects Document for n-Hexane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-Hexanone
U.S. EPA. 1990. Health and Environmental Effects Document for 2-Hexanone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Hydrogen sulfide
U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Watterau, H., W. Ockert and U.G. Knape. 1964-1965. In: Toxicity of hydrogen sulfide in animal feeding. Survey of the literature. (Westermann et al., 1975. Landwirtsch. Forsch. 28: 70-80.)

p-Hydroquinone
Carlson, A.J. and N.R. Brewer. Toxicity studies on Hydroguinone. Proc. Soc. Exp. Biol. Med. 84: 684-688.

U.S. EPA. 1987. Health and Environmental Effects Document for Hydroquinone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Iron
U.S. EPA. 1984. Health Effects Assessment for Iron. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Isobutyl alcohol
U.S. EPA. 1986a. Rat oral subchronic toxicity with isobutyl alcohol. Office of Solid Waste, Washington, DC.

U.S. EPA. 1986b. Health and Environmental Effects Profile for Isobutanol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Isophorone
Rohm and Haas. 1972. Pesticide Petition No. 2F1224. Available under FOI.

NTP (National Toxicology Program). 1986. Toxicology and Carcinogenesis Studies of Isophorone (CAS No. 78-59-1) in F344/N Rats and B6C3F1 Mice (Gavage Studies). NTP Tech. Report Ser. No. 291, NIH Publ. No. 86-2547.

U.S. EPA. 1987. Health Effects Assessment for Isophorone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Isopropalin
Eli Lilly Company. 1985. Confidential Business Information; unpublished study.

U.S. EPA. 1984. Health and Environmental Effects Profile for Isopropalin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Lead
U.S. EPA. 1984. Health Effects Assessment for Lead. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Air Quality Criteria for Lead. June, 1986 and Addendum, September, 1986. Office of Health and Environmental Assessment, Research Triangle Park, NC. EPA 600/8-83-028F. NTIS PB 87-142378.

Lead alkyls
Scheper, G.W.H. 1964. Tetraethyl lead and tetramethyl lead. Arch. Environ. Health. 8: 277-295.

U.S. EPA. 1985. Health and Environmental Effects Profile for Lead Alkyls. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Linuron
Du Pont de Nemours and Company, Inc. 1962. Confidential Business Information; unpublished study. MRID No. 00018374.

U.S. EPA. 1984. Health and Environmental Effects Profile for Linuron. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Malathion
Moeller, H.C. and J.A. Rider. 1962. Plasma and red blood cell-cholinesterase activity as indications of the threshold of incipient toxicity of ethyl-p-nitrophenol thionebenzenephosphorate (EPN) and malathion in human beings. Toxicol. Appl. Pharmacol. 4: 123-130.

U.S. EPA. 1984. Health and Environmental Effects Profile for Malathion. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Maleic anhydride
Jessup, D.C., D. Aldridge, J.L. Schardein and M. Blair. 1982. Three-generation reproduction study in rats (modified to a 2-generation study). Maleic anhydride IR-79-358. International Research and Development Corp. for Monsanto Co., St. Louis, Mo. Unpublished 8D submission. Microfiche No. OTS 0206655. Document ID 878214777.

Preache, M. 1983. Chronic Dietary Administration of Maleic Anhydride. Vol. 1: Narrative. FYI-OTS Submission 1283-0277. Prepared by ITT Research Institute for Chemical Industry Institute of Technology, Research Triangle Park, NC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Maleic Anhydride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Maleic hydrazide
U.S. EPA. 1989. Health and Environmental Effects Document for Maleic Hydrazide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Van der Heijden, C.A., E.M. Den Tonkelaar, J.M. Garbis-Berkvens and G.J. Van Esch. 1981. Maleic hydrazide, carcinogenicity study in rats. Toxicology. 19(2): 139-150.

Malononitrile
Panov, I., M. Zlateva and G. Antov. 1972. Toxicological characteristics of dicyanomethane. Chronic effects in white rats. Khig. Zdraveopazvane. 15(6): 553-562.

U.S. EPA. 1986. Health and Environmental Effects Profile for Malanonitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Mancozeb
U.S. EPA. 1984. Health and Environmental Effects Profile for Mancozeb. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Maneb
Maneb Data Task Force. 1986. MRID No. 00161552. (Cited in U.S. EPA, 1987)

Rohm and Haas Co. 1977. MRID No. 00129980. (Cited in U.S. EPA, 1987)

U.S. EPA. 1984. Health and Environmental Effects Profile for Maneb. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Manganese

Lai, J.C.K., T.K.C. Leung and L. Lim. 1982. Activities of the mitochondrial NAD-linked isocitric dehydrogenase in different regions of the rat brain. Changes in aging and the effect of chronic manganese chloride administration. Gerontology. 28(2): 81-85.

Laskey, J.W., G.L. Rehnberg, J.F. Hein and S.D. Carter. 1982. Effects of chronic manganese (Mn_3O_4) exposure on selected reproductive parameters in rats. J. Toxicol. Environ. Health. 9: 677-687.

Leung, T.K.C., J.C.K. Lai and L. Lim. 1981. The regional distribution of monoamine oxidase activities towards different substrates: Effects in rat brain of chronic administration of manganese chloride and of aging. J. Neurochem. 36(6): 2037-2043.

Saric, M., S. Markicevic and O. Hrustic. 1977. Occupational exposure to manganese. Br. J. Ind. Med. 34: 114-118.

U.S. EPA. 1984a. Health Effects Assessment for Manganese. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H057.

U.S. EPA. 1984b. Health Assessment Document for Manganese. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. EPA 600/8/83-013F. NTIS PB84-229954.

Mephosfolan

U.S. EPA. 1984. Health and Environmental Effects Profile for Mephosfolan. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Mercury, inorganic

Andres, P. 1984. IgA-IgG disease in the intestine of Brown Norway rats ingesting mercuric chloride. Clin. Immunol. Immunopathol. 20: 488-494.

Bernaudin, J.F., E. Druet, P. Druet and R. Masse. 1981. Inhalation or ingestion of organic or inorganic mercurials produces auto-immune disease in rats. Clin. Immunol. Immunopathol. 20: 129-135.

Druet, P., E. Druet, F. Potdevin and C. Sapin. 1978. Immune type glomerulonephritis induced by $HgCl_2$ in the Brown Norway rat. Ann. Immunol. 129C: 777-792.

Fawer, R.F., V. DeRibaupierre, M.P. Guillemin, M. Berode and M. Lobe. 1983. Measurement of hand tremor induced by industrial exposure to metallic mercury. J. Ind. Med. 40: 204-208.

Piikivi, L. 1989. Cardiovascular reflexes and low long-term exposure to mercury vapor. Int. Arch. Occup. Environ. Health. 61: 391-395.

Piikivi, L. and H. Hanninen. 1989. Subjective symptoms and psychlogical performance of chlorine-alkali workers. Scand. J. Work Environ. Health. 15: 69-74.

Piikivi, L. and V. Tolonen. 1989. EEG findings in chlor-alkali workers subjected to low long-term exposure to mercury vapor. Br. J. Ind. Med. 46: 370-375.

U.S. EPA. 1984. Health Effects Assessment for Mercury. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Peer Review Workshop on Mercury Issues. October 26-27, 1987, SUmmary Report. Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Merphos

Abou-Donia, M.B., D.G. Graham, P.R. Timmons and B.L. Reichert. 1980. Late acute, delayed neurotoxic and cholinergic effects of S,S,S-tributylphosphorotrithioite (merphos) in hens. Toxicol. Appl. Pharmacol. 53: 439-457.

U.S. EPA. 1984. Health and Environmental Effects Profile for Merphos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Merphos oxide

Abou-Donia, M.B., D.G. Graham, K.M. Abdo and A.A. Komeil. 1979. Delayed neurotoxic, late acute and cholinergic effects of S,S,S-tributylphosphorotrithioate (DEF): Subchronic (90 days) administration in hens. Toxicology. 14: 229-243.

U.S. EPA. 1984. Health and Environmental Effects Profile for Merphos Oxide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methacrylonitrile
Pozzani, U.C., C.R. Kinkead and J.M. King. 1968. The mammalian toxicity of methacrylonitrile. Am. Ind. Hyg. Assoc. J. 29(3): 202-210.

U.S. EPA. 1987. Health and Environmental Effects Document for Selected Nitriles. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methanol
U.S. EPA. 1986. Rat oral subchronic toxicity study with methanol. Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methomyl
Kaplan, A.M. and H. Sherman. 1977. Toxicity studies with methyl N-[[(methylamino) carbonyl] oxyl] ethanimidothioate. Toxicol. Appl. Pharmacol. 40(1): 1-17.

U.S. EPA. 1986. Integrated Risk Information System (IRIS): Reference Dose (RfD) for Oral Exposure for Methomyl. Online. (Verification date 04/22/86.) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methoxychlor
U.S. EPA. 1984. Health and Environmental Effects Profile for Methoxychlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

2-Methoxyethanol
Miller, R.R., L.L. Calhoun and B.L. Yano. 1982. Ethylene glycol monomethyl ether: 13-week vapor inhalation study in male rabbits. Report prepared for the CMA March 25, 1982.

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for 2-Methoxyethanol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Methoxyethanol acetate
Miller, R.R., L.L. Calhoun and B.L. Yano. 1982. Ethylene glycol monomethyl ether: 13-week vapor inhalation study in male rabbits. Report prepared for the Chemical Manufacturers Association, March 25, 1982.

U.S. EPA. 1987. Health and Environmental Effects Profile for 2-Methoxyethanol Acetate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl acetate
Toxicity Research Laboratory. 1986. Rat oral subchronic toxicity study with methanol. Sponsored by Office of Solid Waste, U.S. EPA, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Methyl Acetate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl acrylate
Klimisch, H.J. and W. Reininghaus. 1984. Carcinogenicity of acrylates: Long-term inhalation studies on methyl acrylate (MA) and n-butyl acrylate (BA) in rats. Toxicologist. 4(1): 53. (Taken from Abstract No. 211)

U.S. EPA. 1987. Health and Environmental Effects Profile for Methyl Acrylate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl chloride
U.S. EPA. 1986. Health and Environmental Effects Profile for Methyl Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methylchlorocarbonate
U.S. EPA. 1989. Health and Environmental Effects Document for Methylchlorocarbonate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Methyl-4-chlorophenoxy acetic acid (MCPA)
Industry Task Force on MCPA Research Data. 1986. Confidential Business Information; unpublished study. MRID No. 00164352.

U.S. EPA. 1984. Health and Environmental Effects Profile for MCPA and MCPB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)
Rhodia, Inc. 1970a. Confidential Business Information; unpublished study. MRID No. 00116345.

Rhodia, Inc. 1970b. Confidential Business Information; unpublished study. MRID No. 00116344.

U.S. EPA. 1984 . Health and Environmental Effects Profile for MCPA and MCPB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-(2-Methyl-4-chlorophenoxy) propionic acid (MCPP)
BASF Aktiegerellschaft. 1985. Confidential Business Information; unpublished study. MRID No. 00158359.

U.S. EPA. 1984. Health and Environmental Effects Profile for MCPP. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methylcyclohexane
U.S. EPA. 1984. Health and Environmental Effects Profile for Methylcyclohexane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Methylene bromide
Keyes, D.G., J.W. Henck, G.C. Jersey, R.J. Kociba, D.J. Schwetz and T.D. Landry. 1982. Methylene bromide: A 90-day repeated inhalation toxicity study in rats and dogs with a subsequent two-year holding period for rats. Toxicology Research Lab, Health and Environmental Sciences, Dow Chemical Co., Midland, MI.

U.S. EPA. 1987. Health and Environmental Effects Profile for Methylene Bromide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methylene chloride
National Coffee Association. 1982. 24-Month Chronic Toxicity and Oncogenicity Study of Methylene Chloride in Rats. Final Report. Prepared by Hazleton Laboratories America, Inc., Vienna, VA. (Unpublished).

Nitschke, K.D., J.D. Bured, T.J. Bell, et al. 1988. Methylene chloride: A 2-year inhalation toxicity and oncogenicity study in rats. Fund. Appl. Toxicol. (In press)

U.S. EPA. 1989. Updated Health Effects Assessment for Methylene Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

4,4'-Methylenediphenyl isocyanate

U.S. EPA. 1985. Health and Environmental Effects Profile for 4,4'-Methylenephenyl Isocyanate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl mercury

Clarkson, T.W., L. Amin-Zaki and S.K. Al-Tikriti. 1976. Federation Proceedings. 35(12): 2395-2399.

Nordberg, G.F. and P. Strangert. 1976. Estimations of a dose-response curve for long-term exposure to methylmercuric compounds in human beings taking into account variability of critical organ concentration and biological half-time: A preliminary communication. In: Effects and Dose-Response Relationships of Toxic Metals. G.F. Nordberg, Ed. Elsevier, Amsterdam. p. 273-282.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Mercury. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-058. NTIS PB 81-117699.

U.S. EPA. 1984. Health Effects Assessment for Mercury. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

WHO (World Health Organization). 1976. Environmental health criteria for mercury. In: Environmental Health Criteria 1. WHO, Geneva.

Methyl ethyl ketone

LaBelle, C.W. and H. Brieger. 1955. Vapour toxicity of a composite solvent and its principal components. Arch. Ind. Health. 12: 623-627.

U.S. EPA. 1984. Health Effects Assessment for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Integrated Risk Information System (IRIS): Reference Dose (RfD) for oral exposure for methyl ethyl ketone. Online. (Verification date 07/08/85). Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1989. Updated Health Effects Assessment for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methyl isobutyl ketone

Microbiological Associates. 1986. Subchronic toxicity of methyl isobutyl ketone in Sprague-Dawley rats. Preliminary report for Research Triangle Institute, RTP, NC. Study No. 5221.04. January.

Union Carbide Corp. 1983. Ninety-day inhalation study in rats and mice sponsored by CMA. U.S. EPA/OTS public files 0750507469.

U.S. EPA. 1987. Health Effects Assessment for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Updated Health Effects Assessment for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methyl isocyanate

U.S. EPA. 1986. Health and Environmental Effects Profile for Methyl Isocyanate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl methacrylate

Borzelleca, J.F., P.S. Larson, G.R. Hennigar, et al. 1964. Studies on the chronic oral toxicity of monomeric ethyl acrylate and methyl methacrylate. Toxicol. Appl. Pharmacol. 6: 29-36.

U.S. EPA. 1985. Health and Environmental Effects Profile for Methyl Methacrylate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methyl parathion
Monsanto Co. 1983. Accession No. 252501-252503, 253346, 253372-253374. U.S. EPA, Washington, DC.

U.S. EPA. 1984. Health and Environmental Effects Profile for Methyl Parathion. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methyl styrene
MRI (Midwest Research Institute). 1984a. Study of the inhalation carcinogenicity (bioassay) of vinyl toluene in B6C3F1 mice. Final chronic report performed for the NTP under Contract No. NO1-ES-38042.

U.S. EPA. 1987. Health and Environmental Effects Document for Methyl Styrenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methylstyrene, alpha
U.S. EPA. 1987. Health and Environmental Effects Profile for alpha-Methylstyrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Wolf, M.A., V.K. Rowe, D.D. McCollister, et al. 1956. Toxicological studies of certain alkylated benzenes and benzene. Arch. Ind. Health. 14: 387-398.

Mirex
Shannon, V.C. 1976. The effects of mirex on the reproductive performance and behavioral development in the prairie vole (Microtus ochrogaster). Ph.D. Dissertation, Iowa State University, Ames, IA.

U.S. EPA. 1987. Health Effects Assessment for Mirex. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Molinate
Stauffer Chemical Company. 1981. MRID No. 00079209. U.S. EPA, Washington, DC.

U.S. EPA. 1984. Health and Environmental Effects Profile for Molinate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Monochlorobutane
NTP (National Toxicology Program). 1986. Toxicology and carcinogenesis studies of n-butyl chloride in F344/N rats and B6C3F1 mice (gavage studies). (CAS No. 109-69-3). NTP TR-312.

U.S. EPA. 1989. Health and Environmental Effects Document for Monochlorobutanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Naphthalene
Schmahl, D. 1955. Testing of naphthalene and anthracene as carcinogenic agents in the rat. Z. Krebsforsch. 60: 697-710. (German with English translation)

U.S. EPA. 1986. Health and Environmental Effects Profile for Naphthalene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1988. Health Effects Assessment for Naphthalene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

1,4-Naphthoquinone
U.S. EPA. 1986. Health and Environmental Effects Profile for 1,4-Naphthoquinone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nickel
Ambrose, A.M., D.S. Larson, J.R. Borzelleca and G.R. Hennigar, Jr. 1976. Long-term toxicologic assessment of nickel in rats and dogs. J. Good Sci. Technol. 13: 181-187.

U.S. EPA. 1984. Health Effects Assessment for Nickel. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Nicotinonitrile
U.S. EPA. 1987. Health and Environmental Effects Document for Selected Nitriles. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nitric oxide
U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Walton, G. 1951. Survey of literature relating to infant methemoglobinemia due to nitrate-contaminated water. Am. J. Public Health. 41: 986-996.

Nitrite
U.S. EPA. 1989. Health and Environmental Effects Document for Nitrite. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Walton, G. 1951. Survey of literature relating to infant methemoglobinemia due to nitrate-contaminated water. Am. J. Pub. Health. 41: 986-996.

Nitroanilines
U.S. EPA. 1985. Health and Environmental Effects Profile for Nitroanilines (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nitrobenzene
CIIT (Chemical Industry Institute of Toxicology). 1984. Ninety-day inhalation study of nitrobenzene in F-344 rats, CD rats and B6C3F1 mice with cover letter dated 6/24/84 and EPA response dated 8/06/84. Unpublished study. FYI-OTS-0784-0333 and computer print-out of pathology finding.

U.S. EPA. 1987. Health Effects Assessment for Nitrobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Nitrofurantoin
SRI (Southern Research Institute). 1980. Subchronic Toxicity Report on Nitrofurantoin (C55196) in Fischer-344 rats and B6C3F1 mice Tracor Jit CO, Inc. Rockville, MD contract Nos NO1-CP-43350 and 78-65-106002 U.S. EPA.

U.S. EPA. 1987. Health and Environmental Effects Document for Nitrofurans Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nitrogen dioxide
Kubota, K., M. Murakami, S. Takenaka, K. Kawai and H. Kyono. 1987. Effects of long-term nitrogen dioxide exposure on rat lung morphological observations. Environ. Health Perspect. 73(0): 157-169.

Sagai, M. and T. Ichinose. 1987. Lipid-peroxidation and antioxidative protection mechanism in rat lungs upon acute and chronic exposure to nitrogen-dioxide. Environ. Health Perspect. 73: 179-189.

Sagai, M., T. Ichinose and K. Kubota. 1984. Studies on the biochemical effects of nitrogen dioxide. IV. Relation between the change of lipid peroxidation and the antioxidative protective system in rat lungs upon life span exposure to low levels of NO_2. Toxicol. Appl. Pharmacol. 73(3): 444-456.

U.S. EPA. 1990a. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1990b. Health and Environmental Effects Document for Nitrogen Dioxide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Walton, G. 1951. Survey of literature relating to infant methemoglobinemia due to nitrate-contaminated water. Am. J. Public Health. 41: 986-996.

Nitrogen oxides
U.S. EPA. 1982. Air Quality Criteria for Oxides of Nitrogen. Office of Health and Environmental Assessment, Research Triangle Park, NC. EPA 600/8-82-026F. NTIS PB83-163337.

Nitromethane
U.S. EPA. 1985. Health and Environmental Effects Profile for Nitromethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nitrophenols
U.S. EPA. 1987. Health Effects Assessment for Nitrophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

p-Nitrosodiphenylamine
U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nitrotoluenes
Ciss, M., N. Huyen, H. Dutertre, N. Phu-Lich and R. Truhaut. 1980. Toxicological study of nitrotoluenes: Long-term toxicity. Dakar Medical. 25: 293-302.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrotoluenes (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Octabromodiphenyl ether
Carlson, G.P. 1980. Induction of xenobiotic metaolism in rats by brominated diphenyl ethers administered for 90 days. Toxicol. Lett. 6:207-212.

U.S. EPA. 1983. Health and Environmental Effects Profile for Brominated Diphenyl Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Octamethylpyrophosphoramide
Rider, J.A., H.C. Moeller, E.J. Puletti and J.I. Swader. 1969. Toxicity of parathion, systox, octamethylpyrophosphoramide and methyl parathion in man. Toxicol. Appl. Pharmacol. 14(3): 603-611.

U.S. EPA. 1989. Health and Environmental Effects Document for Octamethylpyrophosphoramide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ozone and other photochemical oxidants
U.S. EPA. 1986. Air Quality Criteria for Ozone and Other Photochemical Oxidants. Office of Health and Environmental Assessment, Research Triangle Park, NC. EPA 600/8-84-020F. NTIS PB87-142949.

Paraldehyde
U.S. EPA. 1986. Health and Environmental Effects Profile for Paraldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Parathion
U.S. EPA. 1987. Health Effects Assessment for Parathion. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Particulate matter and sulfur oxides
U.S. EPA. 1986. Air Quality Criteria for Particulate Matter and Sulfur Oxides. Office of Health and Environmental Assessment, Research Triangle Park, NC. EPA 600/8-82-029F. NTIS PB84-156777.

Pebulate
U.S. EPA. 1984. Health and Environmental Effects Profile for Pebulate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Pendimethalin
American Cyanamid Company. 1979. Confidential Business Information; unpublished study. MRID No. 0058657.

U.S. EPA. 1984. Health and Environmental Effects Profile for Pendimethalin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Pentabromodiphenyl ether
Carlson, G.P. 1980. Induction of xenobiotic metaolism in rats by brominated diphenyl ethers administered for 90 days. Toxicol. Lett. 6:207-212.

U.S. EPA. 1983. Health and Environmental Effects Profile for Brominated Diphenyl Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Pentachlorobenzene
Linder, R., T. Scotti, J. Goldstein and K. McElroy. 1980. Acute and subchronic toxicity of pentachlorobenzene. J. Environ. Pathol. Toxicol. 4(5-6): 183-196.

U.S. EPA. 1989. Health and Environmental Effects Document for Pentachlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Pentachlorocyclopentadiene
U.S. EPA. 1988. Health and Environmental Effects Document for Chlorinated Cyclopentadienes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Pentachloronitrobenzene
Olin Corporation. 1968. MRID NO. 00011420l. U.S. EPA, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Pentachloronitrobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Pentachlorophenol

Schwetz, B.A., J.F. Quast, P.A. Keeler et al. 1978. Results of two-year toxicity and reproduction studies on pentachlorophenol in rats. In: Pentachlorophenol: Chemistry, Pharmacology and Environmental Toxicology, K.R. Rao, Ed. Plenum Press, New York. p. 301. (Cited in U.S. EPA, 1985)

U.S. EPA. 1984. Health Effects Assessment for Pentachlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Pentachlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1,2,3,3-Pentachloropropene

U.S. EPA. 1983. Health and Environmental Effects Profile for Chloropropenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

n-Pentane

U.S. EPA. 1987. Health Effects Assessment for n-Pentane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Phenanthrene

U.S. EPA. 1984. Health Effects Assessment for Phenanthrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Health and Environmental Effects Profile for Phenanthrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Phenol

Research Triangle Institute. 1983. Teratologic Evaluation of Phenol in CD Rats. Report prepared for NIEHS/NTP, Research Triangle Park, NC.

U.S. EPA. 1984. Health Effects Assessment for Phenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Phenylenediamines (o-, p-)

U.S. EPA. 1985. Health and Environmental Effects Profile for Phenylenediamines (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

m-Phenylenediamine

Hofer, H. and R. Hruby. 1982. Ninety-day toxicity study with m-phenylenediamine on rats. Oestrr. Forschungszent. Seibersdorf (Ber.) OEFZS Ber. No. 4155. p. 50.

U.S. EPA. 1985. Health and Environmental Effects Profile for Phenylenediamines (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Phenylmercuric acetate

Fitzhugh, O.G., A.A. Nelson, E.P. Laug and I.M. Kunze. 1950. Chronic oral toxicities of mercuric phenyl and mercuric salts. Arch. Ind. Hyg. Occup. Med. 2: 433-442.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-Phenylphenol

U.S. EPA. 1984. Health and Environmental Effects Profile for 2-Phenylphenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Phosgene

U.S. EPA. 1984. Health and Environmental Effects Profile for Phosgene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Phosphine

Hackenberg, J. 1972. Chronic ingestion by rats of standard diet treated with aluminum phosphide. Toxicol. Appl. Pharmacol. 23: 147-158.

Klimmer, O.R. 1969. Contribution to the study of action of phosphine (PH_3). On the question of so-called chronic phosphine poisoning. Arch. Toxicol. 24: 164-187.

U.S. EPA. 1989. Health and Environmental Effects Document for Phosphine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Phthalic acid esters, selected
U.S. EPA. 1987. Health Effects Assessment for Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Phthalic acids
U.S. EPA. 1986. Health and Environmental Effects Profile for Phthalic Acids. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

p-Phthalic acid
CIIT (Chemical Industry Institute of Technology). 1982. A Ninety-Day Study of Terephthalic Acid-Induced Urolithiasis and Reproductive Performance in Wistar and CD rats. CIIT, Research Triangle Park, NC.

Gross, J. 1974. The Effects of Prolonged Feeding of Terephthalic Acid (TPA) to Rats. Project FG-IS-175. Agricultural Research Service, U.S. Department of Agriculture, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Phthalic Acids (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Phthalic anhydride
NCI (National Cancer Institute). 1979. Bioassay of phthalic anhydride for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 159. NTIS PB293594.

U.S. EPA. 1986. Health and Environmental Effects Profile for Phthalic Anhydride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Polybrominated biphenyls
NTP (National Toxicology Program). 1983. Carcinogenesis studies of polybrominated biphenyl mixture in F344/N rats and B6C3F1 mice (gavage studies). Firemaster FF-1. Case No. 67774-32-7. NTP, Research Triangle Park, NC.

U.S. EPA. 1989. Health and Environmental Effects Document for Polybrominated Biphenyls. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Potassium cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Potassium silver cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Profluralin
U.S. EPA. 1984. Health and Environmental Effects Profile for Profluralin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Pronamide
Rohm & Haas, Co. 1970. Acc. Nos. 000967, 004417.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Propachlor
Monsanto Company. 1964. Confidential Business Information; unpublished study. MRID NO. 00094370.

U.S. EPA. 1984. Health and Environmental Effects Profile for Propachlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Propazine
Geigy Company. 1980. Confidential Business Information; unpublished study. Accession No. 243353.

U.S. EPA. 1984. Health and Environmental Effects Profile for Propazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Propionitrile
U.S. EPA. 1985. Health and Environmental Effects Profile for Propionitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

n-Propyl alcohol
U.S. EPA. 1987. Health and Environmental Effects Document for n-Propyl Alcohol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Propylene glycol
Gaunt, I.F., R.M.B. Carpanini, P. Grasso and A.B.G. Lansdown. 1972. Long-term toxicity of propylene glycol in rats. Food Cosmet. Toxicol. 10: 151-162.

Guerrant, N.B., G.P. Whitlock, M.L. Wolff and R.A. Dutcher. 1947. Response of rats to diets containing varying amounts of glycerol and propylene glycol. Bull. Natl. Formulary Comm. 15: 204-229. (Cited in Informatics, Inc., 1973)

Robertson, O.H., C.G. Loosli, T.T. Puck, H. Wise, H.M. Lemon and W. Lester. 1947. Tests for chronic toxicity of propylene glycol and oral administration. J. Pharmacol. Exp. Ther. 91: 52-75.

U.S. EPA. 1987. Health and Environmental Effects Document for Propylene Glycol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Propylene glycol monoethyl ether
Smyth, H.F., Jr. and C.P. Carpenter. 1948. Further experience with the range finding test in the industrial toxicology laboratory. J. Ind. Hyg. Toxicol. 30: 63-68.

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC. EPA 540/1-86-052.

Propylene glycol monomethyl ether
Landry, T.D., T.S. Gushow and B.L. Yano. 1983. Propylene glycol monomethyl ether: A 13-week inhalation toxicity in rats and rabbits. Fund. Appl. Toxicol. 3: 627-630.

Miller, R.R., E.A. Herman, J.T. Young et al. 1984. Ethylene glycol monomethyl ether and propylene glycol monomethyl ether: Metabolism, disposition, and subchronic inhalation toxicity studies. Environ. Health Perspect. 57: 233-239.

Rowe, V.K., D.D. McCollister, H.C. Spencer et al. 1954. Toxicology of mono-, di-, and tri-propylene glycol methyl ethers. Arch. Ind. Hyg. Occup. Med. 9: 509-525.

U.S. EPA. 1984. Health Effects Assessment for Glycol Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC. EPA 540/1-86-052.

Pyrene
U.S. EPA. 1984. Health Effects Assessment for Pyrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Mouse oral subchronic toxicity study of pyrene. Study conducted by Toxicity Research Laboratories, Muskegon, MI for the Office of Solid Waste, Washington, DC.

Pyridine
U.S. EPA. 1986a. Health and Environmental Effects Profile for Pyridine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1986b. Pyridine. 90-Day subchronic oral toxicity in rats. Sponsored by Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

RDX
Levine, B.S., E.M. Furedi, V.S. Rae, D.E. Gordon and D.M. Lish. 1984. Determination of the chronic mammalian toxicological effects of RDX: Twenty-four month chronic toxicity/carcinogenicity study of hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) in the Fischer 344 rat. NTIS AD-A160774. Vol. 1. 347 p.

U.S. EPA. 1989. Health and Environmental Effects Document for RDX (Cyclonite). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ronnel
McCollister, D.D., F. Oyen and V.K. Rowe. 1959. Toxicological studies of O,O-dimethyl-o-(2,4,5-trichlorophenyl)phosphothioate (ronnel) in laboratory animals. J. Agric. Food Chem. 7: 689.

U.S. EPA. 1984. Health and Environmental Effects Profile for Ronnel. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Selenourea
U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Yang, G., S. Wang, R. Zhou and S. Sun. 1983. Endemic selenium intoxication of humans in China. Am. J. Clin. Nutr. 37: 872-881.

Selenous acid
U.S. EPA. 1989. Health and Environmental Effects Document for Selenium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Yang, G., W. Shuzhen, R. Ahou and S. Sun. 1983. Endemic selenium intoxication of humans in China. Am. J. Clin. Nutr. 37: 872-888.

Silver
Blumberg, H. and T.N. Carey. 1934. Argyremia: Detection of unsuspected and obscure arguria by the spectrographic demonstration of high blood silver. J. Am. Med. Assoc. 103: 1521-1524.

East, B.W., K. Boddy, E.D. Williams, D. MacIntyre and A.L.C. McLay. 1980. Silver retention, total body silver and tissue silver concentrations in argyria associated with exposure to an anti-smoking remedy containing silver acetate. Clin. Exp. Dermatol. 5: 305-311.

Gaul, L.E. and A.N. Staud. 1935. Clinical spectroscopy. Seventy cases of generalized argyria following organic and colloidal silver medication. J. Am. Med. Assoc. 104: 1387-1390.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Silver cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Simazine
Ciba-Geigy Corporation. 1988. MRID No. 40614405.

U.S. EPA. 1984. Health and Environmental Effects Profile for Simazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Sodium cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

U.S. EPA. 1984. Health Effects Assessment for Sodium Cyanide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Sodium diethyldithiocarbamate
Sunderman, F.W., O.E. Paynter and R.B. George. 1967. The effects of the protracted administration of the chelating agent, sodium diethyldithiocarbamate (dithiocarb). Am. J. Med. Sci. 254: 46-56.

U.S. EPA. 1988. Health and Environmental Effects Document for Sodium Diethyldithiocarbamate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Sodium metavanadate
Domingo, J.L., J.L. Llobet, J.M. Tomas and J. Corbella. 1985. Short-term toxicity studies of vanadium in rats. J. Appl. Toxicol. 5(6): 418-421.

U.S. EPA. 1987. Health Effects Assessment for Vanadium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H108.

Strychnine
Seidl, I. and G. Zbinden. 1982. Subchronic oral toxicity of strychnine in rats. Arch. Toxicol. 51(3): 267-271.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Styrene
Quast, J.F., C.G. Humiston, R.T. Kalnins, et al. 1979. Results of a Toxicity Study of Monomeric Administered to Beagle Dogs by Oral Intubation for 19 Months. Toxicology Research Laboratory, Health and Environmental Sciences, Dow Chemical Co., Midland, MI. Final Report.

U.S. EPA. 1984. Health and Environmental Effects Profile for Styrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Health Effects Assessment for Styrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H115.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Succinonitrile
U.S. EPA. 1987. Health and Environmental Effects Document for Selected Nitriles. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Sulfuric acid
Carson, B.L., B.L. Herndon, H.V. Ellis III, et al. 1981. Sulfuric Acid Health Effects. Prepared under Contract 68-03-2928 by Midwest Research Institute, Kansas City, MO. Prepared for Emission Control Technology Division, Office of Mobile Source Air Pollution Control. U.S. EPA, Ann Arbor MI. EPA 460/3-81-025. NTIS PB82-113135.

U.S. EPA. 1984. Health Effects Assessment for Sulfuric Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Temephos
Gaines, T.B., R.D. Kimbrough and E.R. Law, Jr. 1967. Toxicology of abate in laboratory animals. Arch. Environ. Health. 14: 283-288.

U.S. EPA. 1984. Health and Environmental Effects Profile for Temephos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Terbufos
U.S. EPA. 1984. Health and Environmental Effects Profile for Terbufos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Terephthalic acid
U.S. EPA. 1984. Health and Environmental Effects Profile for Terephthalic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

1,2,4,5,-Tetrachlorobenzene
Chu, I., D.C. Villeneuve, V.E. Valli and V.E. Secours. 1984. Toxicity of 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene in the rat: Results of a 90-day feeding study. Drug Chem. Toxicol. 7: 113-127.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetrachloroazoxybenzene (TCAOB)
U.S. EPA. 1985. Health and Environmental Effects Profile for TCAB, TCAOB and TCHB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Tetrachlorocyclopentadiene
U.S. EPA. 1988. Health and Environmental Effects Document for Chlorinated Cyclopentadienes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Tetrachloroethylene (perchloroethylene)
Buben, J.A. and E.J. O'Flaherty. 1985. Delineation of the role of metabolism in the hepatoxicity of trichloroethylene and perchloroethylene: A dose-effect study. Toxicol. Appl. Pharmacol. 78: 105-122.

U.S. EPA. 1988. Updated Health Effects Assessment for Tetrachloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetrachlorohydrazobenzene (TCHB)
U.S. EPA. 1985. Health and Environmental Effects Profile for TCAB, TCAOB and TCHB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,3,4,6-Tetrachlorophenol
U.S. EPA. 1986. 2,3,4,6-Tetrachlorophenol. 90-day Subchronic Oral Toxicity Study in Rats Office of Solid Waste, Washington, DC.

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetrachlorophenol 2,3,4,5-, 2,3,5,6-
U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1,2,3-Tetrachloropropene
U.S. EPA. 1983. Health and Environmental Effects Profile for Chloropropenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Tetrachlorovinphos (Stirofos)
Shell Chemical Company. 1968. Confidential Business Information; unpublished study. Accession No. 115684.

U.S. EPA. 1984. Health and Environmental Effects Profile for Stirofos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetraethyl dithiopyrophosphate
Kimmerle, G. and O.R. Klimmer. 1974. Acute and subchronic toxicity of Sulfotep. Arch. Toxicol. 33(1): 1-16.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetraethyl lead
Schepers, G.W. 1964. Tetraethyl and tetramethyl lead. Arch. Environ. Health. 8: 277-295.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Thallium and Compounds:
Thallium (in salts), Thallium(I) oxide [Thallic oxide], Thallium(I) acetate, Thallium(I) carbonate, Thallium(I) chloride, Thallium (I) nitrate, Thallium selenite (Tl_2Se), Thallium(I) sulfate
MRI (Midwest Research Institute). 1986. Subchronic (90-day) toxicity study of thallium sulfate in Sprague-Dawley rats. Office of Solid Waste, U.S. EPA, Washington, DC. (Cited in U.S. EPA, 1987a)

U.S. EPA. 1986. Subchronic (90-day) toxicity of thallium(I) sulfate (CAS No. 7446-18-6) in Sprague-Dawley rats. Final Report. Prepared for the Office of Solid Waste, U.S. EPA, Washington, DC. Project No. 8702-1 (18).

U.S. EPA. 1988. Health and Environmental Effects Document for Thallium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-(Thiocyanomethylthio)benzothiazole (TCMTB)
U.S. EPA. 1984. Health and Environmental Effects Profile for TCMTB. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Thiofanox
U.S. EPA. 1989. Health and Environmental Effects Document for Thiofanox. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Thiram
Hornshaw, T.C., R.J. Aulerich and R.K. Ringer. 1987. Toxicity of thiram (tetramethylthinoram disulfide) to mink and European ferrets. Bull. Environ. Contam. Toxicol. 38(4): 618-626.

U.S. EPA. 1989. Health and Environmental Effects Document for Thiram. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tin and compounds
NTP (National Toxicology Program). 1982. Carcinogenesis bioassay of stannous chloride (CAS No. 7772-99-8) in F344/N rats and B6C3F1/N mice (feed study). NCI/NTP Tech. Rep. Ser. No. 231. Also publ. as DHHS (NIH) publ Iss NIH 82-1787 and NTIS PB 82-242-553.

U.S. EPA. 1987. Health Effects Assessment for Tin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Toluene
Andersen, I., G.R. Lundqvist, L. Molhave, O.F. Pedersen, D.F. Proctor, M. Veath, and P P. Wyon. 1983. Human response to controlled levels of toluene in six-hour exposure. Scand. J. Work Environ. Health 9: 405-418.

CIIT (Chemical Industry Institute of Toxicology). 1980. A twenty-four month inhalation toxicology study in Fischer-344 rats exposed to atmospheric toluene. Executive Summary and Data Tables. October 15, 1980. (Cited in U.S. EPA, 1985)

U.S. EPA. 1984. Health Effects Assessment for Toluene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Drinking Water Criteria Document for Toluene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Draft (on Public Comment). EPA 600/X-84-188-2.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Wolf, M.A., V.K. Rowe, D.D. McCollister et al. 1956. Toxicological studies of certain alkylated benzenes and benzene. Arch. Ind. Health. 14: 387. (Cited in U.S. EPA, 1985)

Toluenediamine (2,3-; 3,4-)
U.S. EPA. 1984. Health and Environmental Effects Profile for Selected Toluenediamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Toluene-2,5-diamine
NCI (National Cancer Institute). 1978. Bioassay of Toluene-2,5-diamine Sulfate for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 126.

U.S. EPA. 1984. Health and Environmental Effects Profile for Selected Toluenediamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Toluene-2,6-diamine
NCI (National Cancer Institute). 1980. Bioassay of 2,6-Toluenediamine Dihydrochloride for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 200.

U.S. EPA. 1984. Health and Environmental Effects Profile for Selected Toluenediamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

m-Toluidine
U.S. EPA. 1984. Health and Environmental Effects Profile for Toluidines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Triallate
Monsanto Company. 1979. Confidential Business Information; unpublished study. Accession No. 242057.

U.S. EPA. 1983. Health and Environmental Effects Profile for Triallate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2,4-Tribromobenzene
Carlson, G.P. and R.G. Tardiff. 1977. Effect of 1,4-dibromodibenzene and 1,2,4-tribromobenzene on xenobiotic metabolism. Toxicol. Appl. Pharmacol. 42: 189-196.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2,4-Trichlorobenzene
Carlson, G.P. and R.G. Tardiff. 1976. Effect of chlorinated benzenes on the metabolism of foreign organic compounds. Toxicol. Appl. Pharmacol. 36: 383-394.

U.S. EPA. 1987. Health Effects Assessment for 1,2,4-Trichlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Watanabe, P.G., R.J. Kociba, R.E. Hefner et al. 1978. Subchronic toxicity studies of 1,2,4-trichlorobenzene in experimental animals. Toxicol. Appl. Pharmacol. 45(1): 322-333.

Trichlorocyclopentadiene
U.S. EPA. 1988. Health and Environmental Effects Document for Chlorinated Cyclopentadienes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1,1-Trichloroethane
Torkelson, R.R., F. Oyen, D.D. McCollister and V.K. Rowe. 1958. Toxicity of 1,1,1-trichloroethane as determined on laboratory animals and human subjects. Am. Ind. Hyg. Assoc. J. 19: 353-362.

U.S. EPA. 1984. Health Effects Assessment for 1,1,1-Trichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1,2-Trichloroethane
Sanders, V.M., K.L. White Jr., G.M. Shopp Jr. and A.E. Munson. 1985. Humoral and cell mediated immune status of mice exposed to 1,1,2 trichloroethane Drug Chem Toxicol. 8(5): 357-372.

U.S. EPA. 1984. Health Effects Assessment for 1,1,2-Trichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

White, K.L. Jr., V.M. Sanders, V.W. Barnes, G.M. Shopp and A.E. Munson. 1985. Toxicology of 1,1,2 trichloroethane in the mouse. Drug Chem Toxicol. 8(5): 333-355.

Trichlorofluoromethane
Jenkins, L.J., R.A. Jones, R.A. Coon and J. Siegal. 1970. Repeated and continuous exposures of laboratory animals to trichlorofluoromethane. Toxicol. Appl. Pharmacol. 16: 133-142.

NCI (National Cancer Institute). 1978. Bioassay of Trichlorofluoromethane for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 106. (Also publ as DHEW (NIH) 78-1356)

U.S. EPA. 1987. Health Effects Assessment for Fully Halogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,4,4'-Trichloro-2'-hydroxydiphenyl ether

Lyman, F.L. and T. Furia. 1969. Toxicology of 2,4,4'-Trichloro-2'-hydroxy-diphenyl ether. Ind. Med. 38: 45-52.

U.S. EPA. 1987. Health Effects and Environmental Document for Haloethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4,5-Trichlorophenol

McCollister, D.D., D.T. Lockwood and V.K. Rowe. 1961. Toxicologic information on 2,4,5-trichlorophenol. Toxicol. Appl. Pharmacol. 3: 63-70.

U.S. EPA. 1984. Health Effects Assessment for 2,4,5-Trichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trichlorophenol, 2,3,4-, 2,3,5-, 2,3,6-, 3,4,5-

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4,5-Trichlorophenoxy acetic acid

Gehring, P.J. and J.E. Betso. 1978. Phenoxy acids: Effects and fate in mammals. Ecol. Bull. 27: 122-133.

Kociba, R.S., D.G. Keyes, R.W. Lisowe, et al. 1979. Results of 2-year chronic toxicity and oncogenicity study of rats ingesting diets containing 2,4,5-T. Food Cosmet. Toxicol. 17: 205-222.

U.S. EPA. 1989. Health and Environmental Effects Document for 2,4,5-Trichlorophenoxy Acetic Acid. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2 (2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP). (Silvex)
Gehring, P.J. and J.E. Betso. 1978. Phenoxy acids: Effects and fate in mammals. In: Chlorinated Phenoxy Acids and Their Dioxins, Vol. 27, C. Ramel, Ed. Ecol. Bull., Stockholm. p. 122-133.

Mullison, W.R. 1966. Some toxicological aspects of silvex. In: Proc. 19th Ann. Meet., Southern Weed Conference, Jacksonville, FL. p. 420-435.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1,1- and 1,2,2-Trichloropropane
U.S. EPA. 1987. Health and Environmental Effects Document for Trichloropropanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1,2-Trichloropropane
U.S. EPA. 1987. Health and Environmental Effects Document for Trichloropropanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Villaneuve, D.C., I. Chu, V.E. Secours, M.G. Cotie, G.L. Plaa and V.E. Valli. 1985. Results of a 90-day toxicity study on 1,2,3- and 1,1,2-trichloropropane administered via the drinking water. Sci. Total Environ. 47: 421-426.

1,2,3-Trichloropropane
NTP (National Toxicology Program). 1983a. Final report 120-day toxicity gavage study of 1,2,3-trichloropropane in Fischer 344 rats. Performed by Hazelton Laboratories.

U.S. EPA. 1987. Health and Environmental Effects Document for Trichloropropanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2,3-Trichloropropene
McKenna, M.J., J.F. Quast and G.A. Stevens. 1978. Results of a 90-day inhalation toxicity study of 1,2,3-trichloropropene in laboratory animals. Toxicol. Appl. Pharmacol. 45: 249.

U.S. EPA. 1983. Health and Environmental Effects Profile for Chloropropenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

2,3,6-Trichlorotoluene
Chu, I., S.Y. Shen, D.C. Villeneuve, V.E. Secours and V.E. Valli. 1984. Toxicity of trichlorotoluene isomers: A 28-day feeding study in the rat J. Environ. Sci. Health Part B. Pestic Food conterm. Agric. Wastes. 19(2): 183-192.

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Toluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

α,2,6-Trichlorotoluene
Chu, I., S.Y. Shen, D.C. Villeneuve, V.E. Secours and V.E. Valli. 1984. Toxicity of trichlorotoluene isomers: A 28-day feeding study in the rat J. Environ. Sci. Health Part B. Pestic Food conterm. Agric. Wastes. 19(2): 183-192.

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Toluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1,2-Trichloro-1,2,2-trifluoroethane
Imbus, H.R. and C. Adkins. 1972. Physical examination of workers exposed to trichlorotrifluoroethane. Arch. Environ. Health. 24: 257-261.

U.S. EPA. 1983. Health Assessment Document for 1,1,2-Trichloro-1,2,2-trifluoroethane (Chlorofluorocarbon CFC-113). Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-82-002F. NTIS PB84-118843.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trifluralin
Hoechst Aktiengesellschaft. 1984. Confidential Business Information; unpublished study. MRID No. 00151908.

U.S. EPA. 1984. Health and Environmental Effects Profile for Trifluralin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trimethylbenzenes
U.S. EPA. 1987. Health Effects Assessment for Trimethylbenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

1,3,5-Trinitrobenzene
Cody, T.E., S. Witherup, L. Hastings, K. Stemmer and R.T. Chustion. 1981. 1,3-Dinitrobenzene: Toxic effects in vitro. J. Toxicol. Environ. Health. 7: 829-847.

U.S. EPA. 1989. Health and Environmental Effects Document for 1,3,5-Trinitrobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trinitrophenols
U.S. EPA. 1984. Health and Environmental Effects Profile for Trinitrophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Vanadium
Schroeder, J.A., M. Mitchener and A.P. Nason. 1970. Zirconium, niobium, antium, antimony, vanadium and lead in rats: Life term studies. J. Nutr. 100(1): 59-68.

U.S. EPA. 1987. Health Effects Assessment for Vanadium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H108.

Vanadium pentoxide
Stokinger, H.E., W.D. Wagner, J.T. Mountain et al. 1953. Unpublished results. Div. Occup. Health, Cincinnati, OH. (Cited in Stokinger, 1981)

U.S. EPA. 1987. Health Effects Assessment for Vanadium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Vanadyl sulfate
Schroeder, J.A., M. Mitchener and A.P. Nason. 1970. Zirconium, niobium, antium, antimony, vanadium and lead in rats: Life term studies. J. Nutr. 100(1): 59-68.

U.S. EPA. 1987. Health Effects Assessment for Vanadium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H108.

Vernolate
Stauffer Chemical Company. 1983. Confidential Business Information; unpublished study. Accession Nos. 249703-249704.

U.S. EPA. 1983. Health and Environmental Effects Profile for Vernolate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

4-Vinyl-1-Cyclohexene
U.S. EPA. 1983. Health and Environmental Effects Profile for 4-Vinyl-1-cyclohexene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

m-Xylene
NTP (National Toxicology Program). 1986. NTP Technical Report on the Toxicology and Carcinogenesis of Xylenes (Mixed) (60.2% m-Xylene, 13.6% p-Xylene, 17.0% Ethylbenzene and 9.1% o-Xylene) (CAS No. 133-20-7) in F344/N Rats and B6C3F1 Mice (Gavage Studies). NTP TR 327, NIH Publ. No. 86-2583.

Tatrai, E., G. Ungvary, I.R. Cseh, et al. 1981. The effects of long-term inhalation of o-xylene on the liver. End. Environ. Xenobiotics, Proc. Int. Conf. p. 293-300.

U.S. EPA. 1986. Health and Environmental Effects Profile for Xylenes (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Updated Health Effects Assessment for Xylenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

o-Xylene
NTP (National Toxicology Program). 1986. NTP Technical Report on the Toxicology and Carcinogenesis of Xylenes (mixed) (60.2% m-xylene, 13.6% p-xylene, 17.0% ethylbenzene and 9.1% o-xylene) (CAS No. 1330-20-7) in F344/N rats and B6C3F1 mice (gavage studies). U.S. DHHS, PHS, NIH, NTP, Research Triangle Park, NC. NTP TR 327, NIH Publ. No. 86-2583.

Tatrai, E., G. Ungvary, I.R. Cseh, et al. 1981. The effects of long-term inhalation of o-xylene on the liver. End. Environ. Xenobiotics, Proc. Int. Conf. p. 293-300.

Ungvary, G., E. Tatrai, A. Hudak, et al. 1980. The embryotoxic effects of o-, m- and p-xylene. Toxicology. 18(1): 61-74.

U.S. EPA. 1986. Health and Environmental Effects Profile for Xylenes (o-, m-, p-). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Updated Health Effects Assessment for Xylenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

p-Xylene

Hake, C.L., R.D. Steward, A. Wu et al. 1981. Development of a biologic standard for the industrial worker by breath analysis. NIOSH-MCOW-ENUM-XY-77-3. NTIS PB82-152844.

U.S. EPA. 1987. Updated Health Effects Assessment for Xylenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Xylenes, mixed

Carpenter, C.P., E.R. Kinhead, D.L. Geary, et al. 1975. Petroleum hydrocarbon toxicity studies. V. Animal and human response to vapors of mixed xylenes. Toxicol. Appl. Pharmacol. 33(3): 543-558.

Litton Bionetics. 1978. Teratology study in rats: Xylene. Final Report to American Petroleum Institute, Washington, DC. LBI Project No. 20698-5. FYI-AX-0183-0231.

Hake, C.L., R.D. Steward, A. Wu et al. 1981. Development of a biologic standard for the industrial worker by breath analysis. NIOSH-MCOW-ENUM-XY-77-3. NTIS PB82-152844.

NTP (National Toxicology Program). 1986. NTP Technical Report on the Toxicology and Carcinogenesis of Xylenes (Mixed) (60.2% m-Xylene, 13.6% p-Xylene, 17.0% Ethylbenzene and 9.1% o-Xylene) (CAS No. 133-20-7) in F344/N Rats and B6C3F1 Mice (Gavage Studies). NTP TR 327, NIH Publ. No. 86-2583.

U.S. EPA. 1989. Updated Health Effects Assessment for Xylenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Zinc

Pories, W.J., J.H. Henzel, C.G. Rob and W.H. Strain. 1967. Acceleration of wound healing in man with zinc sulfate given by mouth. Lancet. 1: 121-124.

Prasad, A.S., E.B. Schoomaker, J. Ortega et al. 1975. Zinc deficiency in sickle cell disease. Clin. Chem. 21: 582-587.

U.S. EPA. 1984. Health Effects Assessment for Zinc. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Zinc cyanide
Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. Agric. Food Chem. 3: 325-329.

Philbrick, D.J., J.B. Hopkins, D.C. Hill, J.C. Alexander and R.G. Thomson. 1979. Effects of prolonged cyanide and thiocyanate feeding in rats. J. Toxicol. Environ. Health. 5: 579-592.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Zinc phosphide
Bai, K.M., M.K. Krishnakumari, J.P. Ramesh, T. Shivanandappa and S.K. Majunder. 1980. Short-term toxicity study of zinc phosphide in albino rats. Indian J. Exptl. Biol. 18: 854-857.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Zineb
Blackwell-Smith, R.J., Jr. J.K. Finnegan, P.S. Larson, et al. 1953. Toxicologic studies on zinc and disodiumethylenebisdithiocarbamates. J. Pharmacol. Exp. Ther. 109: 159-166.

U.S. EPA. 1984. Health and Environmental Effects Profile for Zineb. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acephate
Chevron Chemical Company. 1982. MRID No. 00105197

U.S. EPA. 1984. Health and Environmental Effects Profile for Acephate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acrolein
U.S. EPA. 1987. Health Effects Assessment for Acrolein. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acrylamide
Johnson, K., S. Gorzinski, K.M. Bodner, et al. 1986. Chronic toxicity and oncogenicity study on acrylamide incorporated in the drinking water of Fisher 344 rats. Dow Chemical, U.S.A., Midland, MI.

U.S. EPA. 1985. Health and Environmental Effects Profile for Acrylamide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Acrylonitrile
Bio/dynamics, Inc. 1980a. A 24-month oral toxicity/carcinogenicity study of acrylonitrile administered to Spartan rats in the drinking water. Final Report. Vol. 1 and 2. Prepared by Bio/dynamics, Inc., Division of Biology and Safety Evaluation, East Millstone, NJ, under Project No. 77-1745 for Monsanto Company, St. Louis, MO. (Cited in U.S. EPA, 1983a)

Bio/dynamics, Inc. 1980b. A 24-month oral toxicity/carcinogenicity study of acrylonitrile administered in drinking water to Fischer 344 rats. Final Report. Vol. 1-4. Prepared by Bio/dynamics, Inc., Division of Biology and Safety Evaluation, East Millstone, NJ, under Project No. 77-1744 (BDN-77-27) for Monsanto Company, St. Louis, MO. (Cited in U.S. EPA, 1983a)

O'Berg, M. 1980. Epidemiologic study of workers exposed to acrylonitrile. J. Occup. Med. 22: 245-252.

Quast, J.F., C.E. Wade, C.G. Humiston et al. 1980. A 2-year toxicity and oncogenicity study with acrylonitrile incorporated in the drinking water of rats. Prepared by the Toxicology Research Laboratory, Health and Environmental Research, Dow Chemical USA, Midland, MI, for the Chemical Manufacturers Association, Washington, DC. (Cited in U.S. EPA, 1983a)

U.S. EPA. 1983. Health Assessment Document for Acrylonitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-82-007F. NTIS PB84-149152.

U.S. EPA. 1987. Health Effects Assessment for Acrylonitrile. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Alachlor

U.S. EPA. 1984. Health and Environmental Effects Profile for Alachlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1988. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Aldrin

Davis, K.J. 1965. Pathology report on mice for aldrin, dieldrin, heptachlor, or heptachlor epoxide for two years. Int. Food. Drug Admin.

Davis, K.J. and O.G. Fitzhugh. 1962. Tumorigenic potential of aldrin and dieldrin for mice. Toxicol. Appl. Pharmacol. 4: 187-189.

Epstein, S.S. 1975. The carcinogenicity of dieldrin. Part I. Sci. Total Environ. 4: 1-52.

NCI (National Cancer Institute). 1977. Bioassays of aldrin and dieldrin for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 21. (Also published as NTIS PB-275-666)

U.S. EPA. 1986. Carcinogenicity Assessment of Aldrin and Dieldrin. December 1986 Review Draft. Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Aldrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Allyl chloride
U.S. EPA. 1983. Health and Environmental Effects Profile for Chloropropenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheets and input onto IRIS.

Aniline
CIIT (Chemical Industry Institute of Toxicology). 1982. 104-Week chronic toxicity study in rats: Aniline hydrochloride. Final Report.

U.S. EPA. 1985. Health and Environmental Effects Profile for Aniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Aramite
Oser, B.L. and M. Oser. 1962. 2-(p-tert-Butylphenoxy)isopropyl 2-chloroethyl sulfite (aramite). II. Carcinogenicity. Toxicol. Appl. Pharmacol. 4: 70-88.

Popper, H., S.S. Steinberg, B.L. Oser and M. Oser. 1960. The carcinogenic effect of aramite in rats. Cancer. 13(5): 1035-1046.

U.S. EPA. 1989. Health and Environmental Effects Document for Aramite. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Arsenic
Brown, C.C. and K.C. Chu. 1983a. Approaches to epidemiologic analysis of prospective and retrospective studies: Example of lung cancer and exposure to arsenic. In: Risk Assesment: Proc. SIMS Conference on Environmental Epidemiology, June 28-July 2, 1982, Alta UT. SIAM Publication.

Brown, C.C. and K.C. Chu. 1983b. Implications of the multistage theory of carcinogenesis applied to occupational arsenic exposure. J. Nat. Cancer Inst. 70: 455-463.

Brown, C.C. and K.C. Chu. 1983c. A new method for the analysis of cohort studies; implications of the multistage theory of carcinogenesis applied to occupational arsenic exposure. Environ. Health Persp. 50: 293-308.

Enterline, P.E. and G.M. Marsh. 1982. Cancer among workers exposed to arsenic and other substances in a copper smelter. Am. J. Epidemiol. 116: 895-911.

Higgins, I. 1982. Arsenic and respiratory cancer among a sample of Anaconda smelter workers. Report submitted to the Occupational Safety Health Administration in the comments of the Kennecott Minerals on the inorganic arsenic rulemaking (Exhibit 203-5).

Lee-Feldstein, A. 1983. Arsenic and respiratory cancer in man: Follow-up of an occupational study. In: Arsenic: Industrial, Biomedical, and Environmental Perspectives, W. Lederer and R. Fensterheim, Eds. Van Nostrand Reinhold, New York.

U.S. EPA. 1984a. Health Effects Assessment for Arsenic. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1984b. Health Assessment Document for Inorganic Arsenic. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8/83-021F. NTIS PB84-190891.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Asbestos

NTP (National Toxicology Program). 1985. Toxicology and carcinogenesis studies of chrysotile asbestos (CAS No. 1200-29-5) in F344/N rats (feed studies) technical report series No. 295.

U.S. EPA. 1985. Drinking Water Criteria Document for Asbestos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Draft. NTIS PB 86-118262.

U.S. EPA. 1986. Airborne Asbestos Health Assessment Update. Prepared by the Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-84/003F.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Azobenzene

NCI (National Cancer Institute). 1979. Bioassay of azobenzene for possible carcinogenicity. NCI Carcinogenesis Technical Report Series. No. 154. U.S. DHEW Publ. No. (NIH) 79-1710. p. 112.

U.S. EPA. 1985. Health and Environmental Effects Profile for Azobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzene

Ott, M.G., J.C. Townsend, W.A. Fishbeck and R.A. Langner. 1978. Mortality among workers occupationally exposed to benzene. Arch. Environ. Health. 33: 3-10.

Rinsky, R.A., R.J. Young and A.B. Smith. 1981. Leukemia in benzene workers. Am. J. Ind. Med. 2: 217-245.

U.S. EPA. 1985. Interim Quantitative Cancer Unit Risk Estimates Due to Inhalation of Benzene. Prepared by the Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC for the Office of Air Quality Planning and Standards, Washington, DC.

U.S. EPA. 1987. Memorandum from J. Orme HEB, CSD/ODW to C. Vogt, Criteria and Standards Division, ODW, June, 1987.

U.S. EPA. 1989. Updated Health Effects Assessment for Benzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Wong, O., R.W. Morgan and M.D. Whorton. 1983. Comments on the NIOSH study of leukemia in benzene workers. Technical report submitted to Gulf Canada, Ltd., by Environmental Health Associates, August 31. (Cited in U.S. EPA, 1985)

Benzidine

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Benzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-023. NTIS PB 81-117343.

U.S. EPA. 1986. Health and Environmental Effects Profile for Benzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Benzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Zavon, M.R., U. Hoegg and E. Bingham. 1973. Benzidine exposure as a cause of bladder tumors. Arch. Environ. Health. 27: 1-73.

Benzo(a)anthracene

U.S. EPA. 1984. Health Effects Assessment for Selected PAHs. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Benzo(a)pyrene

Neal, J. and R.H. Rigdon. 1967. Gastric tumors in mice fed benzo[a]pyrene: A quantitative study. Tex. Rep. Biol. Med. 25: 553.

Thyssen, J., J. Althoff, G. Kimmerle and U. Mohr. 1981. Inhalation studies with benzo[a]pyrene in Syrian golden hamsters. J. Natl. Cancer Inst. 66(3): 575-577.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Polynuclear Aromatic Hydrocarbons. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-069. NTIS PB 81-117806.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Benzo(b)fluoranthene

U.S. EPA. 1984. Health Effect Assessment for PAHs. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Benzo(k)fluoranthene
U.S. EPA. 1987. Health and Environmental Effects Profile for Benzo(k)-fluoranthene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Benzotrichloride
Fukuda, K., H. Metsushita and K. Takemoto. 1978. Carcinogenicity of benzotrichloride by the oral route of administration (J-4774). In: Proc. 52nd Ann. Meet. Japanese Industrial Health Assoc. TSCA 8E Submission Document No. 88-8000360, Fiche #204867. p. 516-517.

U.S. EPA. 1986. Health and Environmental Effects Profile for Benzotrichloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Benzyl Chloride
Lijinski, W. 1986. Chronic bioassay of benzyl chloride in F344 rats and (C57BL/6J x BALB/c)F_1 mice. J. Natl. Cancer Inst. 76:1231-1236.

U.S. EPA. 1986. Health and Environmental Effects Profile for Benzyl Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Beryllium
Schroeder, H.A. and M. Mitchener. 1975. Life-term studies in rats: Effects of aluminum, barium, beryllium and tungsten. J. Nutr. 105(4): 421-427.

U.S. EPA. 1986. Drinking Water Criteria Document for Beryllium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC.

U.S. EPA. 1987. Health Assessment Document for Beryllium. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-84-026F.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Wagoner, J.K., P.F. Infante and D.L. Bayliss. 1980. Beryllium: An etiologic agent in the induction of lung cancer, nonneoplastic respiratory disease, and heart disease among industrially exposed workers. Environ. Res. 21: 15-34.

Bis (2-chloroethyl)ether
Innes, J.R.M., B.M. Ulland, M.G. Valerio et al. 1969. Bioassay of pesticides and industrial chemicals for tumorigenicity in mice: A preliminary note. J. Natl. Cancer Inst. 42: 101-1114.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chloroalkyl Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-030. NTIS PB 81-117418.

U.S. EPA. 1987. Health Effects Assessment for Bis(2-Chloroethyl)Ether. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bis(choromethyl)ether
Kuschner, M., S. Laskin, R.T. Drew, et al. 1975. Inhalation carcinogenicity of alpha halo ethers: III. Lifetime and limited period inhalation studies with bis(chloromethyl) ether at 0.1 ppm. Arch. Environ. Health. 30(2): 73-77.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bis(2-chloro-1-methylethyl)ether
NTP (National Toxicology Program). 1982. Carcinogenic Bioassay of Bis(2-Chloro-1-Methylethyl) Ether (≈70%) Containing 2-Chloro-1-Ethylethyl-(2-Chloropropyl) Ether (≈30%) in B6C3F1 Mice (Gavage Study). NCI Carcinogen. Tech. Rep. Ser. No. 239. 105 p. [Also publ. as DHHS (NIH) 83-1795.]

U.S. EPA. 1987. Health and Environmental Effects Document for Haloethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Bis(2-ethylhexyl) phthalate
NTP (National Toxicology Program). 1982. Carcinogenesis bioassay of di(2-ethylhexyl) phthalate (CAS No. 117-81-7) in F344 rats and B6C3F1 mice (feed study). NTP Tech. Report. Ser. No. 217, NIH/PUB-82-1773.

U.S. EPA. 1986. Health and Environmental Effects Profile for Phthalic Acid Alkyl, Aryl and Alkyl/Aryl Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Bromodichloromethane

NTP (National Toxicology Program). 1986. NTP technical report on the toxicology and carcinogenesis studies of bromodichloromethane (CAS No. 75-27-4) in F344 rats and B6C3F1 mice (gavage studies). Board Draft. NTP, Research Triangle Park, NC. NTP TR 321.

U.S. EPA. 1987. Health Effects Assessment for Trihalogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H083.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Bromoethene

Benya, T.J., W.M. Basey, M.A. Dorato and P.E. Berteau. 1982. Inhalation carcinogenicity bioassay of vinyl bromide in rats. Toxicol. Appl. Pharmacol. 64:367-379.

U.S. EPA. 1984. Health and Environmental Effects Profile for Bromoethene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Bromoform

NTP (National Toxicology Program). 1988. Technical Report on the toxicology and carcinogenesis studies of trihalomethane (bromoform) (CAS No. 75-25-2) in F344/N rats and B6C3F1 mice (gavage studies). Board Draft.

U.S. EPA. 1989. Health and Environmental Effects Document for Bromoform. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

1,3-Butadiene

Hazleton Laboratories. 1981. The Toxicity and Carcinogenicity of Butadiene Gas Administered to Rats by Inhalation for Approximately 24 Months. Prepared for the International Institute of Synthetic Rubber Producers, New York, NY. Unpublished. (Cited in U.S. EPA, 1985)

U.S. EPA. 1985. Mutagenicity and Carcinogenicity Assessment of 1,3-Butadiene. Office of Health and Environmental Assessment, Washington, DC. EPA 600/8-85-004F. NTIS PB86-125507.

U.S. EPA. 1989. Health and Environmental Effects Document for 1,3-Butadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Butyl benzyl phthalate

U.S. EPA. 1987. Health Effects Assessment for Selected Phthalic Acid Esters. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cadmium

Thun, M.J., T.M. Schnorr, A.B. Smith and W.E. Halperin. 1985. Mortality among a cohort of U.S. cadmium production workers: An update. J. Natl. Cancer Inst. 74(2): 325-333.

U.S. EPA. 1984. Health Effects Assessment for Cadmium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Updated mutagenicity and Carcinogenicity Assessment of Cadmium: Addendum to the Health Assessment Document for Cadmium (May 1981, EPA 600/8-81-023). EPA 600/8-83-025F.

U.S. EPA. 1988. Updated Health Effects Assessment for Cadmium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Captafol

U.S. EPA. 1984. Health and Environmental Effects Profile for Captafol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Captan
U.S. EPA. 1984. Health and Environmental Effects Profile for Captan. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1988. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Workgroup Verified, pending concurrence on final coversheet and input onto IRIS.

Carbazole
Tsuda, H., A. Haziwara, M. Shibata, M. Ohsima and N. Ito. 1982. Carcinogenic effect of carbazole in the liver of (C57BL/6N x C3H/HeN)F_1 mice. J. Natl. Cancer Inst. 69:1383-1389.

U.S. EPA. 1986. Health and Environmental Effects Profile for Carbazole. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Carbon tetrachloride
Della Porta, G.B., B. Terracini and K.P. Shubik. 1961. Induction with carbon tetrachloride of liver cell carcinomas in hamsters. J. Natl. Cancer Inst. 26: 855-863.

Edwards, J., W.E. Heston and H.A. Dalton. 1942. Induction of the carbon tetrachloride hepatoma in strain L mice. J. Natl. Cancer Inst. 3: 297-301.

NCI (National Cancer Institute). 1976. Report on the Carcinogenesis Bioassay of Chloroform. Carcinogenesis Program, Division of Cancer Cause and Prevention, Washington, DC.

U.S. EPA. 1984a. Health Assessment Document for Carbon Tetrachloride. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. EPA-600/8-82-001F. NTIS PB 85-124196.

U.S. EPA. 1984b. Health Effects Assessment for Carbon Tetrachloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chloranyl
BRL (Bionetics Research Labs, Inc.). 1968. Evaluation of carcinogenic, teratogenic and mutagenic activities of selected pesticides and industrial chemicals. Volume I: Carcinogenic Study. NTIS PB 223159.

U.S. EPA. 1986. Health and Environmental Effects Profile for Chloranyl. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chlordane
IRDC (International Research and Development Corporation). 1973. Unpublished report to Velsicol Chemical Corporation, Eighteen Month Oral Carcinogenic Study in Mice, December 14, 1973.

NCI (National Cancer Institute). 1977. Bioassay of Chlordane for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 8. Also publ. as DHEW Publ. No. (NIH) 77-808.

U.S. EPA. 1986. Carcinogenicity Assessment of Chlordane and Heptachlor/Heptachlor Epoxide. Prepared by the Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC. EPA-600/6-87-004. Final Report.

U.S. EPA. 1988. Updated Health Effects Assessment for Chlordane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

4-Chloroaniline
NCI (National Cancer Institute). 1979. Bioassay of p-chloroaniline for possible carcinogenicity. NCI Carcinogenesis Tech Rep. Ser. No. 189. NTIS PB295896.

U.S. EPA. 1987. Health and Environmental Effects Document for Chloroanilines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Chlorodibromomethane
NTP (National Toxicology Program). 1985. Toxicology and carcinogenesis studies of chlorodibromomethane (CAS No. 124-48-1) in F/344/N rats and B6C3F1 mice. NTP Tech. Rep. Ser. No. 282, DHHS No. NIH 85-2538.

U.S. EPA. 1987. Health Effects Assessment for Trihalogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H083.

Chloroform
Jorgenson, T.A., E.F. Meierhenry, C.J. Rushbrook et al. 1985. Carcinogenicity of chloroform in drinking water to male Osborne-Mendel rats and female B6C3F1 mice. Fund. Appl. Toxicol. (U.S.A.) 5(4): 760-769.

NCI (National Cancer Institute). 1976. Report on Carcinogenesis Bioassay of Chloroform. NTIS PB264-018.

U.S. EPA. 1985. Health Assessment Document for Chloroform. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH Research Triangle Park, NC. EPA 600/8-84-004F. NTIS PB86-105004.

U.S. EPA. 1988. Updated Health Effects Assessment for Chloroform. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chloromethane

CIIT (Chemical Industry Institute of Toxicology). 1981. Final report on 24-month inhalation study on methyl chloride. Prepared by Battelle-Columbus Laboratories, Columbus, OH. December 31.

NIOSH (National Institute for Occupational Safety and Health). 1984. Carcinogenic Risk Assessment for Occupational Exposure to Monohalomethanes. NTIS PB85-111623.

U.S. EPA. 1986. Health and Environmental Effects Profile for Methyl Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Chloromethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

4-Chloro-2-methylaniline

U.S. EPA. 1986. Health and Environmental Effects Profile for 4-Chloro-2-methylaniline and 4-Chloro-2-methylaniline hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2:325-356.

4-Chloro-2-methylaniline hydrochloride

U.S. EPA. 1986. Health and Environmental Effects Profile for 4-Chloro-2-methylaniline and 4-Chloro-2-methylaniline hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2: 325-356.

Chloromethyl methyl ether

U.S. EPA. 1987. Health and Environmental Effects Document for Haloethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

o-Chloronitrobenzene
U.S. EPA. 1985. Health and Environmental Effects Profile for Chloronitrobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2:325-356.

p-Chloronitrobenzene
U.S. EPA. 1985. Health and Environmental Effects Profile for Chloronitrobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2:325-356.

Chlorthalonil
NCI (National Cancer Institute). 1978. Bioassay of chlorothalonil for possible carcinogenicity. DHEW Publ. NIH-78-841, NCI-CG-TR-41. NTIS PB-286369.

U.S. EPA. 1984. Health and Environmental Effects Profile for Chlorthalonil. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Chromium (VI)
Mancuso, T.F. 1975. International Conference on Heavy Metals in the Environment, Toronto, Canada, Oct. 27-31. (Cited in U.S. EPA, 1984)

U.S. EPA. 1984a. Health Assessment Document for Chromium. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. EPA-600/8-83-014F. NTIS PB 85-115905.

U.S. EPA. 1984b. Health Effects Assessment for Hexavalent Chromium. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Integrated Risk Information System (IRIS). Risk estimate for carcinogenicity for chromium(VI). Online. (Verification date 06/26/86.) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Chrysene
U.S. EPA. 1984. Health and Environmental Effects Profile for Chrysene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Coal tars
Mazumdar, S., C. Redmond, W. Sollecito and N. Sussman. 1975. An epidemiological study of exposure to coal-tar-pitch volatiles among coke oven workers. APCA J. 25(4): 382-389.

Redmond, C.K., H.S. Wieand, H.E. Rockette et al. 1979. Long-term mortality experience of steelworkers. Prepared under Contract No. HSM-99-71-32. NIOSH, Cincinnati, OH. June.

U.S. EPA. 1984. Carcinogen Assessment of Coke Oven Emissions. Office of Health and Environmental Assessment, Washington, DC. EPA-600/6-82-003F. NTIS PB 84-170182.

Creosote
U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Cresol, o-, m- and p-
U.S. EPA. 1984. Health and Environmental Effects Profile for Cresols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Crotonaldehyde
Chung, F.L., T. Tamaka and S.S. Hecht. 1986. Induction of liver tumors in F344 rats by crotonaldehyde. Can. Res. 46: 1285-1289.

U.S. EPA. 1989. Health and Environmental Effects Document for Crotonaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

DDD
Tomatis, L., V. Turusov, R.T. Charles and M. Boicchi. 1974. Effect of long-term exposure to 1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene, to 1,1-dichloro-2,2-bis(p-chlorophenyl)-ethane, and to the two chemicals combined on CF-1 mice. J. Natl. Cancer Inst. 52(3): 883-891.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

DDE
NCI (National Cancer Institute). 1978. Bioassay of DDT, TDE and p,p' -DDE for possible carcinogenicity. NCI Report No. 131. DHEW Publ. No, (NIH) 78-1386.

Rossi, L., O. Barbieri, M. Sanguineti, J.R.P. Cabral, P. Bruzzi and L. Santi. 1983. Carcinogenicity study with technical-grade DDT and DDE in hamsters. Cancer Res. 43: 776-781. (Cited in U.S. EPA, 1988)

Tomatis, L., V. Turusov, R.T. Charles and M. Boicchi. 1974. Effect of long-term exposure to 1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene, to 1,1-dichloro-2,2-bis(p-chlorophenyl)-ethane, and to the two chemicals combined on CF-1 mice. J. Natl. Cancer Inst. 52(3): 883-891

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

DDT
U.S. EPA. 1984. Health Effects Assessment for DDT. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. EPA 540/1-86-026.

U.S. EPA. 1986. The Assessment of the Carcinogenicity of Dicofol (Kelthane), DDT, DDE and DDD (TDE). Office of Health and Environmental Assessment, Washington, DC. EPA/600/6-86/001. NTIS PB87-110904.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Decabromodiphenyl oxide
U.S. EPA. 1984. Health and Environmental Effects Profile for Brominated Diphenyl Ethers. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1987. Health and Environmental Effects Profile for Decabromodiphenyl Oxide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Diallate
BRL (Bionetics Research Labs, Inc.) 1968. Evaluation of carcinogenic, teratogenic, and mutagenic activities of selected pesticides and industrial chemicals, Vol. 1, Carcinogenic Study. Prepared for National Cancer Institute, U.S. Department of Commerce, Washington, DC. NTIS PB-223159.

Innes, J.R.M., B.M. Ulland, M.G. Valerio, et al. 1969. Bioassay of pesticides and industrial chemicals for tumorigenicity in mice: A preliminary note. J. Natl. Cancer Inst. 42:1101-1114.

U.S. EPA. 1983. Health and Environmental Effects Profile for Diallate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Dibenzo(a,h)anthracene
U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Dibenzofuran
U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Dibromochloromethane
NTP (National Toxicology Program). 1985. Toxicology and carcinogenesis studies of chlorodibromomethane in F344/N rats and B6C3F1 mice. NTP Technical Report Series No. 282. NTIS/PB86-166675.

U.S. EPA. 1987. Health Effects Assessment for Trihalogenated Methanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989a. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

U.S. EPA. 1989b. Health and Environmental Effects Document for Dibromochloromethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,2-Dibromo-3-chloropropane
SRC. 1982. Review of Toxicologic Data in Support of Evaluation for Carcinogenic Potential of 1,2-Dibromo-3-chloropropane. TR-82-723. (Cited in U.S. EPA, 1986)

U.S. EPA. 1985. Drinking Water Criteria Document for Dibromochloropropane. ECAO-CIN-410.

U.S. EPA. 1986. Carcinogen Assessment Group (CAG) Profiles. Prepared by the Carcinogen Assessment Group. Available through RCRA/Superfund Docket.

1,2-Dibromoethane
NCI (National Cancer Institute). 1978. Bioassay of 1,2-dibromoethane for possible carcinogenicity. NCI Carcinogenesis Technical Report Series No. 86. PB-288-428 [Also published as CHHA (NIH) 78-1336]. p. 64.

NTP (National Toxicology Program). 1982. Carcinogenesis bioassay of 1,2-dibromoethane in F344 rats and B6C3F1 mice (Inhalation Study), NTP Series No. 210. NIH Pub. No. 82-1766.

U.S. EPA. 1984. Health and Environmental Effects Profile for 1,2-Dibromoethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Ethylene Dibromide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,4-Dichlorobenzene
NTP (National Toxicology Program). 1986. Toxicology and Carcinogenesis Studies of 1,4-Dichlorobenzene in F344/N Rats and B6C3F1 Mice -- Galley Draft. U.S. DHHS, PHS. NIH Tech. Rep. Ser. No. 319.

U.S. EPA. 1987. Health Effects Assessment for Dichlorobenzenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

3,3'-Dichlorobenzidine
Stula, E.F., H. Sherman, J.A. Zapp, et al. 1975. Experimental neoplasia in rats from oral administration of 3,3'-dichlorobenzidine, 4,4'-methylene-bis(2-chloroaniline) and 4,4'-methylene-bis (2-methylaniline). Toxicol. Appl. Pharmacol. 31: 159-175.

U.S. EPA. 1988. Health and Environmental Effects Document for 3,3'-Dichlorobenzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC. EPA 600/8-89/011.

1,4-Dichloro-2-butene
E.I. Dupont de Nemours and Co. 1986. Long-term Inhalation study with 1,4-dichlorobutene-2 (DCB) in rats. Final report OTS 8(e) Fiche 0509754.

U.S. EPA. 1987. Health and Environmental Effects Document for Dichlorobutenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1-Dichloroethane
NCI (National Cancer Institute). 1978. Bioassay of 1,1-dichloroethane for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 66, DHEW Publ. No. (NIH) 78-1316.

U.S. EPA. 1984. Health Effects Assessment for 1,1-Dichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for Dichloroethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,2-Dichloroethane
NCI (National Cancer Institute). 1978. Bioassay of 1,2-dichloroethane for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 55, DHEW Publ. No. (NIH) 78-1361.

U.S. EPA. 1985. Health Assessment Document for 1,2-Dichloroethane. EPA 600/8-84-006F.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1-Dichloroethylene
Maltoni, C., G. Lefemine, P. Chieco et al. 1985. Experimental research on vinylidene chloride carcinogenesis. In: Archives of Research on Industrial Carcinogenesis, Vol. 3, C. Maltoni and M. Mehlman, Ed. Princeton Scientific Publishers, Princeton, NJ.

NTP (National Toxicology Program). 1982. Carcinogenesis bioassay of vinylidene chloride (CAS No. 75-35-4) in F344 rats and B6C3F1 mice (gavage study). NTP Tech. Rep. Ser. No. 228, DHHS No. NIH 82-1784.

U.S. EPA. 1985. Health Assessment Document for Vinylidene Chloride. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-83-031F. NTIS PB 86-100641.

U.S. EPA. 1988. Updated Health Effects Assessment for 1,1-Dichloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2-Dichloropropane
NTP (National Toxicology Program). 1986. NTP Technical Report on the Carcinogenesis Studies of 1,2-Dichloropropane (Propylene Dichloride). (CAS No. 78-87-5) in F344/N rats and B6C3F1 mice (gavage studies). NTP-82-092, NIH Publ. No. 84-2519, NTP TR 263. U.S. DHHS, PHS, NIH. August, 1986. Draft.

U.S. EPA. 1987. Health Effects Assessment for 1,2-Dichloropropane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,3-Dichloropropene
Lomax, L.G., W.T. Stott, K.A. Johnson, L.L. Calhoun, B.L. Yano and J.F. Quast. 1989. The chronic toxicity and oncogenicity of inhaled technical grade 1,3-dichloropropene in rats and mice. Fund. Appl. Toxicol. 12: 418-431.

NTP (National Toxicology Program). 1985. Toxicology and carcinogenesis studies of telone II in F344/N rats and B6C3F1 mice. U.S. Dept. Health and Human Services, Technical Report Ser. No. 269.

U.S. EPA. 1985. Health and Environmental Effects Profile for 1,3-Dichloropropene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for 1,3-Dichloropropene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Dieldrin
Davis, K.J. 1965. Pathology report on mice fed aldrin, dieldrin, heptachlor or heptachlor epoxide for two years. Int. Food Drug Admin.

Meierhenrey, E.F., B.H. Reuber, M.E. Gershwin et al. 1983. Dieldrininduced mallory bodies in hepatic tumors of mice of different strains. Hepatology. 3: 90-95.

NCI (National Cancer Institute). 1978. Bioassays of aldrin and dieldrin for possible carcinogenicity. National Cancer Institute Carcinogen. Tech. Rep. Ser. No. 22. NCI-CG-TR-22. [Also publ. as DHEW Publ. No. (NIH) 78-882.]

Tennekes, H.A., A.S. Wright, K.M. Dix and J.H. Koeman. 1981. Effects of dieldrin, diet and bedding on enzyme function and tumor incidences in livers of male CF-1 mice. Cancer Res. 41: 3615-3620.

Thorpe, E. and A.I. Walker. 1973. Toxicity of dieldrin (HEOD). II. Comparative long-term oral toxicity studies in mice with dieldrin, DDT, phenobarbitone, beta-BHC and gamma-BHC. Food Cosmet. Toxicol. 11(3): 433-443.

U.S. EPA. 1987. Health Effects Assessment for Dieldrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Walker, A.I.T., E. Thorpe and D.E. Stevenson. 1972. The toxicology of dieldrin (HEOD): I. Long-term oral toxicity studies in mice. Food Cosmet. Toxicol. 11: 415-432.

Diethylstilbestrol
SRC. 1983. Teview of Toxicologic Data in Support of Evaluation for Carcinogenic Potential of Diethylstilbestrol. TR-83-562.

U.S. EPA. 1986. Carcinogen Assessment Group (CAG) Profiles. Prepared by the Carcinogen Assessment Group. Available through RCRA/Superfund Docket.

3,3'-Dimethoxybenzidine
OSHA/NIOSH (Occupational Safety and Health Administration/National Institute for Occupational Safety and Health). 1980. Health hazard, alert benzidine, o-tolidine and o-dianisidine based dyes. DHHS (NIOSH) Publ. No. 81-106.

Sellakumar, A.R., R. Montesano and A. Saffioti. 1969. Aromatic amines carcinogenicity in hamsters. Proc. Am. Assoc. Cancer Res. 10:78.

U.S. EPA. 1987. Health and Environmental Effects Profile for 3,3'-Dimethoxybenzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2,4-Dimethylaniline
U.S. EPA. 1987. Health and Environmental Effects Profile for 2,4-Dimethylaniline and 2,4-Dimethylaniline hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2:325-356.

2,4-Dimethylaniline hydrochloride
U.S. EPA. 1987. Health and Environmental Effects Profile for 2,4-Dimethylaniline and 2,4-Dimethylaniline hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield, F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2:325-356.

3,3'-Dimethylbenzidine
Griswold, D.P., Jr., A.E. Casey, E.K. Weisburger and J.H. Weisburger. 1968. The carcinogenicity of multiple intragastric doses of aromatic and heterocyclic nitro or amino derivatives in young female Sprague-Dawley rats. Cancer Res. 28(5):924-933.

U.S. EPA. 1987. Health and Environmental Effects Profile for 3,3'-Dimethylbenzidine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1-Dimethylhydrazine
Toth, B. 1972. Comparative studies with hydrazine derivatives. Carcinogenicity of 1,1-dimethylhydrazine, unsymmetrical (1,1-DMH) in the blood vessels, lung, kidneys and liver of Swiss mice. Proc. Am. Assoc. Cancer Res. 13:34.

Toth, B. 1973. 1,1-Dimethylhydrazine (unsymmetrical) carcinogenesis in mice. Light microscopic and ultrastructural studies on neoplastic blood vessels. J. Natl. Cancer Inst. 50(1):181-194.

U.S. EPA. 1984. Health and Environmental Effects Profile for 1,1-Dimethylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

1,2-Dimethylhydrazine
Toth, B. and R.B. Wilson. 1971. Blood vessel tumorigenesis by 1,2-dimethylhydrazine dihydrochloride (symmetrical). Am. J. Pathol. 64: 585.

U.S. EPA. 1984. Health and Environmental Effects Profile for 1,2-Dimethylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Dimethyl sulfate
U.S. EPA. 1985. Health and Environmental Effects Profile for Dimethyl sulfate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,4-Dinitrotoluene
Ellis, H.V., S.H. Hageusen, J.R. Jodgson et al. 1979. Mammalian Toxicity of Munition Compounds. Phase III. Effects of Lifetime Exposure. Part I. 2,4-Dinitrotoluene. NTIS AD-A077692. 281 p.

U.S. EPA. 1987. Health Effects Assessment for 2,4- and 2,6-Dinitrotoluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

2,6-Dinitrotoluene
U.S. EPA. 1987. Health Effects Assessment for 2,4- and 2,6-Dinitrotoluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

1,4-Dioxane
NCI (National Cancer Institute). 1978. Bioassay of 1,4-dioxane for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 80. DHEW Publication No. (NIH) PB-285-711.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Ofice, Cincinnati, OH.

1,2-Diphenylhydrazine
NCI (National Cancer Institute). 1978. Bioassay of hydrazobenzene for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 92. DHEW Publ. No. (NIH) 78-1342.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for 1,2-Diphenylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-062. NTIS PB 81-117731.

U.S. EPA. 1987. Health Effects Assessment for 1,2-Diphenylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1988. Health and Environmental Effects Document for 1,2-Diphenylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Direct Black 38
NCI (National Cancer Institute). 1978. 13-Week subchronic toxicity studies of direct blue 6, direct black 38, and direct brown 95 dyes. NCI Carcinogenesis. Tech. Rep. Ser. No. 108. p. 127.

U.S. EPA. 1987. Health and Environmental Effects Profile for Direct Black 38. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Direct Blue 6
NCI (National Cancer Institute). 1978. 13-Week subchronic toxicity studies of direct blue 6, direct black 38, and direct brown 95 dyes. NCI Carcinogenesis. Tech. Rep. Ser. No. 108. p. 127.

U.S. EPA. 1987. Health and Environmental Effects Profile for Direct Blue 6. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Direct Brown 95
NCI (National Cancer Institute). 1978. 13-Week subchronic toxicity studies of direct blue 6, direct black 38, and direct brown 95 dyes. NCI Carcinogenesis. Tech. Rep. Ser. No. 108. p. 127.

U.S. EPA. 1987. Health and Environmental Effects Profile for Direct Brown 95. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Direct Sky Blue 6B
U.S. EPA. 1987. Health and Environmental Effects Profile for Direct Sky Blue 6B. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Epichlorohydrin
Komishi, T., A. Kawabata, A. Denda, et al. 1980. Forestomach tumors induced by orally administered epichlorohydrin in male Wistar rats. Gann. 71: 922-923.

Laskin, S, A.R. Sellakumar, M. Kuschner, et al. 1980. Inhalation carcinogenicity of epichlorohydrin in noninbred Sprague-Dawley rats. J. Natl. Cancer Inst. 65(4): 751-757.

U.S. EPA. 1984. Health Assessment Document for Epichlorohydrin. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-83-032F. NTIS PB85-132363.

U.S. EPA. 1985. Health and Environmental Effects Profile for Epichlorohydrin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Ethyl acrylate
NCI (National Toxicology Program). 1986. Carcinogenesis studies of ethyl acrylate in F344/N rats and B6C3F1 mice (gavage studies).

U.S. EPA. 1987. Health and Environmental Effects Profile for Ethyl Acrylate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Ethylene oxide
Shellings, W.M., C.S. Weil and R.R. Moronpot. 1981. Final Report, Ethylene Oxide, Two Year Inhalation Study. Submitted to the U.S. Environmental Protection Agency by Bushey Run Research Center, Pittsburgh, PA. (Cited in U.S. EPA, 1985)

U.S. EPA. 1985. Health Assessment Document for Ethylene Oxide. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA 600/8-84-009F. NTIS PB86-102597.

Ethylene thiourea
U.S. EPA. 1984. Health and Environmental Effects Profile for Ethylene Thiourea. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Folpet
Chevron Chemical Company. 1982. Chevron study: Lifetime oncogenicity feeding study of pholton technical (SX-946; folpet) in CD-1 (ICR derived) mice. Cited in U.S. EPA, 1987.

U.S. EPA. 1984. Health and Environmental Effects Profile for Folpet. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Formaldehyde
U.S. EPA. 1985. Health and Environmental Effects Profile for Formaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1988a. Review Draft. Addendum to Evaluation of the Potential Carcinogenicity of Formaldehyde.

U.S. EPA. 1988b. Carcinogen Assessment Group (CAG) Profiles. Prepared by the Carcinogen Assessment Group. Available through RCRA/Superfund Docket.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Furozolidone
U.S. DHEW. 1976a. Furozolidone, nihydrazone, furaltadone, nitrofurazone. Withdrawal of proposals and notice of proposed rule making. Federal Register 41: 34884-34921.

U.S. DHEW. 1976b. Furozolidone (NF-180): Notice of Opportunity for hearing on proposal to Withdraw approval of certain new animal drug applications. Federal Register. 41: 19907-19921.

U.S. EPA. 1987. Health and Environmental Effects Document for Nitrofurans. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Furium
Cohen, S.M., E. Erturk and G.T. Bryan. 1970. Production of leukemia and stomach neoplasms in Swiss, R.F., BALB/c and C3H female mice by feeding N-(4,5-nitro-2-furyl-2-thiazolyl)acetamide. Cancer Res. 30(9): 2320-2325.

U.S. EPA. 1987. Health and Environmental Effects Document for Selected Nitrofurans. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Glycidaldehyde
U.S. EPA. 1989. Health and Environmental Effects Document for Glycidaldehyde. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Heptachlor
Davis, K. 1965. Pathology report on mice fed aldrin, dieldrin, heptachlor and heptachlor epoxide for two years. Internal FDA memorandum to Dr. A.J. Lehman, July 19.

Epstein, S.S. 1976. Carcinogenicity of heptachlor and chlordane. Sci. Total Environ. 6: 103-154.

NCI (National Cancer Institute). 1977. Bioassay of Heptachlor for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 9, DHEW No. (NIH) 77-809.

Reuber, M.D. 1977. Histopathology of carcinomas of the liver in mice ingesting heptachlor or heptachlor epoxide. Exp. Cell. Biol. 45: 147-157.

U.S. EPA. 1986. Carcinogenicity Assessment of Chlordane and Heptachlor/Heptachlor Epoxide. Prepared by the Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC. OHEA-C-204.

U.S. EPA. 1987. Health Effects Assessment for Heptachlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Heptachlor epoxide
Davis, K.J. 1965, July 19. Pathology report on mice fed aldrin, dieldrin, heptachlor and heptachlor epoxide for two years. Internal FDA memorandum to Dr. A.J. Lehman.

Velsicol Chemical Corporation. 1973.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorobenzene
Cabral, J.R.P., P. Shubik, T. Mollner et al. 1977. Carcinogenic activity of hexachlorobenzene in hamsters. Nature. 269: 510-511.

U.S. EPA. 1984. Health Effects Assessment for Hexachlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Drinking Water Criteria Document for Hexachlorobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Draft (on Public Comment). EPA-600/X-84-179-1. NTIS PB86-117777.

Hexachlorobutadiene
Kociba, R.J., D.G. Keyes, G.C. Jersey et al. 1977. Results of a two-year chronic toxicity study with hexachlorobutadiene in rats. Am. Ind. Hyg. Assoc. J. 38: 589-602.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Hexachlorobutadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-053. NTIS PB 81-117640.

U.S. EPA. 1984. Health Effects Assessment for Hexachlorobutadiene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane-alpha
Ito, N., H. Nagasaki, M. Aria, et al. 1973. Histological and ultrastructural studies on the hepatocarcinogenicity of benzene hexachloride in mice. J. Natl. Cancer Inst. 51:817-826.

U.S. EPA. 1987. Health and Environmental Effects Profile for Hexachlorocyclohexanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane-beta

Thorpe, E. and A.I.T. Walker. 1973. Toxicology of deldrin (HEOD) II. Comparative long-term oral toxicity studies in mice with dieldrin, DDT, phenobarbitone, beta-HCH and gamma-HCH. Food Cosmet. Toxicol. 11: 433-442.

U.S. EPA. 1987. Health and Environmental Effects Profile for Hexachlorocyclohexanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane-delta

Ito, N., H. Hagasaki, M. Arai, S. Sugihara and S. Makiura. 1973. Histologic and ultrastructural studies on the hepatocarcinogenicity of benzene hexachloride in mice. J. Natl. Cancer Inst. 51(3): 817-826.

Ito, N., H. Nagasaki, H. Aoe, et al. 1975. Brief communication: Development of hepatocellular carcinomas in rats treated with benzene hexachloride. J. Natl. Cancer Inst. 54: 801-805.

Nagasaki, H., S. Tomii, T. Mega, M. Marugami and N. Ito. 1972. Hepatocarcinogenic effect of α-, β-, γ-, δ-isomers of benzene hexachloride in mice. Gann. 63(3): 393.

U.S. EPA. 1987. Health and Environmental Effects Profile for Hexachlorocyclohexanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane, gamma (Lindane)

Thorpe, E. and A.I.T. Walker. 1973. The toxicology of dieldrin (HEOD). II. Comparative long-term oral toxicity studies in mice with dieldrin, DDT, phenobarbitone, beta-BHC and gamma-BHC. Food Cosmet. Toxicol. 11: 433-442.

U.S. EPA. 1984. Health Effects Assessment for Lindane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Health and Environmental Effects Profile for Hexachlorocyclohexanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane-epsilon

Goto, M., M. Hattori, T. Miyagawa and M. Enomoto. 1972. Ecological chemistry. II. Hepatoma formation in mice after administration of high doses of hexachlorocyclohexane isomers. Chemosphere. 1: 279-282.

U.S. EPA. 1987. Health and Environmental Effects Profile for Hexachlorocyclohexanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachlorocyclohexane-technical

Monit, K.M., C.S. Soman and V. Samati. 1983. Hexachlorocyclohexane-induced tumorigenicity in mice under different experimental conditions. Tumorigenicity. 69: 383-386.

U.S. EPA. 1987. Health and Environmental Effects Profile for Hexachlorocyclohexane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hexachloroethane

NCI (National Cancer Institute). 1978. Bioassay of Hexachloroethane for Possible Carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 68, DHEW No. (NIH) 78-1318.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Ethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-029. NTIS PB 81-117400.

U.S. EPA. 1987. Health Effects Assessment for Hexachloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Health and Environmental Effects Document for Hexachloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Hydrazine/Hydrazine sulfate

Biancifiori, C. 1970. Hepatomas in CBA/Cb/Se mice and liver lesions in golden hamsters induced by hydrazine sulfate. J. Natl. Cancer Inst. 44: 943.

MacEwen, J.D., E.H. Vernot, C.C. Haun, E.R. Kinkead and A. Hall, III. 1981. Chronic Inhalation Toxicity of Hydrazine: Oncogenic Effects. Air Force Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, OH. NTIS

U.S. EPA. 1984. Health and Environmental Effects Profile for Hydrazine and Hydrazine Sulfate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Indeno(1,2,3-c,d)pyrene

U.S. EPA. 1990. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Isophorone

NTP (National Toxicology Program). 1986. Toxicology and carcinogenesis studies of isophorone (CAS No. 78-59-1) in F344/N rats and B6C3F1 mice (gavage studies). NTP Tech. Rep. Ser. No. 291, DHHS (NIH) 86-2547.

U.S. EPA. 1986. Health and Environmental Effects Profile for Isophorone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1987. Health Effects Assessment for Isophorone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Lead
U.S. EPA. 1984. Health Effects Assessment for Lead. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methoxychlor
U.S. EPA. 1987. Health and Environmental Effects Profile for Methoxychlor. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2-Methoxy-5-nitroaniline
NCI (National Cancer Institute). 1978. Bioassay of 5-nitro-o-anisidine for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 127. 123 p.

U.S. EPA. 1987. Health and Environmental Effects Profile for 2-Methoxy-5-nitroaniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Methylaniline
Hecht, S.S., A. El-Boyoumy, A. Rivenson and E. Fiala. 1982. Comparative carcinogenicity of o-toluidine hydrochloride and o-nitrotoluene in F-344 rats. Cancer Lett. 16(1): 103-108.

U.S. EPA. 1987. Health and Environmental Effects Profile for 2-Methylaniline and 2-Methylaniline Hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Methylaniline hydrochloride
Hecht, S.S., A. El-Boyoumy, A. Rivenson and E. Fiala. 1982. Comparative carcinogenicity of o-toluidine hydrochloride and o-nitrotoluene in F-344 rats. Cancer Lett. 16(1): 103-108.

U.S. EPA. 1987. Health and Environmental Effects Profile for 2-Methylaniline and 2-Methylaniline Hydrochloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

4,4-Methylenebis benzelamine
NTP (National Toxicology Program). 1983. Carcinogenesis studies of 4,4-methylenedianiline dihydrochloride in F344/N rats and B6C3F1 mice (drinking water studies). NTP-81-143 NIH Publ. No. 83-2504. NTP-TR-248.

U.S. EPA. 1984. Health and Environmental Effects Profile for Benzelamine, 4,4-Methylenebis. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

4,4'-Methylene-bis(N,N'-dimethyl)aniline
NCI (National Cancer Institute). 1979. Bioassay of 4,4'-methylenebis(N,N-dimethyl)benzenamine for possible carcinogenicity. NCI Carcinogen. Tech. Rep. Ser. No. 186. CAS 101-61-1. NCI-CG-TR-186.

U.S. EPA. 1985. Health and Environmental Effects Profile for 4,4'-Methylene-bis(N,N'-dimethyl)aniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methylene chloride
NCA (National Coffee Association). 1983. Twenty-four month oncogenicity study of methylene chloride in mice. Prepared by Hazelton Laboratories, America Inc., Vienna, VA. Unpublished.

NTP (National Toxicology Program). 1986. Toxicology and carcinogenesis studies of dichloromethane (methylene chloride) (CAS No. 75-09-2) in F344/N rats and B6C3F1 mice (inhalation studies). NTP Tech. Rep. Ser. No. 306, DHHS (NIH) 86-2562.

U.S. EPA. 1984. Health Effects Assessment for Methylene Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985. Addendum to the Health Assessment Document for Dichloromethane (methylene chloride). Updated Carcinogenicity Assessment. Prepared by the Carcinogen Assessment Group, Office of Health and Environmental Assessment, Washington, DC. EPA 600/8-82-004FF. NTIS PB 86-123742.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Methyl Ethyl Ketone
U.S. EPA. 1985. Health and Environmental Effects Profile for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1988. Updated Health Effects Assessment for Methyl Ethyl Ketone. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Methylhydrazine
Toth, B. and H. Shimizu. 1973. Methyl hydrazine tumorigenesis in Syrian golden hamsters and the morphology of malignant histiocytomas. Cancer Res. 33: 2744.

U.S. EPA. 1984. Health and Environmental Effects Profile for Methylhydrazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

2-Methyl-5-nitroaniline
NCI (National Cancer Institute). 1978. Bioassay of 5-nitro-o-toluidine for possible carcinogenicity. NCI Carcinogen. Tech. Rep. Ser. No. 107. 102 p.

U.S. EPA. 1987. Health and Environmental Effects Profile for 2-Methyl-5-nitroaniline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Mirex
NTP (National Toxicology Program). 1987. NTP Technical Report on the Toxicology and Carcinogenesis Studies of Mirex (CAS No. 2385-85-5) in F344/N Rats. NTP TR 313 (March, 1987 draft), NIH Publ. No. 87-2569.

U.S. EPA. 1987. Health Effects Assessment for Mirex. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

Niagara Blue 4B
U.S. EPA. 1987. Health and Environmental Effects Profile for Niagara Blue 4B. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Nickel
Chovil, A., R.B. Sutherland and M. Halliday. 1981. Respiratory cancer in a cohort of sinter plant workers. Br. J. Ind. Med. 38: 327-333.

Enterline, P.E. and G.M. Marsh. 1982. Mortality among workers in a nickel refinery and alloy manufacturing plant in West Virginia. J. Nat. Cancer Inst. 68: 925-933.

Magnus, K., A. Andersen and A. Hogetveit. 1982. Cancer of respiratory organs among workers at a nickel refinery in Norway. Int. J. Cancer. 30: 681-685.

Peto, J., H. Cuckle, R. Doll, et al. 1984. Respiratory cancer mortality of Welsh nickel refinery workers. In: Nickel in the Human Environment: Proceedings of a Joint Symposium, March, 1983. IARC Scientific Publ. No. 53. IARC, Lyon, France. p. 36-46.

U.S. EPA. 1984. Health Effects Assessment for Nickel. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1986. Health Assessment Document for Nickel and Nickel Compounds. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-83-012F. NTIS PB 86-232212.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Nitrofurazone

Erturk, E., J.E. Morris, S.M. Cohen, et al. 1970. Transplantable rat mammary tumors induced by 5-nitro-2-furaldehyde semicarbazone and by formic acid 2-[4-(5-nitro-2-furyl)-2-thiazolyl]hydrazide. Cancer Res. 30(5): 1409-1412.

U.S. EPA. 1987. Health and Environmental Effects Document for Selected Nitrofurans. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

2-Nitropropane

Lewis, T.R., C.E. Ulrich and W.M. Busey. 1979. Subchronic inhalation toxicity of nitromethane and 2-nitropropane. J. Environ. Pathol. Toxicol. 2(5):233-249.

U.S. EPA. 1985. Health and Environmental Effects Profile for 2-Nitropropane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1986. Carcinogen Assessment Group (CAG) Profiles. Prepared by the Carcinogen Assessment Group. Available through RCRA/Superfund Docket.

N-Nitrosodi-n-butylamine

Bertram, J.S. and A.W. Craig. 1970. Induction of bladder tumors in mice with dibutylnitrosamines. Br. J. Cancer. 24: 352-359.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosodiethanolamine
Lijinsky, W. and R.M. Kovatch. 1985. Induction of liver tumors in rats by nitrosodiethanolamine at low doses. Carcinogenesis. 6: 1679-1681

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosodiethylamine
Peto, R., R. Gray, P. Brantom and P. Grasso. 1984. Nitrosamine carcinogenesis in 5120 rodents: Chronic administration of 16 different concentrations of NDEA, NDMA, NPYR and NPIP in the water of 4440 inbred rats, with parallel studies on NDEA alone of the effect of age of starting (3, 6 or 20 weeks) and of species (rats, mice or hamsters). IARC Sci. Publ. 57: 627-665.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosodimethylamine
Peto, R., R. Gray, P. Brantom and P. Grasso. 1984. Nitrosamine carcinogenesis in 5120 rodents: Chronic administration of 16 different concentrations of NDEA, NDMA, NPYR and NPIP in the water of 4440 inbred rats, with parallel studies on NDEA alone of the effect of age of starting (3, 6 or 20 weeks) and of species (rats, mice or hamsters). IARC Sci. Publ. 57: 627-665.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosodiphenylamine
NCI (National Cancer Institute). 1979. Bioassay of N-nitrosodiphenylamine (CAS No. 86-30-6) for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 164, NIH 79-1720. NTIS PB298-275.

Peto, R., R. Gray, P. Brantom and P. Grasso. 1984. Nitrosoamine carcinogenesis in 5120 rodents: Chronic administration of 16 different concentrations of NDEA, NDMA, NPYR and NPIP in the water of 4440 inbred rats, with parallel studies on NDEA alone of the effect of age of starting 3, 6 or 20 weeks) and of species (rats, mice or hamsters). IARC Sci. Publ. 57: 627-665.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-064. NTIS PB 81-117756.

U.S. EPA. 1986a. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1986b. Integrated Risk Information System (IRIS). Carcinogenicity Assessment for Lifetime Exposure to N-Nitrosodimethylamine. Online. (Verification date 10/29/86.) Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

U.S. EPA. 1987. Health Effects Assessment for N-Nitrosodiphenylamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosodi-n-propylamine

Druckrey, H. 1967. Quantitative aspects in chemical carcinogens. In: Potential Carcinogenic Hazards from Drugs. UICC Monograph, Series 7. Springer-Verlag, Berlin. p. 60-78.

Druckrey, H., R. Puressman, S. Ivankovic and D. Schmahl. 1967. Organotropic carcinogenic effect of 65 different N-nitroso compounds on BD rats. Z. Krebsforsch. 69: 103-201.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosomethylethylamine

Druckrey, H. 1967. Quantitative aspects in chemical carcinogenesis. In: Potential Carcinogenic Hazards from Drugs. UICC Monograph, Series 7. Springer-Verlag, Berlin. p. 60-78.

Druckrey, H., R. Puressman, S. Ivankovic and D. Schmahl. 1967. Organotropic carcinogenic effect of 65 different N-nitroso compounds on BD rats. Z. Krebsforsch. 69: 103-201.

U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

N-Nitrosomethylvinylamine
U.S. EPA. 1986. Health and Environmental Effects Profile for Nitrosamines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

N-Nitrosopyrrolidine
Preussmann, R., D. Schmahl and G. Eisenbrand. 1977. Carcinogenicity of N-nitrosopyrrolidine: Dose-response study in rats. Z. Krebsforsch. 90: 161-166.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Parathion
U.S. EPA. 1987. Health Effects Assessment for Parathion. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,2,3,4,5-Pentabromo-6-chlorocyclohexane
Blair, E.H. 1981. TSCA sec 8(e) submission 8EHQ-0381-0393; 88-8100295 by Dow Chemical Co. Office of Toxic Substances, U.S. EPA, Washington, DC.

U.S. EPA. 1985. Health and Environmental Effects Profile for 1,2,3,4,5-Pentabromo-6-chlorocyclohexane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Pentachloronitrobenzene
Innes, J.R.M., B.M. Ulland, M.G. Valeria, et al. 1969. Bioassay of pesticides and industrial chemicals for tumorigenicity in mice: A preliminary note. J. Natl. Cancer Inst. 41: 1101-1114.

U.S. EPA. 1986. Health and Environmental Effects Profile for Pentachloronitrobenzene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

o-Phenylenediamine

U.S. EPA. 1985. Health and Environmental Effects Profile for o-Phenylenediamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Weisburger, E.K., A.B. Russfield and F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines of derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2(2): 325-256.

2-Phenylphenol

Hiraga K. and T. Fujii. 1981. Induction of tumours of the urinary system in F344 rats by dietary administration of sodium o-phenylphenate. Food Cosmet. Toxicol. 19(3): 303-310.

U.S. EPA. 1984. Health and Environmental Effects Profile for 2-Phenylphenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Polybrominated biphenyls (PBBs)

NTP (National Toxicology Program). 1983. Carcinogenesis studies of polybrominated biphenyl mixture in F344/N rats and B6C3F1 mice (gavage studies). Firemaster FF-1. Case No. 67774-32-7. NTP, Research Triangle Park, NC.

U.S. EPA. 1989. Health and Environmental Effects Document for Polybrominated Biphenyls (PBBs). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Polychlorinated biphenyls (PCBs)

Norback, D.H. and R.H. Weltman. 1985. Polychlorinated biphenyl induction of hepatocellular carcinoma in the Sprague-Dawley rat. Environ. Health Perspect. 60: 97-105.

U.S. EPA. 1984. Health Effects Assessment for PCBs. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Drinking Water Criteria Document for Polychlorinated Biphenyls (PCBs). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Document.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Propylene oxide
Dunkelberg, H. 1982. Carcinogenicity of ethylene oxide and 1,2-propylene oxide upon intragastric administration to rats. Br. J. Cancer. 46: 924-933.

NTP (National Toxicology Program). 1985. Toxicology and carcinogenesis studies of propylene oxide (CAS No. 75-56-9). in F344/N rats and B6C3F1 mice (inhalation studies). NTP Tech. Rep. Ser. No. 267. NTP, Research Triangle Park, NC. NIH Pub. No. 85-2527.

Renne, R.A., W.E. Giddens, G.A. Boorman, R. Kovatch, J.E. Haseman and W.J. Clarke. 1986. Nasal cavity neoplasia in F344/N rats and (C57BL/6XC3H)F1 mice inhaling propylene oxide for up to two years. J. Natl. Cancer Inst. 77: 573-582.

U.S. EPA. 1985. Health and Environmental Effects Profile for Propylene Oxide. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Quinoline
Hirao, K., Y. Shinohara, H. Tsuda, et al. 1976. Carcinogenic activity of quinloine on rat liver. Cancer Res. 36: 329-335.

U.S. EPA. 1985. Health and Environmental Effects Profile for Quinoline. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

RDX (Cyclonite)
Lish, P.M., B.S. Levine, E.M. Furedi, E.M. Sagartz and V.S. Rac. 1984. Determination of the chronic mammalian toxicological effect of RDX: Twenty-four month chronic toxicity/carcinogenicity study of hexahydra-1,3,5-trinitro-1,3,5-triazine (RDX) in the B6C3F1 hybrid mouse. Phase VI. Vol. 1. ITT Research Institute, Chicago, IL. U.S. Army Medical Research and Development Command, Contract No. DAMD 17-79-C-9161.

U.S. EPA. 1988. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

U.S. EPA, 1989. Health and Environmental Effects Document for RDX (Cyclonite). Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Selenium sulfide
NCI/NTP (National Cancer Institute/National Toxicology Program). 1980. Bioassay of selenium sulfide (gavage) for possible carcinogenicity. NCI Technical Report Series No. 194. NTP No. 80-17.

U.S. EPA. 1989. Health and Environmental Effects Document for Selenium and Compounds. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Simazine
U.S. EPA. 1984. Health and Environmental Effects Profile for Simazine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

Sodium diethyldithiocarbamate
BRL (Bionetics Research Laboratories). 1968. Evaluation of carcinogenic, teratogenic and mutagenic activities of selected pesticides on industrial chemicals. Vol. I. Carcinogenic study. Prepared for National Cancer Institute. U.S. Dept. Commerce, Nat. Tech. Info. Serv., Washington, DC. NTIS PB223159.

U.S. EPA. 1988. Health and Environmental Effects Document for Sodium diethyldithiocarbamate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Styrene
Jeney, G., M. Balner, J. Quast, et al. 1978. Two-year chronic inhalation toxicity and carcinogenicity study on monomeric styrene in rats. Dow Chemical Study for Manufacturing Chemists Association. December 6.

NCI (National Cancer Institute). 1979. National Cancer Institute Technical Report Series, No. 185: Bioassay of Styrene for Possible Carcinogenicity. Litton Bionetics, Inc., Kensington, MD.

U.S. EPA. 1989. Health Effects Assessment for Styrene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

2,3,7,8-TCDD
Kociba, R.J., D.G. Keyes, J.E. Bower et al. 1978. Results of a two-year chronic toxicity and oncogenicity study of 2,3,7,8-tetrachlorodibenzo-p-dioxin in rats. Toxicol Appl. Pharmacol. 46(2): 279-303.

U.S. EPA. 1984. Health Effects Assessment for 2,3,7,8-TCDD. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985a. Drinking Water Criteria Document for 2,3,7,8-Tetrachlorodibenzo-p-dioxin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. EPA 600/X-84-194-I. NTIS PB 86-117983.

U.S. EPA. 1985b. Health Assessment Document for Polychlorinated Dibenzo-p-dioxin. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. EPA 600/8-84-014F. NTIS PB86-122546.

1,1,1,2-Tetrachloroethane

NTP (National Toxicology Program). 1983. Carcinogenesis studies of 1,1,1,2-tetrachloroethane (CAS No. 630-20-6) in F344/N rats and B6C3F1 mice (gavage studies). NTP-81-53; NIH Publ. No. 83-1793; NTP Technical Report Seroes No. 237. NTIS, Springfield, VA.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

1,1,2,2-Tetrachloroethane

NCI (National Cancer Institute). 1978. Bioassay of 1,1,2,2-tetrachloroethane for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 27, DHEW No. (NIH) 78-827.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Ethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-029. NTIS PB 81-117400.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Tetrachloroethylene (Perchloroethylene)

NCI (National Cancer Institute). 1977. Bioassay of tetrachloroethylene (CAS No. 127-18-4) for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 13, DHEW No. (NIH) 78-813.

NTP (National Toxicology Program). 1986. Carcinogenesis bioassay of tetrachloroethylene (perchloroethylene) (CAS No. 127-18-4) in F344 rats and B6C3F1 mice (inhalation study). NTP Tech. Report. Ser. No. 311.

U.S. EPA. 1985. Drinking Water Criteria Document for Tetrachloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC. Final Document. NTIS PB 86-118114.

U.S. EPA. 1986. Addendum to the Health Assessment Document for Tetrachloroethylene (Perchloroethylene): Updated Carcinogenicity Assessment. Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC. EPA/600/8-82/005FA. External Review Draft.

U.S. EPA. 1988. Updated Health Effects Assessment for Tetrachloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC. ECAO-CIN-H009a.

p,α,α,α-Tetrachlorotoluene
Fukada, K.S., Matsashita and K. Takemotol. 1979. Carcinogenicity of p-chlorobenzotrichloride. Proc of Japan Assoc. of Ind. Health. p. 330-331.

U.S. EPA. 1987. Health and Environmental Effects Document for Selected Chlorinated Toluenes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Tetrachlorovinphos (Stirofos)
NCI (National Cancer Institute). 1978. Bioassay of Tetrachlorvinphos for Possible Carcinogenicity. NCI Carcinogen. Tech. Rep. Ser. No. 33. NTIS PB278650.

U.S. EPA. 1984. Health and Environmental Effects Profile for Stirofos. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Thallium and Compounds
U.S. EPA. 1989. Carcinogen Risk Assessment Verification Endeavor (CRAVE) Work Group. Verified, pending concurrence on final coversheet and input onto IRIS.

2,4-Toluenediamine
NCI (National Cancer Institute). 1979. Bioassay of 2,4-diaminotoluene for possible carcinogenicity. NCI Carcinogen. Tech. Rep. Ser. No. 162.

U.S. EPA. 1986. Health and Environmental Effects Profile for 2,4-Toluenediamine. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

o-Toluidine
Hecht, S.S., K. El-Bayoumi, A. Rivenson and E. Finala. 1982. A Study of chemical carcinogenicity of o-toluidine hydrochloride and o-nitrosotoluene in rats. Cancer Lett. 16: 103-108.

U.S. EPA. 1984. Health and Environmental Effects Profile for Toluidines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

p-Toluidine
U.S. EPA. 1984. Health and Environmental Effects Profile for Toluidines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

Weisburger, E.K., A.B. Russfield and F. Homburger, et al. 1978. Testing of twenty-one environmental aromatic amines of derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2(2): 325-256.

Toxaphene
Litton Bionetics, Inc. 1978. Carcinogenic evaluation in mice: Toxaphene. Prepared by Litton Bionetics, Inc., Kensington, MD for Hercules, Inc., Wilmington, DE.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Toxaphene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-076. NTIS PB 81-117863.

U.S. EPA. 1987. Health Effects Assessment for Toxaphene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

2,4,6-Trichloroaniline and 2,4,6-trichloroaniline hydrochloride
Weisburger, E.L., A.B. Russfield, R. Homburger, et al. 1978. Testing of 21 environmental aromatic acmines or derivatives for long-term toxicity or carcinogenicity. J. Environ. Pathol. Toxicol. 2: 235-258.

U.S. EPA. 1987. Health and Environmental Effects Document for Trichloroanilines. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

1,1,2-Trichloroethane
NCI (National Cancer Institute). 1978. Bioassay of 1,1,2-trichloroethane for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 74, DHEW No. NIH 78-1324.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Ethanes. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-029. NTIS PB 81-117400.

U.S. EPA. 1984. Health Effects Assessment for 1,1,2-Trichloroethane. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trichloroethylene
Fukuda, K., K. Takemoto, H. Tsuruta. 1983. Inhalation carcinogenicity of trichloroethylene in mice and rats. Ind. Health 21: 243-254.

Maltoni, C., G. Lefemine, G. Cotti. 1986. Experimental Research on Trichloroethylene Carcinogenesis. Archiv. Res. Industrial Carcinogenesis Series. Maltoni, C., Mehlman, M.A., Eds., Vol. V. Princeton Scientific Publishing Co., Inc., Princeton, NJ, p. 393.

NCI (National Cancer Institute). 1976. Carcinogenesis bioassay of trichloroethylene. NCI Carcinogenesis Tech. Rep. Ser. No. 2, DHEW No. NIH 76-802.

NTP (National Toxicology Program). 1983. Carcinogenesis bioassay of trichloroethylene. NTP Tech Rep. Ser. No. 243, NIH 83-1799.

U.S. EPA. 1985. Health Assessment Document for Trichloroethylene. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH Research Triangle Park, NC. EPA 600/8-82-006F. NTIS PB 85-249696.

U.S. EPA. 1987. Addendum to the Health Assessment Document for Trichloroethylene. Office of Health and Environmental Assessment, Carcinogen Assessment Group, Washington, DC. EPA 600/8-82-006FA. External Review Draft.

U.S. EPA. 1988. Updated Health Effects Assessment for Trichloroethylene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

2,4,6-Trichlorophenol
NCI (National Cancer Institute). 1979. Bioassay of 2,4,6-trichlorophenol for possible carcinogenicity. NCI Carcinogenesis Tech. Rep. Ser. No. 155, DHEW No. NIH 79-1711.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC. EPA-440/5-80-032. NTIS PB 81-117434.

U.S. EPA. 1984. Health Effects Assessment for 2,4,6-Trichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1987. Health and Environmental Effects Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trifluralin
Emmerson, J.L., E.C. Pierce, J.P. McGrath, et al. 1980. The Chronic Toxicity of Compound 36352 (Trifluralin) Given as a Compounds of the Diet to the Fischer 344 Rats for Two Years. Studies R-87 and R-97 (unpublished study received September 18, 1980 under 1471-35; submitted by Elanco Products Co., Division of Eli Lilly and Co., Indianapolis, IN).

U.S. EPA. 1984. Health and Environmental Effects Profile for Trifluralin. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste, Washington, DC.

U.S. EPA. 1990. Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

Trimethyl phosphate
NCI (National Cancer Institute). 1978. Bioassay of trimethylphosphate for possible carcinogenicity. NCI Carcinogen. Tech. Rep.. Ser. No. 81.

U.S. EPA. 1985. Health and Environmental Effects Profile for Trimethyl Phosphate. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

Vinyl chloride
ATSDR (Agency for Toxic Substances and Disease Registry). 1988. First Post-Comment Draft. Revised Toxicological Profile for Vinyl Chloride. U.S. Public Health Service. Public Comment Draft.

Feron, V.J., C.F.M. Hendriksen, A.J. Speek et al. 1981. Lifespan oral toxicity study of vinyl chloride in rats. Food Cosmet. Toxicol. 19(3): 317-333.

Maltoni, C., G. Lefemine, A. Ciliberti et al. 1980. Vinyl chloride carcinogenicity bioassays (BT project) as an experimental model for risk identification and assessment in environmental and occupational carcinogenesis. Epidemiol. Anim. Epidemiol. Hum: Cas Chlorure Vinyle Monomere, (Reun Club Cancerog Chim), 20th, Meeting Date 1979, p. 11-112. Publ Essent, Paris, France.

Maltoni, C., G. Lefemine, A. Ciliberti et al. 1981. Carcinogenicity bioassays of vinyl chloride monomer: A model of risk assessment on an experimental basis. Environ. Health Perspect. 41: 329.

U.S. EPA. 1984. Health Effects Assessment for Vinyl Chloride. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1985a. Drinking Water Criteria Document for Vinyl Chloride. Office of Drinking Water, Washington, DC. Final Draft. NTIS PB86-118320.

U.S. EPA. 1985b. Health and Environmental Effects Profile for Chloroethene. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.