Technical Appendix A

Listing of All Toxicity Weights for TRI Chemicals and Chemical Categories

Table of Contents

1 Introduction 1

2 Parameters 1
2.1 Reference Dose (RfD) or Reference Concentration (RfC) 1
2.2 Oral Slope Factor (Q*) 1
2.3 Inhalation Unit Risk 2
2.4 Weight of Evidence (WOE) 2

3 Chemical Categories and Other Special Cases 2
3.1 Asbestos 3
3.2 Butoxyethyl ester, 2,4-D 3
3.3 Butyl alcohol, tert- and sec- 3
3.4 Chlorophenols 3
3.5 Chromium and Chromium Compounds 3
3.6 Cyanide Compounds 3
3.7 Diaminotoluene (mixed isomers) 3
3.8 Ethylenebisdithiocarbamic (EBDC) acid, salts and esters 4
3.9 Ethylhexyl ester, 2,4-D, 2- 4
3.10 Glycol ethers 4
3.11 Hydrazine sulfate 4
3.12 Lead and Lead Compounds 4
3.13 Maneb 4
3.14 Mercury and Mercury Compounds 4
3.15 Nitrate Compounds 5
3.16 Polycyclic Aromatic Compounds 5
3.17 Sodium dicamba 5
3.18 Sodium nitrite 5
3.19 Strychnine and salts 5
3.20 Thallium and Thallium Compounds 5
3.21 Thorium dioxide 5
3.22 Warfarin and salts 5

4 Sources of Data 6
4.1 IRIS 6
4.2 OPP 6
4.3 ATSDR 6
4.4 CalEPA 7
4.5 PPRTVs 7
4.6 HEAST 7
4.7 Derived Values 7

5 References 8

1 Introduction

The RSEI model relies on chemical toxicity data from EPA and other published sources. All of the toxicity data used in the model can be found in the 'Chemical' table in the model data browser. The calculation of the toxicity weight for each chemical can be found in the spreadsheet on the installation CD. This appendix briefly describes the main parameters used, the sources from which the information is obtained, and decisions made regarding special cases. At the end of this appendix is a table summarizing the toxicity data for all of the chemicals that currently have toxicity weights in the model.

2 Parameters

2.1 Reference Dose (RfD) or Reference Concentration (RfC)

The RfD and RfC are defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure [or continuous inhalation exposure the RfC] to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious [noncancer] effects during a lifetime" (EPA, 1988). The units of RfD are mg/kg-day, while the units of the Inhalation Reference Concentration are mg/m^3. A chemical's Reference Dose or Reference Concentration is based on a No Observable Adverse Effect Level (NOAEL) or Lowest Observable Adverse Effect Level (LOAEL), combined with appropriate uncertainty factors to account for intraspecies variability in sensitivity, interspecies extrapolation, extrapolation from LOAELs to NOAELs, and extrapolation from subchronic to chronic data. In addition, a modifying factor can be applied to reflect EPA's best professional judgment on the quality of the entire toxicity database for the chemical. By definition, exposures below the RfD are unlikely to produce an adverse effect; above this value, an exposed individual may be at risk for the effect. Empirical evidence generally shows that as the dosage of a toxicant increases, the severity and/or incidence of effect increases (EPA, 1988), but for a given dose above the RfD, the specific probability of an effect is not known, nor is its severity. For purposes of the Risk-Screening Environmental Indicators method, we assume that noncancer risk varies as the ratio of the estimated dose to the RfD.

2.2 Oral Slope Factor (Q*)

The oral cancer slope factor is a measure of the incremental lifetime risk of cancer by oral intake of the chemical. It represents the upper-bound estimate of the slope of the dose-response curve in the low-dose region for carcinogens. The units of the slope factor are usually expressed as risk per mg/kg-day. The oral slope factor is also referred to as the Q Star value.

2.3 Inhalation Unit Risk

The unit inhalation risk is the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 $\mu g/m^3$ in air. In RSEI, the Inhalation Unit Risk has units of risk per mg/ m^3.

2.4 Weight of Evidence (WOE)

Weight of evidence categories indicate how likely a chemical is to be a human carcinogen, based on considerations of the quality and adequacy of data and type of responses induced by the suspected carcinogen.

For **cancer** effects, the WOE system used in the RSEI model relies on categorical definitions from the EPA Guidelines for Carcinogenic Risk Assessment (EPA, 1986a), which are related to the potential for a chemical to be carcinogenic to humans. The Cancer Guidelines define six WOE categories (A, B1, B2, C, D and E) based on the amount of evidence of carcinogenicity available from human epidemiology studies and animal data. In the Indicators model, weight-of-evidence categories A, B1, and B2 (known and probable carcinogens) are combined. Class C chemicals (possible carcinogens) are assigned weights by dividing the calculated toxicity weights by a factor of 10, because evidence that they cause cancer in humans is less certain. The choice of applying a factor of 10 is based on the advice of peer review; an order of magnitude is an arbitrary uncertainty factor. Categories D and E are not considered in this weighting scheme.

For **noncancer** effects, weight-of-evidence is considered qualitatively in the hazard identification step of determining an RfD or and RfC. The WOE evaluation for noncancer effects is different from that for carcinogenic effects. The WOE judgment for noncancer effects focuses on the dose where chemical exposure would be relevant to humans (Dourson, 1993). That is, the focus of the WOE evaluation and the expression of the level of confidence in the RfD is a judgment of the accuracy with which the dose relevant to humans has been estimated. The WOE evaluation is included qualitatively in the RfD, but does not affect its numerical calculation. Since weight of evidence has been considered in developing RfDs, the Risk-Screening Environmental Indicators method does not consider WOE separately for noncancer effects.

3 Chemical Categories and Other Special Cases

EPA's annual 'Reporting Form R and Instructions' describes the reporting requirements for several categories that combine similar chemicals into one release report. For these categories, facilities are not required to report the pounds released of each individual chemical in the category, but only the total pounds released for the entire category. Because the proportions of individual chemicals released within each category are not known, professional judgement was used to assign surrogate values for the various toxicity parameters to each category. In most cases, the most toxic chemical of each category, based on the calculated toxicity weight, was selected, and the toxicity data for the chemical were assigned to the entire chemical category. In these cases, the actual risk for the chemical category would be less than or equal to the modeled risk.

This section describes the surrogate toxicity data decisions made for each chemical category Other "special case" chemicals, where surrogate information was used or anomalous characteristics were noted, are also described below.

3.1 Asbestos

Due to this chemical's fibrous structure, toxicity information is expressed in different units (i.e., risk per fibers/ml). A conversion factor of 5 ($\mu g/m^{3)}$/(f/ml) was used to convert to risk per $\mu g/m^3$.

3.2 Butoxyethyl ester, 2,4-D

Toxicity information is based on 2,4-D

3.3 Butyl alcohol, tert- and sec-

Toxicity information is based on n-butyl alcohol

3.4 Chlorophenols

Pentachlorophenol had the highest toxicity value, so that chemical was used as a surrogate for toxicity data.

3.5 Chromium and Chromium Compounds

Toxicity data for chromium and chromium compounds was based on chromium(VI), the most toxic value in this category. It is assumed that facilities may release some combination of hexavalent chromium and trivalent chromium. SIC-code specific estimates from the 2002 National Emissions Inventory are used to estimate the fraction of each type (available from http://www.epa.gov/ttn/chief/net/2002inventory.html). As trivalent chromium has a very low toxicity, only the hexavalent fraction is modeled, using a toxicity weight specifically for that valence state.

3.6 Cyanide Compounds

Because cyanide compounds in a gaseous state exhibit markedly different properties than compounds in solution, two surrogate compounds were used for toxicity scares. For the inhalation toxicity score, hydrogen cyanide was used, as it is the most toxic gaseous compound. For the oral exposure pathway, toxicity data were collected for metal cyanide compounds, the most toxic group of nongaseous cyanide compounds. Copper cyanide was found to be the most toxic of these compounds, so its toxicity score was used.

3.7 Diaminotoluene (mixed isomers)

Toxicity information is based on 2,4-Diaminotoluene.

3.8 Ethylenebisdithiocarbamic (EBDC) acid, salts and esters

Chemicals regulated in this category include the pesticides maneb, mancozeb, metiram, nabam, zineb, and amobam. Toxicity data were available for four compounds (mancozeb, maneb, metiram, and zineb); of these, metiram had the highest toxicity weight and so was selected as a surrogate for toxicity data for this category.

3.9 Ethylhexyl ester, 2,4-D, 2-

Toxicity information is based on 2,4-D.

3.10 Glycol ethers

Of the eight common glycol ethers, four had available toxicity data. Ethylene glycol monomethyl ether had the highest toxicity weight of these four, and there fore was used as a surrogate for the category.

3.11 Hydrazine sulfate

Toxicity information is based on hydrazine

3.12 Lead and Lead Compounds

The reference dose (RfD) that was used was derived from CalEPA Public Health Goal. An inhalation unit risk (IUR) from CalEPA was excluded and the oral toxicity weight based on a non-cancer endpoint was used for the inhalation pathway because of the large body of evidence suggesting a low threshold for the non-cancer effects of lead.

3.13 Maneb

The slope factor used for maneb is based on ethylene thiourea, as designated in the OPP 8/2000 Report.

3.14 Mercury and Mercury Compounds

Because mercury in various forms converts to methyl mercury in the environment,[1] toxicity information is based on elemental mercury for the inhalation pathway, and methyl mercury for the oral pathway.

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[1]References that show that mercury converts to methyl mercury in the environment include: Beckert, W.F. et al., "Formation of Methylmercury in a Terrestrial Environment." Nature, 249, 674-75 (1974); Berdicevsky, I.H., et al. "Formation of Methylmercury in Marine Sediments," Environ. Res,, 20, 325-34 (1979); Hamdy, M.K. and

3.15 Nitrate Compounds

Toxicity information is based on nitrate

3.16 Polycyclic Aromatic Compounds

The toxicity of this group is assumed to be 18% of the toxicity for benzo(a)pyrene, its most toxic member. This approach follows that used in EPA's National-Scale Air Toxics Assessment (NATA) evaluation for polycyclic organic matter (POM).[2]

3.17 Sodium dicamba

Toxicity information is based on dicamba.

3.18 Sodium nitrite

Toxicity information is based on nitrite.

3.19 Strychnine and salts

This category includes any unique chemical substance that contains strychnine or a strychnine salt as part of its infrastructure. Toxicity information for this category was based on strychnine.

3.20 Thallium and Thallium Compounds

Toxicity information was based on thallic oxide.

3.21 Thorium dioxide

Oral toxicity weight was based on a qualitative assessment of toxicity.

3.22 Warfarin and salts

This category includes any unique chemical substance that contains warfarin or a warfarin salt as part of its infrastructure. Toxicity information for this category was based on warfarin.

O.R. Noyes, "Formatino of Methyl Mercury by Bacteria," Appl. Microbiol., 30, 424-432 (1975); Jensen, S. and A. Jernelov, "Biological Methylation of Mercury in Aquatic Oganisms," Nature, 223, 753-54 (1969); Wood, J.M. et al., "Synthesis of Methylmercury Compounds by Extracts of a Methanogenic Bacterium," Nature, 200, 173-74 (1968); and Wood, L.M., "Metabolic Cycles for Toxic Elements in the Environment", in Heavy Metals in the Aquatic Environment, P.A. Krenkel (ed.), Pergamon Press, Oxford, England, 105-12 (1975).

[2] Additional information is available in the NATA documentation (http://www.epa.gov/ttn/atw/sab/appendix-h.pdf). RSEI assumes that PAC emissions reported to TRI are most like NATA's "7-PAH" category.

4 Sources of Data

Information regarding the human health effects data on the TRI chemicals is compiled from the sources listed below. Data from these sources are categorized in three-tiered, hierarchical fashion to give preference to EPA and consensus data sources, where possible. Data is gathered separately for individual endpoints; a chemical's RfD may be from IRIS, while its Oral Slope Factor may be from HEAST. However, if the source of information for any of the four chronic endpoints is IRIS and there are non-IRIS sources for any of the other endpoints of comparable date, then the IRIS file must be evaluated to determine if that source(s) of toxicity data had been evaluated and if a rationale was provided explaining why no toxicity values were applied to that endpoint or pathway. If a clearly stated rationale is provided for not using the available data, RSEI will leave that endpoint blank. For a full description of the hierarchy used in toxicity weighting, please refer to the Methodology Document.

4.1 IRIS

The primary (and most preferred) source of these data is EPA's Integrated Risk Information System (IRIS). IRIS is available on the internet (at http://www.epa.gov/iris/), and includes information on EPA evaluations of chemical toxicity for both cancer and noncancer effects of chemicals. IRIS provides both background information on the studies used to develop the toxicity evaluations and the numerical toxicity values used by EPA to characterize risks from these chemicals. These values include upper-bound Oral Slope Factors or Inhalation Unit Risk values for chemicals with carcinogenic effects as well as RfDs or RfCs for chemicals with noncancer effects. Data contained in IRIS have been peer-reviewed and represent Agency-wide expert judgements. The peer-review process involves literature review and evaluation of a chemical by individual EPA program offices and intra-Agency work groups before inclusion in IRIS.

4.2 OPP

EPA's Office of Pesticide Programs (OPP) Reference Dose Tracking Reports list OPP's evaluations of the noncarcinogenic potential of chemicals that are of interest to OPP. The list can be found on the internet at http://ace.orst.edu/info/npic/tracking.htm. OPP also publishes the List of Chemicals Evaluated for Carcinogenic Potential, which examines carcinogens. Both of these lists are updated periodically. Additionally, some data was taken directly from OPP's Pesticide Regregistration Eligibility Documents (REDs).

4.3 ATSDR

The Agency for Toxic Substances and Disease Registry (ATSDR) is an agency of the U.S. Department of Health and Human Services, which deals with the effect on public health of hazardous substances in the environment. ATSDR develops Minimum Risk Levels (MRLs) for chemicals on the CERCLA National Priorities List. An MRL is an estimate of the daily human

exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure. RSEI uses MRLs for chronic exposure only. MRLs are intended to serve as screening levels only, and are useful in identifying contaminants and potential health effects that may be of concern at hazardous waste sites. See http://www.atsdr.cdc.gov/mrls.html for more information on MRLs and specific values.

4.4 CalEPA

The California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard and Assessment (OEHHA) is responsible for developing and distributing toxicological and medical information needed to protect public health. RSEI uses final toxicity values published by CalEPA in the Consolidated Table of OEHHA & California's Air Resources Board (ARB) Approved Risk Assessment Health Values. The table is continuously updated and can be found on the internet at http://www.arb.ca.gov/toxics/healthval/healthval.htm.

4.5 PPRTVs

PPRTVs. EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) include toxicity values developed by the Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (STSC).

4.6 HEAST

EPA's Health Effects Assessment Tables (HEAST) are constructed for use in the Superfund and RCRA programs but do not represent Agency-wide expert judgements. These tables are publicly available from the Superfund program. The tables include Slope Factors, Unit Risks, and WOE categorizations for chemicals with cancer effects, and RfDs and RfCs for noncancer effects.

4.7 Derived Values

For chemicals for which sufficient data was not found in the above sources, a group of EPA expert health scientists reviewed other available data to derive appropriate toxicity weights. Although individual literature searches for toxicological and epidemiological data for each chemical were beyond the scope of this project, sources such as the Hazardous Substances Data Base (HSDB), as well as various EPA and ATSDR summary documents, provided succinct summaries of toxic effects and quantitative data, toxicological and epidemiological studies, and, in some cases, regulatory status data. When the available data on chronic human toxicity were sufficient to derive values, a toxicity weighting summary was developed summarizing the information used to develop each of these values. The summaries can be found below. The EPA scientists use a technical approach analogous to the Agency's method for deriving RfD values, RfC values, cancer risk estimates, and Weight of Evidence (WOE) determinations. However, it must be emphasized that these derived values are not the equivalent of the more rigorous and resource-intensive IRIS process and are only useful for screening-level purposes.

Information collection dates:

- IRIS searches performed on April 1, 1997 (Integrated Risk Information System electronic database, version 1.0) and updated on February 1998, September 1998, January 8, 1999, January 26, 2000, Summer 2000, February 1, 2001, July 2001, December 2001, November 2003, January 2004, April 2005, and May 2007, August 2008, and July 2009 (IRIS Home Page).
- CalEPA values originally obtained from May 2001 Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. The last update available is dated February, 2009.
- OPP non-cancer values obtained from February 1997 Office of Pesticide Programs Reference Dose Tracking Report.
- OPP cancer values obtained from August 2000 Office of Pesticide Programs List of Chemicals Evaluated for Carcinogenic Potential.
- OPP cancer and noncancer values were obtained from individual Pesticide Reregistration Eligibility Documents (REDs) in July 2009.
- ATSDR values originally obtained from 4/2001 Minimum Risk Levels (MRLs) for Hazardous Substances. The latest update available is dated December 2008.
- PPRTV values were obtained from the PPRTV database in June 2008.
- HEAST values obtained from July 1997 and March 1993 Health Effects Assessment Summary Tables.
- Derived values are those determined by the OPPT Review Process. Refer to the Toxic Release Inventory Relative Risk-Based Environmental Indicators: Interim Toxicity Weighting Summary Document (EPA, June 1997) for further discussion of this methodology.

5 References

Dourson, M. 1993. Environmental Criteria and Assessment Office, U.S. Environmental Protection Agency. Personal communication, October 19.

U.S. Environmental Protection Agency (EPA). 1988. IRIS Background Document #1. *Reference Dose (RfD): Description and Use in Health Risk Assessments.* Integrated Risk Information System (IRIS). Online. Maintained by Environmental Criteria and Assessment Office, Cincinnati, OH.

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Abamectin			IRIS 7/1/1989	2500						2500	Non-cancer*	2500	Non-cancer
Acephate (Acetylphosphoramidothioic acid O,S-dimethyl ester)			IRIS 2/1/1990	250			IRIS 10/1/1993	870	IRIS 10/1/1993	870	Cancer*	870	Cancer
Acetaldehyde	IRIS 10/1/1991	390			IRIS 1/1/1991	7900			IRIS 1/1/1991	7900	Cancer	7900	Cancer*
Acetamide					CalEPA 4/1999	7100			OPP 5/29/1990	7100	Cancer	7100	Cancer*
Acetic acid, 2,4-dichlorophenoxy (2,4-D)			OPP 6/2005	200					OPP 1/29/1997	200	Non-cancer*	200	Non-cancer
Acetonitrile	IRIS 3/3/1999	58							IRIS 3/3/1999	58	Non-cancer	58	Non-cancer*
Acetophenone			IRIS 1/1/1989	10					IRIS 2/1/1991	10	Non-cancer*	10	Non-cancer
Acifluorfen, sodium salt [5-(2-Chloro-4-(triflouromethyl) phenoxy)-2-nitro-benzoic acid, sodium salt]			OPP 37818	80			OPP 2001	13000	OPP 3/17/1988	13000	Cancer*	13000	Cancer
Acrolein	IRIS 6/3/2003	180000	IRIS 6/3/2003	2000					IRIS 6/3/2003	180000	Non-cancer	2000	Non-cancer
Acrylamide			IRIS 3/1/1991	5000	IRIS 7/1/1993	4600000	IRIS 7/1/1993	4500000	IRIS 7/1/1993	4600000	Cancer	4500000	Cancer
Acrylic acid	IRIS 5/1/1995	3500	IRIS 5/1/1994	2						3500	Non-cancer	2	Non-cancer
Acrylonitrile	IRIS 12/1/1991	1800	OPP 6/15/1993	1000	IRIS 1/1/1991	240000	IRIS 1/1/1991	540000	IRIS 1/1/1991	240000	Cancer	540000	Cancer
Alachlor			IRIS 9/1/1993	100			HEAST 7/1997	80000	HEAST 7/1997	80000	Cancer*	80000	Cancer
Aldicarb			OPP 7/2002	20000					OPP 9/15/1998	20000	Non-cancer*	20000	Non-cancer
Aldrin			IRIS 3/1/1988	33000	IRIS 7/1/1993	18000000	IRIS 7/1/1993	17000000	IRIS 7/1/1993	18000000	Cancer	17000000	Cancer
Allyl alcohol	PPRTV 10/31/2002	12000	IRIS 8/1/1989	200						12000	Non-cancer	200	Non-cancer
Allyl chloride	IRIS 5/1/1995	3500			CalEPA 4/1999	2100			IRIS 8/1/1994	3500	Non-cancer	3500	Non-cancer*

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Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Aluminum (fume or dust)	PPRTV 10/23/2006	700	ATSDR 39692	1					final derived 1/8/1998	700	Non-cancer	1	Non-cancer
Aluminum phosphide			OPP 6/1998	88						n/a	n/a	88	Non-cancer
Ametryn (N-Ethyl-N'-(1-methylethyl)-6-(methylthio)-1,3,5,-triazine- 2,4 diamine)			OPP 9/2005	14						14	Non-cancer*	14	Non-cancer
Amitraz			IRIS 12/1/1988	400			OPP 10/31/1990	5000	OPP 10/31/1991	5000	Cancer*	5000	Cancer
Amitrole							OPP 9/2006	680000	OPP 11/30/1992	680000	Cancer*	680000	Cancer
Ammonia	IRIS 5/1/1991	35								35	Non-cancer	n/a	n/a
Anilazine			OPP no date	2500						2500	Non-cancer*	2500	Non-cancer
Aniline	IRIS 12/1/1993	3500	PPRTV 39225	140	CalEPA 4/1999	5700	IRIS 2/1/1994	5700	IRIS 2/1/1994	5700	Cancer	5700	Cancer
Anisidine, o-	interim derived	18000	final derived	250			final derived	80000	final derived	18000	Non-cancer	80000	Cancer
Anthracene			IRIS 7/1/1993	3.3					IRIS 1/1/1991	3.3	Non-cancer*	3.3	Non-cancer
Antimony and antimony compounds	CalEPA 1996	18000	IRIS 2/1/1991	2500						18000	Non-cancer	2500	Non-cancer
Arsenic and arsenic compounds	CalEPA 39783	230000	IRIS 2/1/1993	3300	IRIS 4/10/1998	15000000	IRIS 4/10/1998	1500000	IRIS 4/10/1998	15000000	Cancer	1500000	Cancer
Asbestos (friable)					IRIS 7/1/1993	1.7E+08			IRIS 7/1/1993	170000000	Cancer	n/a	n/a
Atrazine (6-Chloro-N-ethyl-N'-(1-methylethyl)1,3,5,-triazine-2,4-diamine)			OPP 4/2002	56					OPP 12/13/2000	56	Non-cancer*	56	Non-cancer
Barium and barium compounds	HEAST 7/1997	7000	IRIS 38544	5					IRIS 3/30/1998	7000	Non-cancer	5	Non-cancer
Bendiocarb			OPP 9/1999	800					OPP 12/16/1997	800	Non-cancer*	800	Non-cancer
Benfluralin (N-Butyl-N-ethyl-2,6-dinitro-4-(trifluoromethyl)benzenamine)			OPP 4/2001	200						200	Non-cancer*	200	Non-cancer

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Benomyl			OPP 3/2001	7.7			OPP 9/21/2000	240	OPP 9/21/2000	240	Cancer*	240	Cancer
Benzene	IRIS 4/17/2003	120	IRIS 4/17/2003	250	IRIS 1/19/2000	28000	IRIS 1/19/2000	55000	IRIS 1/19/2000	28000	Cancer	55000	Cancer
Benzidine			IRIS 2/1/1995	330	IRIS 8/1/1992	2.4E+08	IRIS 8/1/1992	2.3E+08	IRIS 8/1/1992	240000000	Cancer	230000000	Cancer
Benzotrichloride							IRIS 7/1/1993	13000000	IRIS 7/1/1993	13000000	Cancer*	13000000	Cancer
Benzyl chloride					CalEPA 4/1999	180000	IRIS 8/1/1994	170000	IRIS 8/1/1994	180000	Cancer	170000	Cancer
Beryllium and beryllium compounds	IRIS 4/3/1998	180000	IRIS 4/3/1998	500	IRIS 4/3/1998	8600000			IRIS 4/3/1998	8600000	Cancer	500	Non-cancer
Bifenthrin			OPP 2/2003	250					OPP 4/29/1992	250	Non-cancer*	250	Non-cancer
Biphenyl			IRIS 8/1/1989	20					IRIS 3/1/1991	20	Non-cancer*	20	Non-cancer
Bis(2-chloroethyl)ether					IRIS 2/1/1994	1200000	IRIS 2/1/1994	1100000	IRIS 2/1/1994	1200000	Cancer	1100000	Cancer
Bis(chloromethyl) ether					IRIS 1/1/1991	2.2E+08	IRIS 1/1/1991	2.2E+08	IRIS 1/1/1991	220000000	Cancer	220000000	Cancer
Bis(tributyltin) oxide			IRIS 9/1/1997	3300						3300	Non-cancer*	3300	Non-cancer
Boron trifluoride	HEAST 7/1997	5000								5000	Non-cancer	5000	Non-cancer*
Bromacil			OPP 6/16/1994	10					OPP 1/13/1993	10	Non-cancer*	10	Non-cancer
Bromacil lithium salt			OPP 6/16/1994	10					OPP 1/13/1993	10	Non-cancer*	10	Non-cancer
Bromine	CalEPA 1/1992	2100								2100	Non-cancer	2100	Non-cancer*
Bromoform (Tribromomethane)			IRIS 3/1/1991	50	IRIS 1/1/1991	3900	IRIS 1/1/1991	7900	IRIS 1/1/1991	3900	Cancer	7900	Cancer
Bromomethane (Methyl Bromide)	IRIS 10/1/1992	700	OPP 6/2001	50					OPP 6/20/2001	700	Non-cancer	50	Non-cancer
Bromoxynil (3,5-Dibromo-4-hydroxybenzonitrile)			OPP 5/1997	67			OPP 3/12/1997	10000	OPP 3/12/1997	10000	Cancer*	10000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Bromoxynil octanoate (Octanoic acid,2,6-dibromo-4-cyanophenyl ester)			OPP 12/1998	67						67	Non-cancer*	67	Non-cancer
Butadiene, 1,3-	IRIS 11/5/2002	1800			IRIS 2/1/1991	110000			IRIS 2/1/1991	110000	Cancer	110000	Cancer*
Butoxyethyl ester, 2,4-D			OPP 1/2002	100					OPP 1/29/1997	100	Non-cancer*	100	Non-cancer
Butyl acrylate	interim derived	3500	interim derived	2						3500	Non-cancer	2	Non-cancer
Butyl alcohol, n-			IRIS 9/1/1990	10					IRIS 3/1/1991	10	Non-cancer*	10	Non-cancer
Butyl alcohol, sec-			IRIS 9/1/1990	10					IRIS 3/1/1991	10	Non-cancer*	10	Non-cancer
Butyl alcohol, tert-			IRIS 9/1/1990	10					IRIS 3/1/1991	10	Non-cancer*	10	Non-cancer
Butylene oxide, 1,2-	IRIS 5/1/1992	180								180	Non-cancer	180	Non-cancer*
C.I. Direct Black 38							HEAST 7/1997	8600000	HEAST 7/1997	8600000	Cancer*	8600000	Cancer
C.I. Direct Blue 6							HEAST 7/1997	8100000	HEAST 7/1997	8100000	Cancer*	8100000	Cancer
C.I. Direct Brown 95							HEAST 7/1997	9300000	HEAST 7/1997	9300000	Cancer*	9300000	Cancer
Cadmium and cadmium compounds	CalEPA 1/2001	180000	IRIS 2/1/1994	2000	IRIS 6/1/1992	6400000			IRIS 6/1/1992	6400000	Cancer	2000	Non-cancer
Calcium cyanamide			final derived	1000						1000	Non-cancer*	1000	Non-cancer
Captan			OPP 9/23/1993	7.7			OPP 9/4/1998	1200	OPP 9/4/1998	1200	Cancer*	1200	Cancer
Carbaryl			OPP 5/2002	100			OPP 12/8/2001	880	OPP 12/8/2001	880	Cancer*	880	Cancer
Carbofuran			OPP 3/2000	1200					OPP 6/17/1997	1200	Non-cancer*	1200	Non-cancer
Carbon disulfide	IRIS 8/1/1995	5	IRIS 9/1/1990	10						5	Non-cancer	10	Non-cancer
Carbon tetrachloride	ATSDR 09/05	18	IRIS 6/1/1991	1400	IRIS 10/1/1992	54000	IRIS 10/1/1992	130000	IRIS 10/1/1992	54000	Cancer	130000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Carbonyl sulfide	interim derived	290								290	Non-cancer	290	Non-cancer*
Carboxin (5,6-Dihydro-2-methyl-N-phenyl-1,4-oxathiin-3-car-boxamide)			OPP 11/2001	130						130	Non-cancer*	130	Non-cancer
Catechol							interim derived	9000	interim derived	9000	Cancer*	9000	Cancer
CFC-11	CalEPA 1/1991	5	IRIS 8/1/1992	3.3						5	Non-cancer	3.3	Non-cancer
CFC-12			IRIS 11/1/1995	5						5	Non-cancer*	5	Non-cancer
Chloramben			IRIS 3/1/1988	67						67	Non-cancer*	67	Non-cancer
Chlordane	IRIS 2/7/1998	5000	IRIS 2/7/1998	2000	IRIS 2/7/1998	360000	IRIS 2/7/1998	350000	IRIS 2/7/1998	360000	Cancer	350000	Cancer
Chlorimuron ethyl (Ethyl-2-[[[(4-chloro-6-methoxyprimidin-2-yl)-carbonyl]-amino]sulfonyl]benzoate)			IRIS 11/1/1989	50						50	Non-cancer*	50	Non-cancer
Chlorine	CalEPA 2/2000	18000	IRIS 6/1/1994	10						18000	Non-cancer	10	Non-cancer
Chlorine dioxide	IRIS 10/12/2000	18000	IRIS 10/12/2000	33					IRIS 10/12/2000	18000	Non-cancer	33	Non-cancer
Chloro-1,1-difluoroethane, 1-	IRIS 7/1/1995	0.07								0.07	Non-cancer	0.07	Non-cancer*
Chloroacetic acid			HEAST 7/1997	500						500	Non-cancer*	500	Non-cancer
Chloroacetophenone, 2-	IRIS 10/1/1991	120000								120000	Non-cancer	120000	Non-cancer*
Chloroaniline, p-			IRIS 2/1/1995	250			OPP 4/27/1995	110000	OPP 4/27/1995	110000	Cancer*	110000	Cancer
Chlorobenzene	CalEPA 1/2001	3.5	IRIS 7/1/1993	50					IRIS 3/1/1991	3.5	Non-cancer	50	Non-cancer
Chlorobenzilate			IRIS 12/1/1989	50	HEAST 7/1997	280000	HEAST 7/1997	270000	HEAST 7/1997	280000	Cancer	270000	Cancer
Chlorodifluoromethane (HCFC-22)	IRIS 11/1/1993	0.07								0.07	Non-cancer	n/a	n/a

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Chloroethane (Ethyl chloride)	IRIS 4/1/1991	0.35								0.35	Non-cancer	0.35	Non-cancer*
Chloroform	CalEPA 4/2000	12	IRIS 10/19/2002	100	IRIS 10/19/2001	82000	IRIS 7/1/1992	6100	IRIS 7/1/1992	82000	Cancer	6100	Cancer
Chloromethane	IRIS 7/17/2001	39			HEAST 7/1997	640	HEAST 7/1997	1300	IRIS 7/17/2001	640	Cancer	1300	Cancer
Chloro-o-toluidine, p-					CalEPA 4/1999	280000	HEAST 7/1997	580000	IARC 2000	280000	Cancer	580000	Cancer
Chlorophenols			OPP 12/1997	670			IRIS 7/1/1993	120000	IRIS 7/1/1993	120000	Cancer*	120000	Cancer
Chloropicrin	CalEPA 12/2001	8800								8800	Non-cancer	8800	Non-cancer*
Chloroprene	CalEPA 1/1992	3500	HEAST 7/1997	50						3500	Non-cancer	50	Non-cancer
Chlorothalonil			OPP 10/17/1996	50			OPP 10/27/1997	7700	OPP 10/27/1997	7700	Cancer*	7700	Cancer
Chlorpyrifos methyl (O,O-Dimethyl-O-(3,5,6-trichloro-2-pyridyl)phosphorothioate)			OPP 5/1999	1000						1000	Non-cancer*	1000	Non-cancer
Chlorsulfuron (2-Chloro-N-[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]benzenesulfonamide)			OPP 7/2002	50						50	Non-cancer*	50	Non-cancer
Chromium and chromium compounds	IRIS 9/3/1998	35000	IRIS 9/3/1998	330	IRIS 9/3/1998	43000000			IRIS 9/3/1998	43000000	Cancer	330	Non-cancer
Cobalt and cobalt compounds	ATSDR 10/04	35000			interim derived 1/23/1998	17000000			interim derived 1/23/1998	17000000	Cancer	n/a	n/a
Copper and copper compounds	CalEPA 1/1992	1500							OPP 9/15/1987	1500	Non-cancer	1500	Non-cancer*
Cresidine, p-					CalEPA 4/1999	150000	interim derived	150000	interim derived	150000	Cancer	150000	Cancer
Cresol (mixed isomers)	CalEPA 1/2001	5.8	IRIS 9/1/1990	20					IRIS 8/1/1991	5.8	Non-cancer	20	Non-cancer
Cresol, m-	CalEPA 1/2001	5.8	IRIS 9/1/1990	20					IRIS 8/1/1991	5.8	Non-cancer	20	Non-cancer
Cresol, o-	CalEPA 1/2001	5.8	IRIS 9/1/1990	20					IRIS 8/1/1991	5.8	Non-cancer	20	Non-cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Cresol, p-	CalEPA 1/2001	5.8	HEAST 7/1997	200					IRIS 8/1/1991	5.8	Non-cancer	200	Non-cancer
Crotonaldehyde							HEAST 7/1997	190000	IRIS 6/1/1991	190000	Cancer*	190000	Cancer
Cumene	IRIS 8/1/1997	8.8	IRIS 8/1/1997	10					IRIS 8/1/1997	8.8	Non-cancer	10	Non-cancer
Cumene hydroperoxide	final derived	640							final derived	640	Non-cancer	640	Non-cancer*
Cupferron					CalEPA 4/1999	230000	final derived	220000	final derived	230000	Cancer	220000	Cancer
Cyanazine			OPP 6/3/1993	500			OPP 7/30/1991	17000	OPP 7/30/1991	17000	Cancer*	17000	Cancer
Cyanide compounds	IRIS 11/1/1994	1200	IRIS 2/1/1996	200						1200	Non-cancer	200	Non-cancer
Cycloate			OPP 3/22/1994	200						200	Non-cancer*	200	Non-cancer
Cyclohexane	IRIS 9/11/2003	0.58								0.58	Non-cancer	0.58	Non-cancer*
Cyfluthrin (3-(2,2-Dichloroethenyl)-2,2-dimethylcyclopropanecarboxylic acid,cyano(4-fluoro-3-phenoxyphenyl)methyl ester)			OPP 4/2002	42					OPP 2/11/2001	42	Non-cancer*	42	Non-cancer
Cyhalothrin			OPP 9/2002	1000					OPP 9/15/1994	1000	Non-cancer*	1000	Non-cancer
Dazomet			OPP 11/18/1993	290					OPP 12/7/1993	290	Non-cancer*	290	Non-cancer
Dazomet, Sodium salt			OPP 11/18/1993	290					OPP 12/7/1993	290	Non-cancer*	290	Non-cancer
DB, 2,4-			OPP 1/2005	33						33	Non-cancer*	33	Non-cancer
Decabromodiphenyl oxide			IRIS 39629	140			IRIS 39629	70	IRIS 1/1/1990	140	Non-cancer*	140	Non-cancer
Desmedipham			OPP 11/1998	25					OPP 7/26/1994	25	Non-cancer*	25	Non-cancer
Di(2-ethylhexyl) phthalate	CalEPA 1/1991	50	IRIS 5/1/1991	50	CalEPA 4/1999	8600	IRIS 2/1/1993	14000	IRIS 2/1/1993	8600	Cancer	14000	Cancer

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Diallate			OPP 7/25/1989	200			HEAST 7/1997	61000	HEAST 7/1997	61000	Cancer*	61000	Cancer
Diaminoanisole, 2,4-					CalEPA 4/1999	24000			interim derived	24000	Cancer	24000	Cancer*
Diaminodiphenylether, 4,4'-							final derived	140000	final derived	140000	Cancer*	140000	Cancer
Diaminotoluene (mixed isomers)					CalEPA 4/1999	3900000	HEAST 7/1997	3200000	HEAST 7/1997	3900000	Cancer	3200000	Cancer
Diaminotoluene, 2,4-					CalEPA 4/1999	3900000	HEAST 7/1997	3200000	HEAST 7/1997	3900000	Cancer	3200000	Cancer
Diazinon			OPP 11/2000	5000					OPP 9/21/1999	5000	Non-cancer*	5000	Non-cancer
Dibromo-3-chloropropane (DBCP), 1,2-	IRIS 10/1/1991	18000	PPRTV 8/3/2006	5000	CalEPA 4/1999	7100000	OPP no date	12	OPP no date	7100000	Cancer	5000	Non-cancer
Dibromoethane, 1,2-	IRIS 38197	390	IRIS 38197	110	IRIS 38197	2100000	IRIS 38197	2000000	IRIS 38197	2100000	Cancer	2000000	Cancer
Dibutyl phthalate			IRIS 8/1/1990	10					IRIS 2/1/1993	10	Non-cancer*	10	Non-cancer
Dicamba (3,6-Dichloro-2-methoxybenzoic acid)			OPP 5/2002	2.2					OPP 7/29/1996	2.2	Non-cancer*	2.2	Non-cancer
Dichloran			OPP 6/2006	400						400	Non-cancer*	400	Non-cancer
Dichloro-2-butene, 1,4-					HEAST 7/1/1997	9300000			HEAST 7/1997	9300000	Cancer	9300000	Cancer*
Dichlorobenzene (mixed isomers)	interim derived	18	final derived	11			final derived	24000	final derived	18	Non-cancer	24000	Cancer
Dichlorobenzene, 1,2-			IRIS 3/1/1991	11					IRIS 1/1/1991	11	Non-cancer*	11	Non-cancer
Dichlorobenzene, 1,3-	interim derived	18	final derived	11			final derived	24000	final derived	18	Non-cancer	24000	Cancer
Dichlorobenzene, 1,4-	IRIS 11/1/1996	4.4	ATSDR 07/06	14	CalEPA 4/1999	3900	HEAST 7/1997	2400	HEAST 7/1997	3900	Cancer	2400	Cancer
Dichlorobenzidine, 3,3'-	IRIS 11/1/1991				CalEPA 4/1999	1200000	IRIS 7/1/1993	450000	IRIS 7/1/1993	1200000	Cancer	450000	Cancer
Dichlorobromomethane			IRIS 3/1/1991	50			IRIS 3/1/1993	62000	IRIS 3/1/1993	62000	Cancer*	62000	Cancer
Dichloroethane, 1,2-	CalEPA 1/2001	8.8	PPRTV 37560	50	IRIS 7/1/1993	93000	IRIS 7/1/1993	91000	IRIS 7/1/1993	93000	Cancer	91000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Dichloroethylene, 1,2-			HEAST 7/1997	110						110	Non-cancer*	110	Non-cancer
Dichloromethane	ATSDR 9/2000	3.4	IRIS 3/1/1988	17	IRIS 2/1/1995	1700	IRIS 2/1/1995	7500	IRIS 2/1/1995	1700	Cancer	7500	Cancer
Dichlorophenol, 2,4-			IRIS 6/30/1988	330						330	Non-cancer*	330	Non-cancer
Dichloropropane, 1,2-	IRIS 12/1/1991	880	ATSDR 12/1989	11			HEAST 7/1997	68000	HEAST 7/1997	880	Non-cancer	68000	Cancer
Dichloropropylene, 1,3-	IRIS 5/25/2000	180	IRIS 5/25/2000	33	IRIS 5/25/2000	14000	IRIS 5/25/2000	100000	IRIS 5/25/2000	14000	Cancer	100000	Cancer
Dichlorvos	IRIS 6/1/1994	7000	OPP 6/1998	2000			OPP 8/18/1999	7700	OPP 8/18/1999	7000	Non-cancer	7700	Cancer
Diclofop methyl			OPP 8/2000	430			OPP 5/24/2000	230000	OPP 5/24/2000	230000	Cancer*	230000	Cancer
Dicofol			OPP 9/1998	2500					OPP 6/24/1992	2500	Non-cancer*	2500	Non-cancer
Dicyclopentadiene	HEAST 7/1997	18000	HEAST 7/1997	33						18000	Non-cancer	33	Non-cancer
Diethanolamine	CalEPA 12/2001	1200	final derived 10/23/1997	710					final derived 10/23/1997	1200	Non-cancer	710	Non-cancer
Diethyl sulfate							final derived	1200000	final derived	1200000	Cancer*	1200000	Cancer
Diflubenzuron			OPP 3/2002	50					OPP 4/27/1995	50	Non-cancer*	50	Non-cancer
Diisocyanates	IRIS 9/1/1994	350000								350000	Non-cancer	350000	Non-cancer*
Dimethipin (2,3,-Dihydro-5,6-dimethyl-1,4-dithiin-1,1,4,4-tetraoxide)			OPP 8/2005	46					IRIS 10/1/1993	46	Non-cancer*	46	Non-cancer
Dimethoate			OPP 11/2008	450					OPP 8/29/1991	450	Non-cancer*	450	Non-cancer
Dimethoxybenzidine, 3,3'-							HEAST 7/1997	14000	HEAST 7/1997	14000	Cancer*	14000	Cancer
Dimethyl hydrazine, 1, 1-					HEAST 3/1993	3600000	OPP 7/26/1991	460000	OPP 7/26/1991	3600000	Cancer	460000	Cancer
Dimethylaminoazobenzene, 4-					CalEPA 4/1999	4600000			interim derived	4600000	Cancer	4600000	Cancer*

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Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Dimethylaniline, N,N-			IRIS 3/1/1988	500						500	Non-cancer*	500	Non-cancer
Dimethylbenzidine, 3,3'-							HEAST 7/1997	9200000	HEAST 7/1997	9200000	Cancer*	9200000	Cancer
Dimethylformamide, N,N-	IRIS 10/1/1990	120	HEAST 7/1997	10						120	Non-cancer	10	Non-cancer
Dimethylphenol, 2,4-			IRIS 11/1/1990	50						50	Non-cancer*	50	Non-cancer
Dinitrobenzene, m-			IRIS 8/22/1988	10000					IRIS 2/1/1993	10000	Non-cancer*	10000	Non-cancer
Dinitrobenzene, o-			HEAST 7/1997	2500						2500	Non-cancer*	2500	Non-cancer
Dinitrobenzene, p-			PPRTV 38884	10000						10000	Non-cancer*	10000	Non-cancer
Dinitrobutyl phenol (Dinoseb)			IRIS 8/1/1989	1000					IRIS 7/1/1993	1000	Non-cancer*	1000	Non-cancer
Dinitro-o-cresol, 4,6-	interim derived	7300	interim derived	2900						7300	Non-cancer	2900	Non-cancer
Dinitrophenol, 2,4-			IRIS 7/1/1991	500						500	Non-cancer*	500	Non-cancer
Dinitrotoluene, 2,4-			IRIS 4/1/1993	500	CalEPA 4/1999	320000			interim derived	320000	Cancer	500	Non-cancer
Dinitrotoluene, 2,6-			HEAST 7/1997	1000			IRIS 9/1/1990	680000	IRIS 9/1/1990	680000	Cancer*	680000	Cancer
Dinocap			OPP 2/2000	270					OPP 6/22/1994	270	Non-cancer*	270	Non-cancer
Dioxane, 1,4-	CalEPA 4/2000	1.2	ATSDR 7/2006	10	CalEPA 4/1999	28000	IRIS 9/1/1990	11000	IRIS 9/1/1990	28000	Cancer	11000	Cancer
Diphenamid			IRIS 3/1/1991	33						33	Non-cancer*	33	Non-cancer
Diphenylamine			OPP 4/1998	33						33	Non-cancer*	33	Non-cancer
Diphenylhydrazine, 1,2-					IRIS 1/1/1991	790000	IRIS 1/1/1991	800000	IRIS 1/1/1991	790000	Cancer	800000	Cancer
Dipropyl isocinchomeronate			OPP no date	8					OPP 6/7/1995	8	Non-cancer*	8	Non-cancer
Diuron			OPP 8/2001	330			OPP 5/8/1997	19000	OPP 5/8/1997	19000	Cancer*	19000	Cancer

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Dodine (Dodecylguanidine monoacetate)			OPP 9/2005	50						50	Non-cancer*	50	Non-cancer
Epichlorohydrin	IRIS 4/1/1992	3500	HEAST 7/1997	500	IRIS 2/1/1994	4300	IRIS 2/1/1994	9900	IRIS 2/1/1994	4300	Cancer	9900	Cancer
Ethoprop			OPP 5/2000	10000			OPP 7/2006	28000	OPP 10/7/1998	28000	Cancer*	28000	Cancer
Ethoxyethanol, 2-	IRIS 5/1/1991	18	HEAST 7/1997	2.5						18	Non-cancer	2.5	Non-cancer
Ethyl acrylate	CalEPA 1/1992	73					HEAST 7/1997	48000	HEAST 7/1997	73	Non-cancer	48000	Cancer
Ethyl dipropylthiocarbamate (EPTC)			OPP 8/1999	40					OPP 8/31/1999	40	Non-cancer*	40	Non-cancer
Ethylbenzene	IRIS 3/1/1991	3.5	IRIS 6/1/1991	10	CalEPA 39400	890	CalEPA 39400	1100	IRIS 8/1/1991	890	Cancer	1100	Cancer
Ethylene	final derived	0.56								0.56	Non-cancer	0.56	Non-cancer*
Ethylene glycol	CalEPA 4/2000	8.8	IRIS 9/1/1989	0.5						8.8	Non-cancer	0.5	Non-cancer
Ethylene oxide	CalEPA 1/2001	120			CalEPA 11/1987	310000	OPP 1985	220000	OPP 1985	310000	Cancer	220000	Cancer
Ethylene thiourea			OPP 12/2001	560	CalEPA 4/1999	46000	OPP 3/19/1990	60000	OPP 3/19/1990	46000	Cancer	60000	Cancer
Ethylenebisdithiocarbamic acid, salts and esters			OPP 11/2001	250					OPP 11/15/1999	250	Non-cancer*	250	Non-cancer
Ethylhexyl ester, 2,4-D, 2-			OPP 1/2002	100					OPP 1/29/1997	100	Non-cancer*	100	Non-cancer
Ethylidene dichloride	HEAST 7/1997	7	PPRTV 38987	5	CalEPA 4/1999	570			IRIS 10/1/1990	570	Cancer	5	Non-cancer
Famphur			OPP 6/24/1986	2000						2000	Non-cancer*	2000	Non-cancer
Fenarimol			OPP 7/2002	500					OPP 9/5/2001	500	Non-cancer*	500	Non-cancer
Fenbutatin oxide			OPP 4/2002	59					OPP 10/8/1992	59	Non-cancer*	59	Non-cancer
Fenoxaprop ethyl			OPP 9/1997	400						400	Non-cancer*	400	Non-cancer

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Fenoxycarb			OPP 3/22/1994	13					OPP 12/22/1997	13	Non-cancer*	13	Non-cancer
Fenpropathrin (2,2,3,3-Tetramethylcyclopropane carboxylic acid cyano(3-phenoxyphenyl)methyl ester)			IRIS 10/1/1994	40					OPP 3/31/1993	40	Non-cancer*	40	Non-cancer
Fenthion			OPP 2/1999	14000					OPP 3/11/1996	14000	Non-cancer*	14000	Non-cancer
Fenvalerate (4-Chloro-alpha-(1-methylethyl) benzeneacetic acid cyano(3-phenoxyphenyl) methyl ester)			OPP 4/11/1996	40					OPP 7/1/1996	40	Non-cancer*	40	Non-cancer
Fluazifop butyl			OPP 12/7/1995	100						100	Non-cancer*	100	Non-cancer
Fluometuron			OPP 9/2005	200			OPP 8/28/1996	1800	OPP 8/28/1996	1800	Cancer*	1800	Cancer
Fluorine			IRIS 6/1/1989	17						17	Non-cancer*	17	Non-cancer
Fluvalinate (N-[2-Chloro-4-(trifluoromethyl)phenyl]-DL-valine-(+)-cyano (3-phenoxyphenyl)methyl ester)			OPP 8/29/1996	100						100	Non-cancer*	100	Non-cancer
Folpet			OPP 5/1998	11			IRIS 10/1/1993	3500	IRIS 10/1/1993	3500	Cancer*	3500	Cancer
Fomesafen (5-(2-Chloro-4-(trifluoromethyl) phenoxy)-N-methylsulfonyl-2-nitrobenzamide)							IRIS 10/1/1993	19000	IRIS 10/1/1993	19000	Cancer*	19000	Cancer
Formaldehyde	CalEPA 39783	390	IRIS 9/1/1990	5	IRIS 5/1/1991	46000			IRIS 5/1/1991	46000	Cancer	5	Non-cancer
Formic acid			HEAST 7/1997	0.5						0.5	Non-cancer*	0.5	Non-cancer
Freon 113	CalEPA 1/1991	5	IRIS 2/1/1996	0.033						5	Non-cancer	0.033	Non-cancer
Glycol Ethers	IRIS 5/1/1991	180								180	Non-cancer	180	Non-cancer*
Heptachlor			IRIS 3/1/1991	2000	IRIS 7/1/1993	4600000	IRIS 7/1/1993	4500000	IRIS 7/1/1993	4600000	Cancer	4500000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Hexachloro-1,3-butadiene			HEAST 7/1997	5000	IRIS 4/1/1991	7900	IRIS 4/1/1991	7800	IRIS 4/1/1991	7900	Cancer	7800	Cancer
Hexachlorobenzene	CalEPA 7/1990	1300	IRIS 4/1/1991	1300	IRIS 11/1/1996	1600000	IRIS 11/1/1996	1600000	IRIS 11/1/1996	1600000	Cancer	1600000	Cancer
Hexachlorocyclohexane, alpha-	CalEPA 1/1991	3500	ATSDR 09/05	130	IRIS 7/1/1993	6400000	IRIS 7/1/1993	6300000	IRIS 7/1/1993	6400000	Cancer	6300000	Cancer
Hexachlorocyclopentadiene	IRIS 7/5/2001	18000	IRIS 7/5/2001	170					IRIS 7/5/2001	18000	Non-cancer	170	Non-cancer
Hexachloroethane			IRIS 4/1/1991	1000	IRIS 2/1/1994	1400	IRIS 2/1/1994	1400	IRIS 2/1/1994	1400	Cancer	1400	Cancer
Hexachlorophene			IRIS 4/1/1991	3300						3300	Non-cancer*	3300	Non-cancer
Hexane, n-	IRIS 38709	5	HEAST 7/1997	17						5	Non-cancer	17	Non-cancer
Hexazinone			OPP 8/2002	20					OPP 7/27/1994	20	Non-cancer*	20	Non-cancer
Hydramethylnon			IRIS 9/30/1987	3300					OPP 3/28/1991	3300	Non-cancer*	3300	Non-cancer
Hydrazine	CalEPA 1/2001	18000			IRIS 4/1/1991	18000000	IRIS 4/1/1991	3000000	IRIS 4/1/1991	18000000	Cancer	3000000	Cancer
Hydrazine sulfate	CalEPA 1/2001	18000			IRIS 4/1/1991	18000000	IRIS 4/1/1991	3000000	IRIS 4/1/1991	18000000	Cancer	3000000	Cancer
Hydrochloric acid	IRIS 7/1/1995	180								180	Non-cancer	180	Non-cancer*
Hydrogen cyanide	IRIS 11/1/1994	1200	IRIS 2/1/1993	50						1200	Non-cancer	50	Non-cancer
Hydrogen fluoride	CalEPA 8/2003	250	CalEPA 8/2003	25						250	Non-cancer	25	Non-cancer
Hydroquinone			HEAST 7/1997	25						25	Non-cancer*	25	Non-cancer
Imazalil (1-[2-(2,4-Dichlorophenyl)-2-(2-propenyloxy)ethyl]-1H-imidazole)			OPP 6/1999	40			OPP 12/7/1999	61000	OPP 12/7/1999	61000	Cancer*	61000	Cancer
Iodo-2-propynyl butylcarbamate, 3-			OPP 5/6/1993	14					OPP 12/4/1996	14	Non-cancer*	14	Non-cancer
Isobutyraldehyde	final derived 1/6/1998	100							final derived 1/6/1998	100	Non-cancer	n/a	n/a

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Isofenphos			OPP 3/22/1994	2000					OPP 1/13/1998	2000	Non-cancer*	2000	Non-cancer
Isopropylidenediphenol, 4,4'-			IRIS 7/1/1993	20						20	Non-cancer*	20	Non-cancer
Lactofen (Benzoic acid, (5-(2-Chloro-4-(trifluoromethyl)phenoxy)-2-nitro-2-ethoxy-1-methyl-2-oxoethyl ester))			OPP 3/2000	130			OPP 4/8/1997	120000	OPP 4/8/1997	120000	Cancer*	120000	Cancer
Lead and lead compounds			CalEPA 12/1997	18000			CalEPA 10/2000	8500	IRIS 11/1/1993	18000	Non-cancer*	18000	Non-cancer
Lindane	CalEPA 1/1991	3500	OPP 7/2000	210	CalEPA 4/1999	110000	CalEPA 10/2000	110000	OPP 11/29/2001	110000	Cancer	110000	Cancer
Linuron			OPP 6/10/1993	130					IRIS 10/1/1993	130	Non-cancer*	130	Non-cancer
Malathion			OPP 7/2006	14					OPP 6/20/2000	14	Non-cancer*	14	Non-cancer
Maleic anhydride	CalEPA 12/2001	5000	IRIS 7/1/1993	10						5000	Non-cancer	10	Non-cancer
Malononitrile			HEAST 7/1997	50000						50000	Non-cancer*	50000	Non-cancer
Maneb			OPP 8/2005	5000			OPP 6/9/1999	60000	OPP 6/9/1999	60000	Cancer*	60000	Cancer
Manganese and manganese compounds	IRIS 12/1/1993	70000	IRIS 5/1/1996	7.1					IRIS 12/1/1996	70000	Non-cancer	7.1	Non-cancer
Mecoprop			IRIS 8/1/1990	1000						1000	Non-cancer*	1000	Non-cancer
Mercaptobenzo-thiazole, 2-			OPP 9/1994	1.5					OPP 11/19/1992	1.5	Non-cancer*	1.5	Non-cancer
Mercury and mercury compounds	IRIS 6/1/1995	12000	IRIS 7/27/2001	10000					IRIS 5/1/1995	12000	Non-cancer	10000	Non-cancer
Merphos			IRIS 4/1/1991	33000						33000	Non-cancer*	33000	Non-cancer
Methacrylonitrile	HEAST 7/1/1997	5000	IRIS 2/1/1996	10000						5000	Non-cancer	10000	Non-cancer
Metham sodium			OPP 12/1/1994	100			OPP 5/1/1995	200000	OPP 5/1/1995	200000	Cancer*	200000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Methanol	CalEPA 4/2000	0.88	IRIS 7/1/1993	2						0.88	Non-cancer	2	Non-cancer
Methiocarb			OPP 11/18/1993	200					OPP 3/2/1993	200	Non-cancer*	200	Non-cancer
Methoxone ((4-Chloro-2-methylphenoxy)acetic acid) (MCPA)			OPP 38260	230						230	Non-cancer*	230	Non-cancer
Methoxychlor			IRIS 8/1/1991	200					IRIS 10/1/1990	200	Non-cancer*	200	Non-cancer
Methoxyethanol, 2-	IRIS 5/1/1991	180	IRIS 4/1/1992							180	Non-cancer	180	Non-cancer*
Methyl acrylate			HEAST 7/1997	33						33	Non-cancer*	33	Non-cancer
Methyl ethyl ketone	IRIS 9/26/2003	0.7	IRIS 9/26/2003	1.7					OPP 5/30/1989	0.7	Non-cancer	1.7	Non-cancer
Methyl hydrazine							HEAST 3/1993	1100000	HEAST 3/1993	1100000	Cancer*	1100000	Cancer
Methyl iodide							interim derived	290000	interim derived	290000	Cancer*	290000	Cancer
Methyl isobutyl ketone	IRIS 4/25/2003	1.2	HEAST 7/1/1997	13						1.2	Non-cancer	13	Non-cancer
Methyl isocyanate	CalEPA 12/2001	3500								3500	Non-cancer	3500	Non-cancer*
Methyl methacrylate	IRIS 3/2/1998	5	IRIS 3/2/1998	0.71					IRIS 3/2/1998	5	Non-cancer	0.71	Non-cancer
Methyl parathion			OPP 6/2002	5000					OPP 12/1/1997	5000	Non-cancer*	5000	Non-cancer
Methyl tert-butyl ether	IRIS 9/1/1993	1.2			CalEPA 11/1999	93			IARC 1999	93	Cancer	93	Cancer*
Methyl-1,3-dithiolo[4,5-b]quinoxalin-2-one, 6-			OPP 3/22/1994	170			OPP 2/15/1996	34000	OPP 2/15/1996	34000	Cancer*	34000	Cancer
Methylene bromide			HEAST 7/1997	100						100	Non-cancer*	100	Non-cancer
Methylenebis(2-chloroaniline), 4,4'-			ATSDR 5/1994	330	CalEPA 4/1999	1500000	PPRTV 38932	100000	HEAST 7/1997	1500000	Cancer	100000	Cancer
Methylenebis(N,N-dimethylbenzenamine), 4,4'-							IRIS 7/1/1993	46000	IRIS 7/1/1993	46000	Cancer*	46000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010

Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Methylenebis(phenylisocyanate) (MDI)	IRIS 2/7/1998	5800								5800	Non-cancer	5800	Non-cancer*
Methylenedianiline, 4,4'-	CalEPA 12/2001	180			CalEPA 4/1999	1600000	CalEPA 10/2000	1600000	interim derived	1600000	Cancer	1600000	Cancer
Methyllactonitrile, 2-	PPRTV 12/29/2004	58	PPRTV 38350	330						58	Non-cancer	330	Non-cancer
Metiram			OPP 11/2001	250					OPP 11/15/1999	250	Non-cancer*	250	Non-cancer
Metribuzin			OPP 2/1998	77					IRIS 12/1/1996	77	Non-cancer*	77	Non-cancer
Mevinphos			OPP 4/1999	4000						4000	Non-cancer*	4000	Non-cancer
Michler's ketone					CalEPA 4/1999	89000	final derived	86000	final derived	89000	Cancer	86000	Cancer
Molinate (1H-Azepine-1 carbothioic acid, hexahydro-S-ethyl ester)			OPP 10/1998	1000			OPP 6/17/1992	4900	OPP 6/17/1992	4900	Cancer*	4900	Cancer
Molybdenum trioxide	interim derived	15000	interim derived	380						15000	Non-cancer	380	Non-cancer
Myclobutanil (alpha-Butyl-alpha-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile)			OPP 11/1997	40					OPP 6/16/1994	40	Non-cancer*	40	Non-cancer
Naled			OPP 5/2001	500					OPP 8/31/1994	500	Non-cancer*	500	Non-cancer
Naphthalene	IRIS 9/17/1998	1200	IRIS 9/17/1998	50	CalEPA 38202	12000			IRIS 9/17/1998	12000	Cancer	50	Non-cancer
Nickel and nickel compounds	ATSDR 09/05	39000	CalEPA 10/2000	20	CalEPA 8/1991	930000			interim derived	930000	Cancer	20	Non-cancer
Nitrapyrin			OPP 5/8/1992	33			OPP 5/5/2000	43000	OPP 5/5/2000	43000	Cancer*	43000	Cancer
Nitrate compounds (water dissociable)			IRIS 10/1/1991	0.63						0.63	Non-cancer*	0.63	Non-cancer
Nitric acid	final derived	270								270	Non-cancer	270	Non-cancer*
Nitrilotriacetic acid			interim derived	71			interim derived	20000	interim derived	20000	Cancer*	20000	Cancer
Nitrobenzene	IRIS 39850	390	IRIS 39850	500					IRIS 39850	390	Non-cancer	500	Non-cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Nitroglycerin			interim derived	33			interim derived	2100000	interim derived	2100000	Cancer*	2100000	Cancer
Nitro-o-anisidine, 5-							HEAST 7/1997	46000	HEAST 7/1997	46000	Cancer*	46000	Cancer
Nitro-o-toluidine, 5-							HEAST 7/1997	3300	HEAST 7/1997	3300	Cancer*	3300	Cancer
Nitrophenol, 4-	final derived	760	final derived	400					OPP 5/14/1996	760	Non-cancer	400	Non-cancer
Nitropropane, 2-	IRIS 3/1/1991	180			HEAST 7/1997	9600000			HEAST 7/1997	9600000	Cancer	9600000	Cancer*
Nitrosodiethylamine, N-					IRIS 7/1/1993	1.5E+08	IRIS 7/1/1993	1.5E+08	IRIS 7/1/1993	150000000	Cancer	150000000	Cancer
Nitrosodimethylamine, N-					IRIS 7/1/1993	50000000	IRIS 7/1/1993	51000000	IRIS 7/1/1993	50000000	Cancer	51000000	Cancer
Nitrosodi-n-butylamine, N-					IRIS 7/1/1993	5700000	IRIS 7/1/1993	5400000	IRIS 7/1/1993	5700000	Cancer	5400000	Cancer
Nitrosodi-n-propylamine, N-					CalEPA 4/1999	7100000	IRIS 7/1/1993	7000000	IRIS 7/1/1993	7100000	Cancer	7000000	Cancer
Nitrosodiphenylamine, N-							IRIS 7/1/1993	4900	IRIS 7/1/1993	4900	Cancer*	4900	Cancer
Nitroso-N-ethylurea, N-							HEAST 7/1997	1.4E+08	HEAST 7/1997	140000000	Cancer*	140000000	Cancer
N-Nitrosomorpholine					CalEPA 4/1999	6800000			interim derived	6800000	Cancer	6800000	Cancer*
N-Nitrosopiperidine					CalEPA 4/1999	9600000			interim derived	9600000	Cancer	9600000	Cancer*
Norflurazon (4-Chloro-5-(methylamino)-2-[3-(trifluoromethyl)phenyl]-3(2H)-pyridazinone)			OPP 8/2000	67					OPP 11/2/1990	67	Non-cancer*	67	Non-cancer
Oryzalin (4-(Dipropylamino)-3,5-dinitrobenzenesulfonamide)			OPP 8/26/1993	8.3			OPP 3/12/1986	13000	OPP 3/12/1986	13000	Cancer*	13000	Cancer
Oxydemeton methyl			OPP 7/2006	7700					OPP 7/24/1997	7700	Non-cancer*	7700	Non-cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Oxydiazon (3-[2,4-Dichloro-5-(1-methylethoxy)phenyl]-5-(1,1-dimethylethyl)-1,3,4-oxadiazol-2(3H)-one)			IRIS 3/1/1991	200			OPP 37865	71000	OPP 5/1/2001	71000	Cancer*	71000	Cancer
Oxyfluorfen			OPP 4/2001	33			OPP 9/29/1989	7300	OPP 9/29/1989	7300	Cancer*	7300	Cancer
Ozone	CalEPA 1/1992	19								19	Non-cancer	19	Non-cancer*
Paraquat dichloride			OPP 4/2000	220					IRIS 10/1/1993	220	Non-cancer*	220	Non-cancer
Parathion			OPP 8/1999	33000					IRIS 10/1/1993	33000	Non-cancer*	33000	Non-cancer
Pebulate (Butylethylcarbamothioic acid S-propyl ester)			OPP 9/1999	140					OPP 12/7/1998	140	Non-cancer*	140	Non-cancer
Pendimethalin (N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine)			OPP 4/2000	10					OPP 7/24/1992	10	Non-cancer*	10	Non-cancer
Pentachlorobenzene			IRIS 10/9/1985	1300						1300	Non-cancer*	1300	Non-cancer
Pentachlorophenol			OPP 12/1997	670			IRIS 7/1/1993	120000	IRIS 7/1/1993	120000	Cancer*	120000	Cancer
Peracetic acid	interim derived	4500								4500	Non-cancer	4500	Non-cancer*
Permethrin (3-(2,2-Dichloroethenyl)-2,2-dimethylcyclopropanecarboxylic acid,(3-phenoxyphenyl)methyl ester)			OPP 4/2006	4			OPP 8/21/2002	9600	OPP 8/21/2002	9600	Cancer*	9600	Cancer
Phenol			IRIS 9/30/2002	3.3					IRIS 9/30/2002	n/a	n/a	3.3	Non-cancer
Phenylenediamine, 1,2-							HEAST 7/1997	47000	HEAST 7/1997	47000	Cancer*	47000	Cancer
Phenylenediamine, 1,3-			IRIS 8/1/1991	170						170	Non-cancer*	170	Non-cancer
Phenylenediamine, p-			HEAST 7/1997	5.3						5.3	Non-cancer*	5.3	Non-cancer

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Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Phenylphenol, 2-			OPP 38899	2.6			HEAST 7/1997	190	HEAST 7/1997	190	Cancer*	190	Cancer
Phosphine	IRIS 7/1/1995	12000	IRIS 12/1/1993	3300					IRIS 12/1/1996	12000	Non-cancer	3300	Non-cancer
Phosphorus (yellow or white)	IRIS 11/1/1993	5	IRIS 2/1/1993	50000					IRIS 7/1/1993	5	Non-cancer	50000	Non-cancer
Phthalic anhydride	CalEPA 1/2001	180	IRIS 9/7/1988	0.5						180	Non-cancer	0.5	Non-cancer
Picloram			OPP 3/1983	5					OPP 4/1/1994	5	Non-cancer*	5	Non-cancer
Picric acid	final derived	3500	final derived	17000						3500	Non-cancer	17000	Non-cancer
Pirimiphos methyl (O-(2-(Diethylamino)-6-methyl-4-pyrimidinyl)-O,O-dimethylphosphorothioate)			OPP 5/1999	5000						5000	Non-cancer*	5000	Non-cancer
p-Nitrosodiphenylamine					CalEPA 4/1999	2300			IARC 1987	2300	Cancer	2300	Cancer*
Polybrominated biphenyls (PBBs)			HEAST 7/1997	140000			HEAST 7/1997	8900000	HEAST 7/1997	8900000	Cancer*	8900000	Cancer
Polychlorinated biphenyls (PCBs)	CalEPA 1/1991	2900	IRIS 6/1/1994	50000	IRIS 6/1/1997	360000	IRIS 6/1/1997	2000000	IRIS 6/1/1997	360000	Cancer	2000000	Cancer
Polycyclic aromatic compounds							IRIS 11/1/1994	1300000	IRIS 11/1/1994	1300000	Cancer*	1300000	Cancer
Potassium bromate	CalEPA 1/1992	2100			CalEPA 4/1999	500000			interim derived	500000	Cancer	500000	Cancer*
Profenofos			OPP 9/1999	20000					OPP 2/6/1995	20000	Non-cancer*	20000	Non-cancer
Prometryn (N,N'-Bis(1-methylethyl)-6-methylthio-1,3,5-triazine-2,4-diamine)			OPP 5/19/1994	25					OPP 7/25/1994	25	Non-cancer*	25	Non-cancer
Pronamide			OPP 12/2001	13			OPP 5/26/1993	26000	OPP 5/26/1993	26000	Cancer*	26000	Cancer
Propachlor (2-Chloro-N-(1-methylethyl)-N-phenylacetamide)			OPP 12/1997	20					OPP 10/16/1997	20	Non-cancer*	20	Non-cancer
Propane sultone					CalEPA 4/1999	2500000			interim derived	2500000	Cancer	2500000	Cancer*

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Propanil (N-(3,4-Dichlorophenyl)propanamide)			OPP 8/2001	110					OPP 8/15/2001	110	Non-cancer*	110	Non-cancer
Propargite			OPP 6/1999	25			OPP 37162	3300	OPP 7/23/1992	3300	Cancer*	3300	Cancer
Propargyl alcohol			IRIS 1/1/1994	500						500	Non-cancer*	500	Non-cancer
Propetamphos			OPP 12/2000	2000					OPP 12/2/1998	2000	Non-cancer*	2000	Non-cancer
Propiconazole (1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4,-triazole)			OPP 1/2002	10					OPP 9/14/1992	10	Non-cancer*	10	Non-cancer
Propoxur			IRIS 7/1/1992	250			OPP 6/17/1996	3700	OPP 6/17/1996	3700	Cancer*	3700	Cancer
Propylene (Propene)	CalEPA 4/2000	1.2								1.2	Non-cancer	1.2	Non-cancer*
Propylene oxide	IRIS 11/1/1990	120	OPP 7/2006	1000	IRIS 4/1/1994	13000	IRIS 4/1/1994	240000	IRIS 4/1/1994	13000	Cancer	240000	Cancer
Propyleneimine							final derived	1.5E+08	final derived	150000000	Cancer*	150000000	Cancer
Pyridine			IRIS 6/1/1989	1000						1000	Non-cancer*	1000	Non-cancer
Quinoline							IRIS 9/27/2001	3000000	IRIS 9/27/2001	3000000	Cancer*	3000000	Cancer
Quintozene			OPP 3/2002	100			HEAST 7/1997	26000	HEAST 7/1997	26000	Cancer*	26000	Cancer
Quizalofop-ethyl (2-[4-[(6-Chloro-2-quinoxalinyl)oxy]phenoxy] propanoic acid ethyl ester)			OPP 10/1997	110					IRIS 10/1/1993	110	Non-cancer*	110	Non-cancer
Resmethrin ([5-(Phenylmethyl)-3-furanyl]methyl 2,2-dimethyl-3-(2-methyl-1-propenyl)cyclopropanecarboxylate)			OPP 7/2006	29			OPP 6/2006	56000		56000	Cancer*	56000	Cancer
Selenium and selenium compounds	CalEPA 12/2001	180	IRIS 9/1/1991	200					IRIS 7/1/1993	180	Non-cancer	200	Non-cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Sethoxydim (2-[1-(Ethoxyimino)butyl]-5-[2-(ethylthio)propyl]-3-hydroxyl-2-cyclohexen-1-one)			OPP 38625	7.1						7.1	Non-cancer*	7.1	Non-cancer
Silver and silver compounds			IRIS 12/1/1996	200					IRIS 6/1/1989	200	Non-cancer*	200	Non-cancer
Simazine			OPP 38813	56			OPP 5/24/1990	12000	OPP 5/24/1990	12000	Cancer*	12000	Cancer
Sodium azide			IRIS 3/1/1988	250						250	Non-cancer*	250	Non-cancer
Sodium dicamba			OPP 5/2002	2.2					OPP 7/29/1996	2.2	Non-cancer*	2.2	Non-cancer
Sodium fluoroacetate			OPP 10/27/1994	50000						50000	Non-cancer*	50000	Non-cancer
Sodium nitrite			IRIS 8/1/1992	10						10	Non-cancer*	10	Non-cancer
Sodium o-phenylphenoxide							HEAST 7/1997	190	HEAST 7/1997	190	Cancer*	190	Cancer
Strychnine and salts			IRIS 3/1/1988	3300						3300	Non-cancer*	3300	Non-cancer
Styrene	IRIS 7/1/1993	3.5	IRIS 9/1/1990	5						3.5	Non-cancer	5	Non-cancer
Sulfuric acid	CalEPA 12/2001	3500	final derived 7/28/1998	0.02					final derived 7/28/1998	3500	Non-cancer	0.02	Non-cancer
Sulfuryl fluoride (Vikane)			OPP 5/2001	36						36	Non-cancer*	36	Non-cancer
Sulprofos			OPP 1/25/1996	330					OPP 3/26/1996	330	Non-cancer*	330	Non-cancer
Tebuthiuron (N-[5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl])- N,N'-dimethylurea)			OPP 7/2002	14					OPP 3/1/1991	14	Non-cancer*	14	Non-cancer
Temephos			OPP 7/25/1989	2000						2000	Non-cancer*	2000	Non-cancer
Terbacil (5-Chloro-3-(1,1-dimethylethyl)-6-methyl- 2,4 (1H,3H)-pyrimidinedione)			OPP 9/8/1994	77					OPP 9/30/1994	77	Non-cancer*	77	Non-cancer

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Chemical Name	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
										Inhalation		Oral	
	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Weight	Effect	Weight	Effect
Tetrachloroethane, 1,1,1,2-			IRIS 12/1/1996	33	IRIS 1/1/1991	2600	IRIS 1/1/1991	2600	IRIS 1/1/1991	2600	Cancer	2600	Cancer
Tetrachloroethane, 1,1,2,2-			ATSDR 8/1996	25	IRIS 2/1/1994	21000	IRIS 2/1/1994	20000	IRIS 2/1/1994	21000	Cancer	20000	Cancer
Tetrachloroethylene (Perchloroethylene)	ATSDR 9/1997	13	IRIS 3/1/1988	100	CalEPA 10/1991	21000			IARC 1995	21000	Cancer	100	Non-cancer
Tetrachlorvinphos			OPP 3/2002	23			OPP 3/6/1995	180	OPP 3/6/1995	180	Cancer*	180	Cancer
Thallium and thallium compounds			HEAST 3/1993	14000						14000	Non-cancer*	14000	Non-cancer
Thiabendazole			OPP 7/1999	10			OPP 3/4/2002	12000	OPP 3/4/2002	12000	Cancer*	12000	Cancer
Thioacetamide					CalEPA 4/1999	6100000			interim derived	6100000	Cancer	6100000	Cancer*
Thiobencarb (Carbamic acid, diethylthio-,(S-(p-chlorobenzyl)ester)			OPP 2/8/1996	100					OPP 6/10/1996	100	Non-cancer*	100	Non-cancer
Thiodicarb			OPP 4/1998	33			OPP 6/10/1996	19000	OPP 6/10/1996	19000	Cancer*	19000	Cancer
Thiophanate-methyl			OPP 3/2002	13			OPP 12/8/2001	12000	OPP 12/8/2001	12000	Cancer*	12000	Cancer
Thiourea							final derived	1000000	final derived	1000000	Cancer*	1000000	Cancer
Thiram			OPP 9/2004	67						67	Non-cancer*	67	Non-cancer
Thorium dioxide	final derived	3500					final derived	5E+08	final derived	3500	Non-cancer	500000000	Cancer
Titanium tetrachloride	ATSDR 9/1997	35000								35000	Non-cancer	35000	Non-cancer*
Toluene	IRIS 38618	0.7	IRIS 38618	13					IRIS 38618	0.7	Non-cancer	13	Non-cancer
Toluene diisocyanate (mixed isomers)	IRIS 9/1/1995	50000	interim derived	4.3	CalEPA 4/1999	39000	interim derived	39000	interim derived	50000	Non-cancer	39000	Cancer
Toluene-2,4-diisocyanate	IRIS 9/1/1995	50000	interim derived	4.3	CalEPA 4/1999	39000	interim derived	39000	interim derived	50000	Non-cancer	39000	Cancer
Toluene-2,6-diisocyanate	IRIS 9/1/1995	50000	interim derived	4.3	CalEPA 4/1999	39000	interim derived	39000	interim derived	50000	Non-cancer	39000	Cancer

Table A-1. Toxicity Weights[1] for All Scored TRI Chemicals and Chemical Categories, in Alphabetical Order DATE: May 2010													
	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Toluidine hydrochloride, o-							HEAST 7/1997	180000	HEAST 7/1997	180000	Cancer*	180000	Cancer
Toluidine, o-							HEAST 7/1997	240000	HEAST 7/1997	240000	Cancer*	240000	Cancer
Toxaphene			OPP 5/19/1986	4000	IRIS 1/1/1991	1100000	IRIS 1/1/1991	1100000	IRIS 1/1/1991	1100000	Cancer	1100000	Cancer
Triadimefon (1-(4-Chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone)			OPP 8/2006	29					OPP 12/4/1996	29	Non-cancer*	29	Non-cancer
Triallate			OPP 7/1999	40			OPP 1/12/1994	7200	OPP 1/12/1994	7200	Cancer*	7200	Cancer
Tribenuron methyl			IRIS 4/1/1990	130					OPP 7/14/1989	130	Non-cancer*	130	Non-cancer
Tributyltrithiophosphate (DEF), S,S,S-			OPP 7/2006	10000			OPP 5/22/1997	84000	OPP 5/22/1997	84000	Cancer*	84000	Cancer
Trichlorfon			OPP 8/1999	500					OPP 7/15/1999	500	Non-cancer*	500	Non-cancer
Trichlorobenzene, 1,2,4-	HEAST 7/1997	18	IRIS 11/1/1996	100					IRIS 7/1/1993	18	Non-cancer	100	Non-cancer
Trichloroethane, 1,1,1-	IRIS 39353	0.7	IRIS 39353	0.5					IRIS 9/1/1990	0.7	Non-cancer	0.5	Non-cancer
Trichloroethane, 1,1,2-			IRIS 2/1/1995	250	IRIS 2/1/1994	5700	IRIS 2/1/1994	5700	IRIS 2/1/1994	5700	Cancer	5700	Cancer
Trichloroethylene	CalEPA 4/2000	5.8			CalEPA 10/1990	7100			IARC 1995	7100	Cancer	7100	Cancer*
Trichlorophenol, 2,4,5-			IRIS 3/1/1988	10						10	Non-cancer*	10	Non-cancer
Trichlorophenol, 2,4,6-					IRIS 2/1/1994	11000	IRIS 2/1/1994	11000	IRIS 2/1/1994	11000	Cancer	11000	Cancer
Trichloropropane, 1,2,3-			IRIS 8/1/1990	170			HEAST 7/1997	7000000	HEAST 7/1997	7000000	Cancer*	7000000	Cancer
Triethylamine	IRIS 4/1/1991	500								500	Non-cancer	500	Non-cancer*
Trifluralin			OPP 6/2/1994	42			IRIS 10/1/1993	770	IRIS 10/1/1993	770	Cancer*	770	Cancer
Triforine			OPP 11/19/1986	40						40	Non-cancer*	40	Non-cancer

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect
Trimethylbenzene, 1,2,4-	final derived	580	final derived	2000						580	Non-cancer	2000	Non-cancer
Triphenyltin hydroxide			OPP 3/2001	3300			OPP 9/2009	18000000	OPP 5/24/1990	18000000	Cancer*	18000000	Cancer
Urethane (Ethyl carbamate)					CalEPA 4/1999	1000000			interim derived	1000000	Cancer	1000000	Cancer*
Vanadium and vanadium compounds			HEAST 7/1997	140						140	Non-cancer*	140	Non-cancer
Vinclozolin (3-(3,5-Dichlorophenyl)-5-ethenyl-5-methyl-2,4-oxazolidinedione)			OPP 12/1999	83					OPP 6/20/2000	83	Non-cancer*	83	Non-cancer
Vinyl acetate	IRIS 10/1/1990	18	HEAST 7/1997	1						18	Non-cancer	1	Non-cancer
Vinyl bromide	IRIS 11/1/1994	1200			HEAST 35612	110000				110000	Cancer	110000	Cancer*
Vinyl chloride	IRIS 8/7/2000	35	IRIS 8/7/2000	330	IRIS 8/7/2000	31000	IRIS 8/7/2000	1500000	IRIS 8/7/2000	31000	Cancer	1500000	Cancer
Vinylidene chloride	IRIS 8/13/2002	18	IRIS 8/13/2002	20					IRIS 8/13/2002	18	Non-cancer	20	Non-cancer
Warfarin and salts			IRIS 3/1/1988	3300						3300	Non-cancer*	3300	Non-cancer
Xylene (mixed isomers)	IRIS 2/21/2003	35	IRIS 2/21/2003	5					OPP 12/2/1987	35	Non-cancer	5	Non-cancer
Xylene, m-	IRIS 2/21/2003	35	IRIS 2/21/2003	5					OPP 12/2/1987	35	Non-cancer	5	Non-cancer
Xylene, o-	IRIS 2/21/2003	35	IRIS 2/21/2003	5					OPP 12/2/1987	35	Non-cancer	5	Non-cancer
Xylene, p-	IRIS 2/21/2003	35	IRIS 2/21/2003	5					OPP 12/2/1987	35	Non-cancer	5	Non-cancer
Zinc and zinc compounds	CalEPA 7/1990	100	IRIS 38567	3.3					IRIS 38567	100	Non-cancer	3.3	Non-cancer
Zineb			IRIS 3/1/1988	20						20	Non-cancer*	20	Non-cancer

* Toxicity weight adopted from the other exposure route (breathing/inhalation or ingestion/oral).

1. The following sources of toxicity information were used to generate toxicity weights:**IRIS** searches were performed on April 1, 1997 (Integrated Risk Information System electronic database, version 1.0) and updated on February 1998, September 1998, January 8, 1999, January 26, 2000, Summer 2000, February 1, 2001,

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect

July 2001, December 2001, November 2003, March 2004, April 2005, June 2007, August 2008 and July 2009 (IRIS Home Page).
An IRIS search for new chemicals added for reporting year 2000 was conducted in May 2002.
CalEPA (California Environmental Protection Agency) values were obtained from the May 2001, July 2001, November 2003, December 19, 2003, June 25, 2008, and February 2009 Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, with the exception of the reference dose (RfD) for lea
The RfD for lead is derived from the December 1997 CalEPA Public Health Goal for Lead in Drinking Water.
OPP non-cancer values were obtained from the May 1, 2003 Office of Pesticide Programs "Acute and Chronic Reference Doses." OPP cancer values were obtained from the April 11, 2003 Office of Pesticide Programs "List of Chemicals Evaluated for Carcinogenic Potential." Individual OPP Reregistration Eligibility Documents (REDs) were searched in July 2009.
ATSDR (Agency for Toxic Substances and Disease Registry) values were obtained from the December 2008 Minimum Risk Levels (MRLs) for Hazardous Substances.
PPRTV values were obtained from the PPRTV database in June 2008.
HEAST values were obtained from the July 1997 and March 1993 Health Effects Assessment Summary Tables.
Cancer weight-of-evidence (WOE) designations were obtained from **IARC** (International Agency for Research on Cancer) in the absence of WOE designations from the sources described above. **Derived** values are those determined by the OPPT Review Process.
Refer to the Toxic Release Inventory Relative Risk-Based Environmental Indicators: Interim Toxicity Weighting Summary Document (EPA, June 1997) for further discussion of this methodology. The dates shown in this table refer to the actual listing dates of toxicity information as provided by the data source, and not the date of the search or the date of the publication. However, since HEAST does not provide listing dates for each chemical, the listing dates in this table refer to the date of the HEAST publication.

2. RfC = Reference Concentration (mg/m^3; non-cancer, inhalation pathway)
3. RfD = Reference Dose (mg/kg/day; non-cancer, oral pathway)
4. IUR = Inhalation Unit Risk (risk per mg/m^3; cancer, inhalation pathway)
5. SF = Oral Slope Factor (risk per mg/kg/day; cancer, oral pathway)
6. WOE = weight-of-evidence (provided for cancer toxicity values only)

Chemical-Specific Footnotes:

Asbestos: Toxicity information is expressed in different units (i.e., risk per fibers/ml) and its toxicity weight is assigned using a conversion factor of 5 (ug/m3)/(f/ml).
Butoxyethyl ester, 2,4-D: Toxicity information based on 2,4-D.
Butyl alcohol, tert- and sec-: Toxicity information based on n-butyl alcohol.
Chlorophenols: Toxicity information based on pentachlorophenol.
Chromium and Chromium Compounds: Toxicity information based on chromium(VI). Chromium(III) is not modeled. Chromium and chromium compounds are speciated between chromium(III) and chromium(VI) based on SIC-code level estimates.
Cyanide compounds: Toxicity information based on hydrogen cyanide for inhalation pathway and copper cyanide for oral pathway.
Diisocyanates: Toxicity information based on HDI (1,6-Hexamethylene diisocyanate).
Diaminotoluene (mixed isomers): Toxicity information based on 2,4-Diaminotoluene.
Ethylenebisdithiocarbamic acid, salts and esters: Toxicity information based on Metiram.
Ethylhexyl ester, 2,4-D, 2-: Toxicity information based on 2,4-D.

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	Non-Cancer				Cancer					Modeled RSEI Toxicity Weights			
Chemical Name	RfC[2] Source/Date	RfC Tox Wt	RfD[3] Source/Date	RfD Tox Wt	IUR[4] Source/Date	IUR Tox Wt	SF[5] Source/Date	SF Tox Wt	WOE[6] Source/Date	Inhalation		Oral	
										Weight	Effect	Weight	Effect

Glycol ethers: Toxicity information based on ethylene glycol monomethyl ether.
Hydrazine sulfate: Toxicity information based on hydrazine.
Lead and Lead Compounds: RfD derived from CalEPA Public Health Goal; an IUR from CalEPA was excluded and the oral toxicity weight based on a non-cancer endpoint was used for the inhalation pathway because of the large body of evidence suggesting a low threshold for non-cancer effects of lead.
Maneb: Slope factor based on ethylene thiourea, as designated in OPP 8/2000 Report.
Mercury and Mercury Compounds: Toxicity information based on elemental mercury for inhalation pathway and methyl mercury for oral pathway.
Nitrate compounds: Toxicity information based on nitrate.
Polycyclic aromatic compounds: Toxicity assumed to be 18% of toxicity for benzo(a)pyrene.
Sodium dicamba: Toxicity information based on dicamba.
Sodium nitrite: Toxicity information based on nitrite.
Sodium o-phenylphenoxide: Toxicity information based on 2-phenylphenol.
Strychnine and salts: Toxicity information based on strychnine.
Thallium and Thallium Compounds: Toxicity information based on thallic oxide.