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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107

EPA Region 5 Records Ctr.
229833

October 30, 1995

SUBJECT: Risk-Based Concentration Table, July - December 1995

FROM: Roy L. Smith, Ph.D.
Office of RCRA
Technical & Program Support Branch (3HW70)

TO: RBC Table mailing list

Attached is the EPA Region III risk-based concentration (RBC) table, which we distribute semi-annually to all interested parties.

IMPORTANT MESSAGE

EPA Region III has established a homepage on the World Wide Web which you can find at http://earth1.epa.gov:80/ or http://www.epa.gov/. Our homepage will soon include the RBC table in downloadable form. We strongly encourage all RBC table users having Internet access to obtain the table electronically rather than on paper. In this way, users can obtain the most current issue immediately in a form that can be used directly as input for risk assessment calculations. This distribution method will also save large amounts of paper and cost substantially less.

For those lacking Internet access, it's once again time to re-register to receive a paper copy of the RBC table. We need to hear from you periodically to ensure that you still have an interest and that we have your correct address. Please fax your registration request to Vanessa Sizer at 215-597-9890, including your name, address, and phone number. Please don't phone to re-register; we need hard copy to document your continued interest. If we don't hear from you by March 30, 1996, we'll assume you no longer need a paper copy. Thanks for your cooperation.

CONTENTS, USES, AND LIMITATIONS OF THE RBC TABLE

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through September 1, 1995, HEAST through May 1995, the EPA-NCEA Superfund Health Risk Technical Support Center, and other EPA sources) for nearly 600 chemicals. These toxicity constants have been combined with "standard" exposure scenarios to calculate RBCs--chemical concentrations corresponding to fixed levels of risk (*i.e.*, a hazard quotient of 1, or lifetime cancer risk of 10^{-6}, whichever occurs at a lower concentration) in water, air, fish tissue, and soil.

The RBC table also includes soil screening levels (SSLs) for protection of groundwater

and air. Most SSLs were obtained directly from EPA/OSWER's proposed SSL guidance document, to which we have added some additional SSLs based on the same methodology. Sources of SSLs are noted in the table. SSLs incorporate the same exposure assumptions as RBCs, plus additional assumptions needed for inter-media extrapolation. SSLs are therefore distinct from RBCs, and should be used only in the framework proposed in the OSWER document (available from NTIS as document numbers 9355.4-1, PB95-965530, or EPA540/R-94/105).

The Region III toxicologists use RBCs to screen sites not yet on the NPL, respond rapidly to citizen inquiries, and spot-check formal baseline risk assessments. The background materials provide the complete basis for all the calculations, with the intent of showing users exactly how the RBCs were developed. Simply put, RBCs are risk assessments run in reverse. For a single contaminant in a single medium, under standard default exposure assumptions, the RBC corresponds to the target risk or hazard quotient.

RBCs also have several important limitations. Specifically excluded from consideration are (1) transfers from soil to air and groundwater, and (2) cumulative risk from multiple contaminants or media. Also, the toxicity information in the table has been assembled by hand, and (despite extensive checking and years of use) may contain errors. It's advisable to cross-check before relying on any RfDs or CPSs in the table. If you find any errors, please send me a note.

Many users want to know if the risk-based concentrations can be used as valid no-action levels or cleanup levels, especially for soils. The answer is a bit complex. First, it is important to realize that the RBC table does not constitute regulation or guidance, and should not be viewed as a substitute for a site-specific risk assessment. For sites where:

1. A single medium is contaminated;

2. A single contaminant contributes nearly all of the health risk;

3. Volatilization or leaching of that contaminant from soil is expected not to be significant;

4. The exposure scenarios used in the RBC table are appropriate for the site;

5. The fixed risk levels used in the RBC table are appropriate for the site; and

6. Risk to ecological receptors is expected not to be significant;

the risk-based concentrations would probably be protective as no-action levels or cleanup goals. However, to the extent that a site deviates from this description, as most do, the RBCs would not necessarily be appropriate.

To summarize, the table should generally not be used to (1) set cleanup or no-action levels at CERCLA sites or RCRA Corrective Action sites, (2) substitute for EPA guidance for preparing baseline risk assessments, or (3) determine if a waste is hazardous under RCRA.

ANSWERS TO FREQUENTLY ASKED QUESTIONS

To help you better understand the RBC table, here are answers to our most often-asked questions:

1. How can the age-adjusted inhalation factor (11.66) be less than either the inhalation rate for a child (12) or for an adult (20)?

Age-adjusted factors are not intake rates, but rather partial calculations which have different units than intake rates do. The fact that these partial calculations have values similar to intake rates is really coincidental, an artifact of the similar magnitude of years of exposure and time-averaged body weight.

2. Why does arsenic appear in the RBC table separately as a carcinogen and a non-carcinogen, while other contaminants do not?

Arsenic is double-entered to ensure that the risk assessor realizes that non-carcinogenic concerns are significant for arsenic. Otherwise, one might be tempted to accept a 1e-4 risk (37 ppm in residential soil), when the oral reference dose would be exceeded at 23 ppm.

Also, EPA has a little-known risk management policy for arsenic (dating from 1988) that suggests that arsenic-related cancer risks of up to 1e-3 can be accepted because the cancers are squamous cell carcinomas with a low mortality rate. Thus, noncarcinogenic RBCs represent an important limitation on acceptable arsenic concentrations.

3. Many contaminants have no inhaled reference dose or carcinogenic potency slope in IRIS, yet these numbers appear in the RBC table with IRIS given as the source. Where did the numbers come from?

Most inhaled reference doses and potency slopes in the RBC table are converted from reference concentrations and unit risk values which do appear in IRIS. These conversions assume 70-kg persons inhaling 20 m^3/d. For example, the inhalation unit risk for arsenic (4.3e-3 risk per $\mu g/m^3$) is divided by 20 m^3/d and multiplied by 70 kg times 1000 μg/mg, yielding a CPSi of 15.1 risk per mg/kg/d.

4. Why does the RBC table base soil RBCs for cadmium and manganese on reference doses that apply only to drinking water?

The RBC table's use of the drinking water RfDs for cadmium and manganese reflects (1) the limited space available in the already-crowded table, and (2) the intended use of the table as a screening tool rather than a source of cleanup levels (thereby making false positives acceptable). For a formal risk assessment, Region III would use the food RfDs for soil ingestion.

At this time, only two substances (as far as we know) have distinct oral RfDs for water and food--cadmium and manganese. Adding the two food RfDs to the table would require an entire column, which would be about 99.9% blank. The table has become so crowded that it would be difficult to accommodate another column. Also, we given this problem a relatively low

priority because the table's primary purpose is to identify environmental problems needing further study. RBCs were never intended for uncritical use as cleanup levels, merely to identify potential problems which need a closer look.

5. What is the source of the child inhalation rate of 12 m3/d?

The calculation comes from basic physiology. It's a scaling of the mass-specific 20 m3/d rate for adults from a body mass of 70 kg to 15 kg, using the 2/3 power of mass, as follows:

Let: IRcm = mass-specific child inhalation rate (m3/kg/d)
IRc = child inhalation rate (m3/d)

20 m3/d ÷ 70kg = 0.286 m3/kg/d (mass-specific adult inhalation rate)

$0.286 \text{ m3/kg/d} \times (70^{.67}) = (\text{IRcm}) \times (15^{.67})$

$\text{IRcm} = (0.286) \times (70^{.67}) \div (15^{.67}) = 0.286 \times 2.807 = 0.803 \text{ m3/kg/d}$

IRc = IRcm x 15kg = 0.803 m3/kg/d x 15kg = 12.04 m3/d

A short (but algebraically equivalent) way to do the conversion:

$20 \times (15 \div 70)^{.333} = 11.97$ (different from, but actually more correct than, 12.04 because of rounding error in the long form).

6. Can the oral RfDs in the RBC table be applied to dermal exposure?

Not directly. EPA's Office of Research and Development is working on dermal RfDs for some substances, but has not yet produced any final values. When dermal RfDs do appear, they will undoubtedly be based on absorbed dose rather than administered dose. Oral RfDs are (usually) based on administered dose and therefore tacitly include a GI absorption factor. Thus, any use of oral RfDs in dermal risk calculations would have to involve removing this absorption factor.

*7. The exposure variables table in the RBC background document lists the averaging time for non-carcinogens as "ED*365". What does that mean?*

ED is exposure duration, in years. Multiplying ED by 365 simply converts the duration to days. In fact, the ED term is included in both the numerator and denominator of the RBC algorithms for non-cancer risk, canceling it altogether. We expressed the algorithm this way to allow users to realize this. The total exposure is really corrected only by EF (days exposed per year) divided by 365. (Note that this explanation applies to noncarcinogenic risk only; for carcinogens, exposure is pro-rated over the number of days in a 70-year life span.)

8. Why is inorganic lead not included in the RBC table?

The reason lead is missing from the RBC table is simple, and fundamental: EPA has no

reference dose or potency slope for inorganic lead, so it wasn't possible to calculate risk-based concentrations. EPA considers lead a special case because:

(1) Lead is ubiquitous in all media, so human exposure comes from multiple sources. Comparing single-medium exposures with a reference dose would be misleading.

(2) If EPA did develop a reference dose for lead by the same methods other reference doses, we would probably find that most people already exceed it. Since EPA already knows this and is moving aggressively to lower lead releases nationally, such findings at individual sites would be irrelevant and unduly alarming.

(3) EPA decided to take a new approach to separate important lead exposures from trivial ones. EPA developed a computer model (the IEUBK model) which predicts children's blood lead concentrations using lead levels in various media as inputs. The idea is to evaluate a child's entire environment, and reduce lead exposures in the most cost-effective way.

On the practical side, there are several EPA policies which effectively substitute for RBCs. The EPA Office of Solid Waste has released a detailed directive on risk assessment and cleanup of residential soil lead. The directive recommends that soil lead levels less than 400 ppm be considered safe for residential use. Above that level, the document suggests collecting certain types of data and modeling children's blood lead with the IEUBK model. For the purposes of the RBC table, the de facto residential soil number would be 400 mg/kg. For water, we suggest 15 ppb (from the national EPA Action Level), and for air, the National Ambient Air Quality Standard.

9. Where did the potency slopes for carcinogenic PAHs come from?

The source of the potency slopes for PAHs is "Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons", Final Draft, EPA Environmental Criteria and Assessment Office, Cincinnati, OH. It's available from NTIS as document number ECAO-CIN-842 (March, 1993). The slopes are expressed in terms of order-of-magnitude equivalence factors relating the compounds to benzo[a]pyrene; we have converted these TEQs to potency slopes to fit the format of the table.

10. May I please have a copy of the January 1991 RBC table?

We're sorry, but no. The RBC table doesn't represent regulation or guidance, so past issues should have no legal importance. Each time we update the table we destroy all obsolete copies, electronic and paper. We do this to ensure that only one set of RBCs, that based on current information, exists at any time.

11. I've noticed that some soil RBCs are 1 million parts per million. Since some of these substances are liquids, that's obviously ridiculous. What is that basis for these calculations?

A soil RBC of 1 million parts per million means that no amount of the contaminant in soil will cause a receptor to exceed the oral reference dose by incidental ingestion of soil. In

fact, some contaminants would have RBCs of more than 1 million ppm, but the algorithms cap concentrations at 100%. The reason we retain these admittedly impossible numbers is to let users see that the contaminant is not a threat via soil ingestion.

However, it's important to realize that the RBC calculations do not consider the potential of soil contaminants to leach to groundwater or escape to air by volatilization or dust entrainment. To consider these inter-media transfers, it's necessary to either monitor air and groundwater, or to use a model. Measured or modeled air and groundwater concentrations should then be compared to the RBCs for air and tap water.

We have begun to incorporate inter-media transfers into the RBC table in the form of soil screening levels (SSLs). However, EPA Headquarters has proposed only about a hundred SSLs so far, so the list is still rather short.

12. Please elaborate on the meaning of the 'W' source code in the table.

The "W" code means that a reference dose or potency slope for a contaminant is currently not present on either IRIS or HEAST, but that it once was present on either IRIS or HEAST and was removed. Such withdrawal usually indicates that consensus on the number no longer exists among EPA scientists, but not that EPA believes the contaminant to be unimportant. Older versions of the RBC table had separate codes for IRIS and HEAST withdrawals, but we changed to a single code for both because, after all, it hardly matters.

We retain withdrawn numbers in the table because we still need to deal with these contaminants during the sometimes very long delays before replacement numbers are ready. We take the position that for the purpose of screening an obsolete RBC is better than none at all. The 'W' code should serve as a clear warning that before making any serious decision involving that contaminant you will need to develop an interim value based on current scientific understanding.

If you are assessing risks at a site where a major contaminant is coded "W", consider working with your Regional EPA risk assessor to develop a current toxicity constant. If the site is being studied under CERCLA, the EPA-NCEA Regional Technical Support group may be able to assist.

13. Can I get copies of supporting documents for interim toxicity constants which are coded "E" in the RBC table?

Unfortunately, Region 3 does not have a complete set of supporting documents. The EPA-NCEA Superfund Health Risk Technical Support Center prepares these interim toxicity constants in response to site-specific requests from Regional risk assessors, and sends the documentation only to the requestor. The RBC tables contain only the interim values (those with "E" codes) that we've either requested ourselves or otherwise obtained copies of. There may be many more interim values of which we are unaware. Also, we don't receive automatic updates when NCEA revisits a contaminant, so it's likely that some interim values in the RBC table are obsolete.

It has been NCEA's policy to deny requests for documentation of interim toxicity constants. Although Region 3 has sometimes provided this documentation on request, for the above-stated reasons we have no assurance that the documentation, or even the interim numbers, are current. We've decided to discontinue distributing information that may be misleading. If one of the "E"-coded contaminants is a major risk contributor at your site, we strongly suggest that you work with EPA to develop an up-to-date reference dose or slope factor.

CHANGES IN THIS ISSUE OF THE RBC TABLE

New or revised EPA toxicity constants are now marked with "**" before the contaminant name. This is to help users quickly pick out substances with new RBCs. Formerly these contaminants were printed in underlined boldface type that copied badly. A new basis code, "M" for MCL, has been added to the upper right corner of each page. This code denotes soil screening levels for groundwater protection that are based on EPA Maximum Contaminant Levels.

If you want to raise issues or get answers to questions about the RBC table, please call the Technical Support Help Line at 215-597-1116. The line has a voice mail system to take your calls if we're not available. We'll return your call as soon as we can. Please limit calls to RBC issues; if you have a question about applying RBCs to a site, please call the EPA Regional office handling the project. Thanks for your help and cooperation, and we hope the RBC table continues to be a useful resource.

Attachment

EPA Region III Risk-Based Concentration Table

Background Information

Roy L. Smith, Ph.D.
Toxicologist
October 4, 1995

Development of Risk-Based Concentrations

General

Separate carcinogenic and non-carcinogenic risk-based concentrations were calculated for each compound for each pathway. The concentration in the table is the lower of the two, rounded to two significant figures. The following terms and values were used in the calculations:

Exposure variables	Value	Symbol
General:		
Carcinogenic potency slope oral (risk per mg/kg/d):	*	CPSo
Carcinogenic potency slope inhaled (risk per mg/kg/d):	*	CPSi
Reference dose oral (mg/kg/d):	*	RfDo
Reference dose inhaled (mg/kg/d):	*	RfDi
Target cancer risk:	1e-06	TR
Target hazard quotient:	1	THQ
Body weight, adult (kg):	70	BWa
Body weight, age 1-6 (kg):	15	BWc
Averaging time carcinogens (d):	25550	ATc
Averaging time non-carcinogens (d):	ED*365	ATn
Inhalation, adult (m3/d):	20	IRAa
Inhalation, child (m3/d):	12	IRAc
Inhalation factor, age-adjusted (m3-y/kg-d):	11.66	IFAadj
Tap water ingestion, adult (L/d):	2	IRWa
Tap water ingestion, age 1-6 (L/d):	1	IRWc
Tap water ingestion factor, age-adjusted (L-y/kg-d):	1.09	IFWadj
Fish ingestion (g/d):	54	IRF
Soil ingestion, adult (mg/d):	100	IRSa
Soil ingestion, age 1-6 (mg/d):	200	IRSc
Soil ingestion factor, age adjusted (mg-y/kg-d):	114.29	IFSadj
Residential:		
Exposure frequency (d/y):	350	EFr
Exposure duration, total (y):	30	EDtot
Exposure duration, age 1-6 (y):	6	EDc
Volatilization factor (L/m3):	0.5	K

Exposure variables	Value	Symbol
Occupational:		
Exposure frequency (d/y):	250	EFo
Exposure duration (y):	25	EDo
Fraction of contaminated soil ingested (unitless)	0.5	FC

*: Contaminant-specific toxicological constants. The priority among sources of toxicological constants was as follows: (1) IRIS, (2) HEAST, (3) HEAST alternative method, (4) EPA-NCEA Superfund Health Risk Technical Support Center, (5) withdrawn from IRIS or HEAST, and (6) other EPA documents. Each source was used only if numbers from higher-priority sources were unavailable. The EPA Superfund Health Risk Technical Support Center, part of the EPA National Center for Environmental Assessment in Cincinnati, develops provisional RfDs and CPSs on request for contaminants not in IRIS or HEAST. These provisional values are labeled "E = EPA-NCEA provisional" in the table. It is possible they may be obsolete. If one of the "E" constants is important to a Superfund risk assessment, consider requesting, through a Regional risk assessor, a new provisional value.

Age-adjusted factors

Because contact rates with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors. These factors approximated the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults. The age-adjusted factor for soil was obtained from RAGS IB; the others were developed by analogy.

Air inhalation

$$IFAadj \ \frac{m^3 \cdot y}{kg \cdot d} = \frac{EDc \cdot IRAc}{BWc} + \frac{(EDtot - EDc) \cdot IRAa}{BWa}$$

Tap water ingestion

$$IFWadj \ \frac{L \cdot y}{kg \cdot d} = \frac{EDc \cdot IRWc}{BWc} + \frac{(EDtot - EDc) \cdot IRWa}{BWa}$$

Soil ingestion

$$IFSadj \ \frac{mg \cdot y}{kg \cdot d} = \frac{EDc \cdot IRSc}{BWc} + \frac{(EDtot - EDc) \cdot IRSa}{BWa}$$

Residential water

Volatilization terms were calculated only for compounds with a mark in the "VOC" column. Compounds having a Henry's Law constant greater than 10^{-5} were considered volatile. The list may be incomplete, but is unlikely to include false positives. The equations and the volatilization factor (K, above) were obtained from RAGS IB. Oral potency slopes and reference doses were used for both oral and inhaled exposures for volatile compounds lacking inhalation values. Inhaled potency slopes were substituted for unavailable oral potency slopes only for volatile compounds; inhaled RfDs were substituted for unavailable

oral RfDs for both volatile and non-volatile compounds. RBCs for carcinogens were based on combined childhood and adult exposure; for non-carcinogens RBCs were based on adult exposure.

Carcinogens

$$RBC\ \frac{\mu g}{L} = \frac{TR \cdot ATc \cdot 1000\ \frac{\mu g}{mg}}{EFr \cdot ([K \cdot IFAadj \cdot CPSi] + [IFWadj \cdot CPSo])}$$

Non-carcinogens

$$RBC\ \frac{\mu g}{L} = \frac{THQ \cdot BWa \cdot ATn \cdot 1000\ \frac{\mu g}{mg}}{EFr \cdot EDtot \cdot \left(\frac{K \cdot IRAa}{RfDi} + \frac{IRWa}{RfDo}\right)}$$

Ambient air

Oral potency slopes and references were used where inhalation values were not available. RBCs for carcinogens were based on combined childhood and adult exposure; for non-carcinogens RBCs were based on adult exposure.

Carcinogens

$$RBC\ \frac{\mu g}{m^3} = \frac{TR \cdot ATc \cdot 1000\ \frac{\mu g}{mg}}{EFr \cdot IFAadj \cdot CPSi}$$

Non-carcinogens

$$RBC\ \frac{\mu g}{m^3} = \frac{THQ \cdot RfDi \cdot BWa \cdot ATn \cdot 1000\ \frac{\mu g}{mg}}{EFr \cdot EDtot \cdot IRAa}$$

Edible fish

All RBCs were based on adult exposure.

Carcinogens

$$RBC\ \frac{mg}{kg} = \frac{TR \cdot BWa \cdot ATc}{EFr \cdot EDtot \cdot \frac{IRF}{1000\ \frac{g}{kg}} \cdot CPSo}$$

Non-carcinogens

$$RBC\ \frac{mg}{kg} = \frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFr \cdot EDtot \cdot \frac{IRF}{1000\ \frac{g}{kg}}}$$

Commercial/industrial soil ingestion

RBCs were based on adult occupational exposure, including an assumption that only 50% of total soil ingestion is work-related.

Carcinogens

$$RBC\ \frac{mg}{kg} = \frac{TR\ BWa\ ATc}{EFo\ EDo \cdot \frac{IRSa}{10^6\ \frac{mg}{kg}} \cdot FC \cdot CPSo}$$

Non-carcinogens

$$RBC\ \frac{mg}{kg} = \frac{THQ\ RfDo \cdot BWa \cdot ATn}{EFo \cdot EDo \cdot \frac{IRSa}{10^6\ \frac{mg}{kg}} \cdot FC}$$

Residential soil ingestion

RBCs for carcinogens were based on combined childhood and adult exposure; RBCs for non-carcinogens were based on childhood exposure only.

Carcinogens

$$RBC\ \frac{mg}{kg} = \frac{TR \cdot ATc}{EFr \cdot \frac{IFSadj}{10^6\ \frac{mg}{kg}} \cdot CPSo}$$

Non-carcinogens

$$RBC\ \frac{mg}{kg} = \frac{THQ\ RfDo \cdot BWc \cdot ATn}{EFr \cdot EDc \cdot \frac{IRSc}{10^6\ \frac{mg}{kg}}}$$

Development of Soil Screening Levels

General

In December 1994 the EPA Office of Solid Waste and Emergency Response proposed Soil Screening Guidance (Document 9355.4-1, PB95-963530, EPA540/R-94/101, available through NTIS at 703-487-4650). This draft document provides (1) a framework in which soil screening levels are to be used, (2) a detailed methodology for calculating soil screening levels, and (3) soil screening levels for 107 substances.

Consistent with this new guidance, the risk-based concentration table now includes two columns of generic soil screening levels (SSLs). OSWER's 107 proposed soil screening levels have been added verbatim. In addition, the proposed SSL methodology has been used to calculate soil screening levels for more substances, which are also included in the

new table. The table clearly distinguishes the OSWER SSLs from the "unofficial" ones.

These SSLs provide reasonable maximum estimates of transfers of contaminants from soil to other media. One column contains soil concentrations protective of groundwater quality; the other contains soil concentrations protective of air quality. "Protective" is defined in the same terms as the risk-based concentrations for tap water and air -- that residential contact scenarios will yield a fixed upper bound risk of 10^{-6} or a fixed hazard quotient of 1 (whichever occurs at the lower concentration).

OSWER's SSLs should be used only within the framework proposed in the guidance document. The additional SSLs included in the RBC table are intended for the same uses (although they obviously carry less weight than the formally proposed numbers).

The SSLs are based on the following assumptions:

Input variables	Value	Symbol*
Surface soil moisture content (g/g)	0.1	W_s
Vadose zone soil moisture content (kg/kg)	0.2	W_v
Surface soil bulk density (g/cm^3)	1.5	ρ_{bs}
Vadose zone soil bulk density (kg/L)	1.5	ρ_{bv}
Surface soil particle density (g/cm^3)	2.65	ρ_{as}
Vadose zone soil particle density (g/cm^3)	2.65	ρ_{av}
Total surface soil porosity (L pore /L soil)	0.43	N_s
Total vadose zone soil porosity (L pore/L soil)	0.43	N_v
Air-filled surface soil porosity (L air/L soil)	0.28	θ_{as}
Water-filled surface soil porosity (L water/L soil)	0.15	θ_{ws}
Air-filled vadose zone soil porosity (L air/L soil)	0.13	θ_{av}
Water-filled vadose zone soil porosity (L water/L soil)	0.30	θ_{wv}
Organic carbon fraction of surface soil (g/g)	0.006	FOC_s
Organic carbon fraction of vadose zone soil (g/g)	0.002	FOC_v
Dispersion factor for 0.5 acres (g/m^{2}s per kg/m^3)	35.1	Q/C
Particulate emission factor (m^3/kg)	6.79e+08	PEF
Exposure interval (s)	9.50e+08	T
Dilution-attenuation factor (unitless)	10	DAF

*: Symbols were adjusted, variables were rearranged, and derived and chemical-specific variables were omitted for simplicity and clarity. Presentation of the input variables in a single table using the same terms as in the OSWER SSL document would have been confusing. The terms used here are generally similar to OSWER's, and can easily be compared with the SSL guidance document.

With two exceptions described in the following section, SSL calculations were based on the same algorithms presented in the OSWER draft SSL guidance document. For details of the calculations (and for general background information on SSLs), I strongly recommend

consulting that document. The "unofficial" SSLs were developed under the following conditions:

Soil Screening Levels for Inhalation

Inhaled reference doses and potency slopes were used if available. If inhalation values were not available, oral RfDs and potency slopes were substituted. SSLs were calculated only for substances for which aqueous solubility, Koc, Henry's Law constant, and diffusivity in air were available. SSLs were calculated only for substances for which a volatilization factor could be calculated. This was done because OSWER's large proposed particulate emission factor rendered it pointless to estimate SSLs for particulate emissions alone. The final calculated SSL shown in the RBC table is the smaller of the risk-based SSL and the soil saturation concentration. All calculated SSLs were rounded to 2 significant figures.

The OSWER risk algorithms for inhalation were revised in order to be consistent with the rest of the RBC table. Only calculated SSLs were affected by this; SSLs proposed by OSWER are presented verbatim. Calculated SSLs for inhalation of carcinogens were based on an integrated lifetime exposure rather than adult exposure. SSLs for inhalation of noncarcinogens were based on adult exposure for 350 days per year rather than 365 days per year. The following algorithms were used to calculate inhalation SSLs:

Carcinogens

$$SSL \ \frac{mg}{kg} = \frac{TR \cdot ATc}{EFr \cdot IFAadj \cdot \left(\frac{1}{VF} + \frac{1}{PEF}\right) \cdot CPSi}$$

Non-carcinogens

$$SSL \ \frac{mg}{kg} = \frac{THQ \cdot BWa \cdot ATn \cdot RfDi}{EFr \cdot EDtot \cdot IRAa \cdot \left(\frac{1}{VF} + \frac{1}{PEF}\right)}$$

Soil Screening Levels for Groundwater Use

All algorithms were as proposed by OSWER. MCLs were used as target groundwater concentrations if available. If MCLs were unavailable the risk-based concentration in the "tap water" column of the RBC table was used as the target groundwater concentration. Al SSLs for groundwater are based on a dilution-attenuation factor (DAF) of 10. Since thes SSLs scale linearly with DAF, the SSLs for DAF=1 would be ten times lower. They wer omitted to conserve space. All groundwater SSLs were rounded to 2 significant figures a capped at unity.

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST E=EPA-NCEA Regional Support provisional value O=Other EPA documents.

Basis: C=carcinogenic effects N=noncarcinogenic effects E=EPA draft Soil Screening Level S=soil saturation concentration M=EPA MCL.

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Risk-Based Concentrations: Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion: Industrial mg/kg	Soil Ingestion: Residential mg/kg	Soil Screening Levels-Transfers from Soil to: Air mg/kg	Groundwater mg/kg
Acephate	30560191	4.00E-03 I		8.70E-03 I			7.7 c	0.72 c	0.36 c	660 c	73 c		
Acetaldehyde	75070		2.57E-03 I		7.70E-03 I		94 N	0.81 c					
Acetochlor	34256821	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N		
Acetone	67641	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N	62000 s	8 s
Acetone cyanohydrin	75865	7.00E-02 N	4.00E-02 A				2600 N	150 N	95 N	140000 N	5500 N		
Acetonitrile	75078	6.00E-03 I	1.43E-02 A				220 N	52 N	8.1 N	12000 N	470 N		
Acetophenone	98862	1.00E-01 I	5.71E-06 W				0.042 N	0.021 N	140 N	200000 N	7800 N		
Acifluorfen	62476599	1.30E-02 I					470 N	47 N	18 N	27000 N	1000 N		
Acrolein	107028	2.00E-02 N	5.71E-06 I				730 N	0.021 N	27 N	41000 N	1600 N		
Acrylamide	79061	2.00E-04 I		4.50E+00 I	4.55E+00 I		0.015 c	0.0014 c	0.0007 c	1.3 c	0.14 c		
Acrylic acid	79107	5.00E-01 I	2.86E-04 I				18000 N	1 N	680 N	1E+06 N	39000 N		
Acrylonitrile	107131	1.00E-03 N	5.71E-04 I	5.40E-01 I	2.38E-01 I		0.12 c	0.026 c	0.0058 c	11 c	1.2 c		
Alachlor	15972608	1.00E-02 I		8.00E-02 N			0.84 c	0.078 c	0.039 c	72 c	8 c		
Alar	1596845	1.50E-01 I					5500 N	550 N	200 N	310000 N	12000 N		
Aldicarb	116063	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N	570 s	0.036 N
Aldicarb sulfone	1646884	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Aldrin	309002	3.00E-05 I		1.70E+01 I	1.71E+01 I		0.004 c	0.00037 c	0.00019 c	0.34 c	0.038 c	0.5 s	0.005 s
Ally	74223646	2.50E-01 I					9100 N	910 N	340 N	510000 N	20000 N		
Allyl alcohol	107186	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N		
Allyl chloride	107051	5.00E-02 W	2.86E-04 I				1800 N	1 N	68 N	100000 N	3900 N		
Aluminum	7429905	1.00E+00 E					37000 N	3700 N	1400 N	1E+06 N	78000 N		
Aluminum phosphide	20859738	4.00E-04 I					15 N	1.5 N	0.54 N	820 N	31 N		
Amdro	67485294	3.00E-04 I					11 N	1.1 N	0.41 N	610 N	23 N		
Ametryn	834128	9.00E-03 I					330 N	33 N	12 N	18000 N	700 N		
m-Aminophenol	591275	7.00E-02 N					2600 N	260 N	95 N	140000 N	5500 N		
4-Aminopyridine	504245	2.00E-05 N					0.73 N	0.073 N	0.027 N	41 N	1.6 N		
Amitraz	33089611	2.50E-03 I					91 N	9.1 N	3.4 N	5100 N	200 N		
Ammonia	7664417		2.86E-02 I				1000 N	100 N					
Ammonium sulfamate	7773060	2.00E-01 I					7300 N	730 N	270 N	410000 N	16000 N		
Aniline	62533		2.86E-04 I	5.70E-03 I			10 N	1 N	0.55 c	1000 c	110 c	45 N	0.031 N
Antimony and compounds	7440360	4.00E-04 I					15 N	1.5 N	0.54 N	820 N	31 N		
Antimony pentoxide	1314609	5.00E-04 N					18 N	1.8 N	0.68 N	1000 N	39 N		
Antimony potassium tartrate	304610	9.00E-04 N					33 N	3.3 N	1.2 N	1800 N	70 N		
Antimony tetroxide	1332316	4.00E-04 N					15 N	1.5 N	0.54 N	820 N	31 N		
Antimony trioxide	1309644	4.00E-04 N					15 N	1.5 N	0.54 N	820 N	31 N		
Apollo	74115245	1.30E-02 I					470 N	47 N	18 N	27000 N	1000 N		
Aramite	140578	5.00E-02 N		2.50E-02 I	2.49E-02 I		2.7 c	0.25 c	0.13 c	230 c	26 c		
Arsenic	7440382	3.00E-04 I					11 N	1.1 N	0.41 N	610 N	23 N	380 s	15 s
**Arsenic (as carcinogen)	7440382			1.50E+00 I	1.51E+01 I		0.045 c	0.00041 c	0.0021 c	3.8 c	0.43 c	380 s	15 s

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Risk-Based Concentrations: Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion: Industrial mg/kg	Soil Ingestion: Residential mg/kg	Soil Screening Levels-Transfers from Soil to: Air mg/kg	Groundwater mg/kg
Arsine	7784421		1.43E-05 i				0.52 N	0.052 N					
Assure	76578148	9.00E-03 i					330 N	33 N	12 N	18000 N	700 N		
Asulam	3337711	5.00E-02 i					1800 N	180 N	68 N	100000 N	3900 N		
Atrazine	1912249	3.50E-02 i		2.22E-01 N			0.3 c	0.028 c	0.014 c	26 c	2.9 c		
Avermectin B1	65195553	4.00E-04 i					15 N	1.5 N	0.54 N	820 N	31 N		
Azobenzene	103333			1.10E-01 i	1.08E-01 i		0.61 c	0.058 c	0.029 c	52 c	5.8 c		
Barium and compounds	7440393	7.00E-02 i	1.43E-04 A				2600 N	0.52 N	95 N	140000 N	5500 N	350000 E	32 E
Baygon	114261	4.00E-03 i					150 N	15 N	5.4 N	8200 N	310 N		
Bayleton	43121433	3.00E-02 i					1100 N	110 N	41 N	61000 N	2300 N		
Baythroid	68359375	2.50E-02 i					910 N	91 N	34 N	51000 N	2000 N		
Benefin	1861401	3.00E-01 i					11000 N	1100 N	410 N	610000 N	23000 N		
Benomyl	17804352	5.00E-02 i					1800 N	180 N	68 N	100000 N	3900 N		
Bentazon	25057890	2.50E-03 i					91 N	9.1 N	3.4 N	5100 N	200 N		
Benzaldehyde	100527	1.00E-01 i				O	610 N	370 N	140 N	200000 N	7800 N		
Benzene	71432		1.71E-03 E	2.90E-02 i	2.90E-02 i	O	0.36 c	0.22 c	0.11 c	200 c	22 c	0.5 E	0.02 E
Benzenethiol	108985	1.00E-05 N					0.37 N	0.037 N	0.014 N	20 N	0.78 N		
Benzidine	92875	3.00E-03 i		2.30E+02 i	2.35E+02 i		0.00029 c	0.00003 c	0.00001 c	0.025 c	0.0028 c	1.3 c	1.100E-06 c
Benzoic acid	65850	4.00E+00 i					150000 N	15000 N	5400 N	1E+06 N	310000 N	320 E	280 E
Benzotrichloride	98077			1.30E+01 i			0.0052 c	0.00048 c	0.00024 c	0.44 c	0.049 c	0.012 c	0.000073 c
Benzyl alcohol	100516	3.00E-01 N					11000 N	1100 N	410 N	610000 N	23000 N		
Benzyl chloride	100447			1.70E-01 i		O	0.062 c	0.037 c	0.019 c	34 c	3.8 c	0.5 c	0.00036 c
Beryllium and compounds	7440417	5.00E-03 i		4.30E+00 i	8.40E+00 i		0.016 c	0.00075 c	0.00073 c	1.3 c	0.15 c	690 E	180 E
Bidrin	141662	1.00E-04 i					3.7 N	0.37 N	0.14 N	200 N	7.8 N		
Biphenthrin (Talstar)	82657043	1.50E-02 i					550 N	55 N	20 N	31000 N	1200 N		
1,1-Biphenyl	92524	5.00E-02 i					1800 N	180 N	68 N	100000 N	3900 N	9000 E	110 N
Bis(2-chloroethyl)ether	111444			1.10E+00 i	1.16E+00 i	O	0.0092 c	0.0054 c	0.0029 c	5.2 c	0.58 c	0.3 E	0.0003 E
Bis(2-chloroisopropyl)ether	39638329	4.00E-02 i		7.00E-02 N	3.50E-02 N	O	0.26 c	0.18 c	0.045 c	82 c	9.1 c		
Bis(chloromethyl)ether	542881			2.20E+02 i	2.17E+02 i	O	0.00005 c	0.00003 c	0.00001 c	0.026 c	0.0029 c	0.00004 c	1.000E-07 c
Bis(2-chloro-1-methylethyl)ether				7.00E-02 W	7.00E-02 W		0.96 c	0.089 c	0.045 c	82 c	9.1 c		
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02 i		1.40E-02 i			4.8 c	0.45 c	0.23 c	410 c	46 c	210 E	11 E
Bisphenol A	80057	5.00E-02 i					1800 N	180 N	68 N	100000 N	3900 N		
Boron (and borates)	7440428	9.00E-02 i	5.71E-03 N				3300 N	21 N	120 N	180000 N	7000 N		
Boron trifluoride	7637072		2.00E-04 N				7.3 N	0.73 N					
Bromodichloromethane	75274	2.00E-02 i		6.20E-02 i		O	0.17 c	0.1 c	0.051 c	92 c	10 c	1800 E	0.3 E
Bromoethene	593602				1.10E-01 N	O	0.096 c	0.057 c					
Bromoform (tribromomethane)	75252	2.00E-02 i		7.90E-03 i	3.85E-03 i	O	2.4 c	1.6 c	0.4 c	720 c	81 c	46 E	0.5 E
Bromomethane	74839	1.40E-03 i	1.43E-03 i			O	8.7 N	5.2 N	1.9 N	2900 N	110 N	2 E	0.1 E
4-Bromophenyl phenyl ether	101553	5.00E-02 e					2100 N	210 N	78 N	120000 N	4500 N		
Bromophos	2104963	5.00E-03 N					180 N	18 N	6.8 N	10000 N	390 N		

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Bromoxynil	1689845	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Bromoxynil octanoate	1689992	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
1,3-Butadiene	106990				9.80E-01 i	VOC	0.011 c	0.0064 c				0.0013 c	0.000072 c
1-Butanol	71363	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n	9700 s	8 s
Butyl benzyl phthalate	85687	2.00E-01 i					7300 n	730 n	270 n	410000 n	16000 n	530 s	68 s
Butylate	2008415	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
sec-Butylbenzene	135988	1.00E-02 a				VOC	61 n	37 n	14 n	20000 n	780 n	80 s	0.27 s
tert-Butylbenzene	104518	1.00E-02 a				VOC	61 n	37 n	14 n	20000 n	780 n		0.27 s
Butylphthalyl butylglycolate	85701	1.00E+00 i					37000 n	3700 n	1400 n	1E+06 n	78000 n		
Cacodylic acid	75605	3.00E-03 n					110 n	11 n	4.1 n	6100 n	230 n		
**Cadmium and compounds	7440439	5.00E-04 i	5.71E-05 e		6.30E+00 i		18 n	0.00099 c	0.68 n	1000 n	39 n	920 s	6 s
Caprolactam	105602	5.00E-01 i					18000 n	1800 n	680 n	1E+06 n	39000 n		
Captafol	2425061	2.00E-03 i		8.60E-03 n			7.8 c	0.73 c	0.37 c	670 c	74 c		
Captan	133062	1.30E-01 i		3.50E-03 n			19 c	1.8 c	0.9 c	1600 c	180 c		
Carbaryl	63252	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n	0.34 s	23 s
Carbofuran	1563662	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
**Carbon disulfide	75150	1.00E-01 i	2.00E-01 i			VOC	1000 n	730 n	140 n	200000 n	7800 n	11 s	14 s
Carbon tetrachloride	56235	7.00E-04 i	5.71E-04 e	1.30E-01 i	5.25E-02 i	VOC	0.16 c	0.12 c	0.024 c	44 c	4.9 c	0.2 s	0.03 s
Carbosulfan	55285148	1.00E-02 i					370 n	37 n	14 n	20000 n	780 n		
Carboxin	5234684	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Chloral	75876	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Chloramben	133904	1.50E-02 i					550 n	55 n	20 n	31000 n	1200 n		
Chloranil	118752			4.03E-01 n			0.17 c	0.016 c	0.0078 c	14 c	1.6 c		
Chlordane	57749	6.00E-05 i		1.30E+00 i	1.29E+00 i		0.052 c	0.0049 c	0.0024 c	4.4 c	0.49 c	10 s	2 s
Chlorimuron-ethyl	90982324	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Chlorine	7782505	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Chlorine dioxide	10049044		5.71E-05 i				2.1 n	0.21 n					
Chloroacetaldehyde	107200	6.90E-03 o					250 n	25 n	9.3 n	14000 n	540 n		
Chloroacetic acid	79118	2.00E-03 n					73 n	7.3 n	2.7 n	4100 n	160 n		
2-Chloroacetophenone	532274		8.57E-06 i				0.31 n	0.031 n					
4-Chloroaniline	106478	4.00E-03 i					150 n	15 n	5.4 n	8200 n	310 n	1200 s	0.3 s
Chlorobenzene	108907	2.00E-02 i	5.71E-03 a			VOC	39 n	21 n	27 n	41000 n	1600 n	94 s	0.6 s
Chlorobenzilate	510156	2.00E-02 i		2.70E-01 n	2.70E-01 n		0.25 c	0.023 c	0.012 c	21 c	2.4 c		
p-Chlorobenzoic acid	74113	2.00E-01 n					7300 n	730 n	270 n	410000 n	16000 n		
4-Chlorobenzotrifluoride	98566	2.00E-02 n					730 n	73 n	27 n	41000 n	1600 n	86 n	7.5 n
2-Chloro-1,3-butadiene	126998	2.00E-02 a	2.00E-03 n			VOC	14 n	7.3 n	27 n	41000 n	1600 n		
1-Chlorobutane	109693	4.00E-01 n				VOC	2400 n	1500 n	540 n	820000 n	31000 n		
Chlorodibromomethane	124481	2.00E-02 i		8.40E-02 i		VOC	0.13 c	0.075 c	0.038 c	68 c	7.6 c	1900 s	0.2 s
**1-Chloro-1,1-difluoroethane	75683	i	1.43E+01			VOC	87000 n	52000 n					

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Chlorodifluoromethane	75456		1.43e+01 i			■	87000 n	52000 n					
Chloroethane	75003	4.00E-01 s	2.86E+00 i			■	8600 n	10000 n	540 n	820000 n	31000 n	2600 s	33 n
2-Chloroethyl vinyl ether	110758	2.50E-02 o				■	150 n	91 n	34 n	51000 n	2000 n		
Chloroform	67663	1.00E-02 i		6.10E-03 i	8.05E-02 i	■	0.15 c	0.078 c	0.52 c	940 c	100 c	0.2 s	0.3 s
Chloromethane	74873			1.30E-02 n	6.30E-03 n	■	1.4 c	0.99 c	0.24 c	440 c	49 c	0.063 c	0.0066 c
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 n			0.15 c	0.014 c	0.0069 c	12 c	1.4 c		
4-Chloro-2-methylaniline	95692			5.80E-01 n			0.12 c	0.011 c	0.0054 c	9.9 c	1.1 c		
beta-Chloronaphthalene	91587	8.00E-02 i					2900 n	290 n	110 n	160000 n	6300 n	2.8 s	140 n
o-Chloronitrobenzene	88733			2.50E-02 n		■	0.42 c	0.25 c	0.13 c	230 c	26 c		
p-Chloronitrobenzene	100005			1.80E-02 n		■	0.59 c	0.35 c	0.18 c	320 c	35 c		
2-Chlorophenol	95578	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n	53000 s	2 s
2-Chloropropane	75296		2.86E-02 n			■	170 n	100 n				22 n	0.64 n
Chlorothalonil	1897456	1.50E-02 i		1.10E-02 n			6.1 c	0.57 c	0.29 c	520 c	58 c		
o-Chlorotoluene	95498	2.00E-02 i				■	120 n	73 n	27 n	41000 n	1600 n	1200 n	5.6 n
Chlorpropham	101213	2.00E-01 i					7300 n	730 n	270 n	410000 n	16000 n		
Chlorpyrifos	2921882	3.00E-03 i					110 n	11 n	4.1 n	6100 n	230 n		
Chlorpyrifos-methyl	5598130	1.00E-02 n					370 n	37 n	14 n	20000 n	780 n		
Chlorsulfuron	64902723	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Chlorthiophos	60238564	8.00E-04 n					29 n	2.9 n	1.1 n	1600 n	63 n		
Chromium III and compounds	16065831	1.00E+00 i	5.71E-07 w				37000 n	0.0021 n	1400 n	1E+06 n	78000 n		
Chromium VI and compounds	18540299	5.00E-03 i			4.20E+01 i		180 n	0.00015 c	6.8 n	10000 n	390 n	140 s	19 s
Coal tar	8001589				2.20E+00 w			0.0028 c					
Cobalt	7440484	6.00E-02 s					2200 n	220 n	81 n	120000 n	4700 n		
Coke Oven Emissions	8007452				2.17E+00 i			0.0029 c					
**Copper and compounds	7440508	4.00E-02 s					1500 n	150 n	54 n	82000 n	3100 n		
Crotonaldehyde	123739	1.00E-02 w		1.90E+00 n	1.90E+00 w		0.035 c	0.0033 c	0.0017 c	3 c	0.34 c		
Cumene	98828	4.00E-02 i	2.57E-03 n				1500 n	9.4 n	54 n	82000 n	3100 n	81 n	65 n
Cyanides:													
Barium cyanide	542621	1.00E-01 w					3700 n	370 n	140 n	200000 n	7800 n		
Calcium cyanide	592018	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n		
Copper cyanide	544923	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Cyanazine	21725462	2.00E-03 n		8.40E-01 n			0.08 c	0.0075 c	0.0038 c	6.8 c	0.76 c		
Cyanogen	460195	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n		
Cyanogen bromide	506683	9.00E-02 i					3300 n	330 n	120 n	180000 n	7000 n		
Cyanogen chloride	506774	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Free cyanide	57125	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Hydrogen cyanide	74908	2.00E-02 i	8.57E-04 i				730 n	3.1 n	27 n	41000 n	1600 n		
Potassium cyanide	151508	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Potassium silver cyanide	506616	2.00E-01 i					7300 n	730 n	270 n	410000 n	16000 n		

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Silver cyanide	506649	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N		
Sodium cyanide	143339	4.00E-02 I					1500 N	150 N	54 N	82000 N	3100 N		
**Thiocyanate		2.00E-02 E					730 N	73 N	27 N	41000 N	1600 N		
Zinc cyanide	557211	5.00E-02 I					1800 N	180 N	68 N	100000 N	3900 N		
Cyclohexanone	108941	5.00E+00 I				■	30000 N	18000 N	6800 N	1E+06 N	390000 N		
Cyclohexlamine	108918	2.00E-01 I					7300 N	730 N	270 N	410000 N	16000 N		
Cyhalothrin/Karate	68085858	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N		
Cypermethrin	52315078	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
Cyromazine	66215278	7.50E-03 I					270 N	27 N	10 N	15000 N	590 N		
Dacthal	1861321	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
Dalapon	75990	3.00E-02 I					1100 N	110 N	41 N	61000 N	2300 N		
Danitol	39515418	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
DDD	72548			2.40E-01 I			0.28 C	0.026 C	0.013 C	24 C	2.7 C	37 E	0.7 E
DDE	72559			3.40E-01 I			0.2 C	0.018 C	0.0093 C	17 C	1.9 C	10 E	0.5 E
DDT	50293	5.00E-04 I		3.40E-01 I	3.40E-01 I		0.2 C	0.018 C	0.0093 C	17 C	1.9 C	80 E	1 E
Decabromodiphenyl ether	1163195	1.00E-02 I				■	61 N	37 N	14 N	20000 N	780 N		
Demeton	8065483	4.00E-05 I					1.5 N	0.15 N	0.054 N	82 N	3.1 N		
Diallate	2303164			6.10E-02 N		■	0.17 C	0.1 C	0.052 C	94 C	10 C		
Diazinon	333415	9.00E-04 N					33 N	3.3 N	1.2 N	1800 N	70 N	5400 E	2.8 N
Dibenzofuran	132649	4.00E-03 E					150 N	15 N	5.4 N	8200 N	310 N	120 E	120 N
1,4-Dibromobenzene	106376	1.00E-02 I				■	61 N	37 N	14 N	20000 N	780 N		
1,2-Dibromo-3-chloropropane	96128		5.71E-05 I	1.40E+00 N	2.42E-03 N	■	0.048 C	0.21 N	0.0023 C	4.1 C	0.46 C	1.9 N	0.00061 M
1,2-Dibromoethane	106934		5.71E-05 N	8.50E+01 I	7.70E-01 I	■	0.00075 C	0.0081 C	0.00004 C	0.067 C	0.0075 C	0.0058 C	0.00018 M
Dibutyl phthalate	84742	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N	100 E	120 E
Dicamba	1918009	3.00E-02 I					1100 N	110 N	41 N	61000 N	2300 N		
1,2-Dichlorobenzene	95501	9.00E-02 I	4.00E-02 A			■	270 N	150 N	120 N	180000 N	7000 N	300 E	6 E
1,3-Dichlorobenzene	541731	8.90E-02 O				■	540 N	320 N	120 N	180000 N	7000 N		
1,4-Dichlorobenzene	106467		2.29E-01 I	2.40E-02 N		■	0.44 C	0.26 C	0.13 C	240 C	27 C	7700 E	1 E
3,3'-Dichlorobenzidine	91941			4.50E-01 I			0.15 C	0.014 C	0.007 C	13 C	1.4 C	52 E	0.01 E
1,4-Dichloro-2-butene	764410				9.30E+00 N	■	0.0011 C	0.00067 C					
Dichlorodifluoromethane	75718	2.00E-01 I	5.71E-02 A			■	390 N	210 N	270 N	410000 N	16000 N	37 N	7.5 N
1,1-Dichloroethane	75343	1.00E-01 N	1.43E-01 A			■	810 N	520 N	140 N	200000 N	7800 N	980 E	11 E
1,2-Dichloroethane (EDC)	107062		2.86E-03 E	9.10E-02 I	9.10E-02 I	■	0.12 C	0.069 C	0.035 C	63 C	7 C	0.3 E	0.01 E
1,1-Dichloroethylene	75354	9.00E-03 I		6.00E-01 I	1.75E-01 I	■	0.044 C	0.036 C	0.0053 C	9.5 C	1.1 C	0.04 E	0.03 E
1,2-Dichloroethylene (cis)	156592	1.00E-02 N				■	61 N	37 N	14 N	20000 N	780 N	1500 E	0.2 E
1,2-Dichloroethylene (trans)	156605	2.00E-02 I				■	120 N	73 N	27 N	41000 N	1600 N	3600 E	0.3 E
1,2-Dichloroethylene (mixture)	540590	9.00E-03 N				■	55 N	33 N	12 N	18000 N	700 N		
2,4-Dichlorophenol	120832	3.00E-03 I					110 N	11 N	4.1 N	6100 N	230 N	4800 E	0.5 E
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 I				■	61 N	37 N	14 N	20000 N	780 N	7000 E	1.7 N

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4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 I					290 N	29 N	11 N	16000 N	630 N		
1,2-Dichloropropane	78875		1.14E-03 I	6.80E-02 N		☒	0.16 C	0.092 C	0.046 C	84 C	9.4 C	11 E	0.02 E
2,3-Dichloropropanol	616239	3.00E-03 I					110 N	11 N	4.1 N	6100 N	230 N		
1,3-Dichloropropene	542756	3.00E-04 I	5.71E-03 I	1.75E-01 N	1.30E-01 N	☒	0.077 C	0.048 C	0.018 C	33 C	3.7 C	0.1 E	0.001 E
Dichlorvos	62737	5.00e-04 I	1.43E-04 I	2.90E-01 I			0.23 C	0.022 C	0.011 C	20 C	2.2 C	3.5 C	0.00072 C
Dicofol	115322			4.40E-01 W			0.15 C	0.014 C	0.0072 C	13 C	1.5 C		
Dicyclopentadiene	77736	3.00E-02 N	5.71E-05 A			☒	0.42 N	0.21 N	41 N	61000 N	2300 N		
Dieldrin	60571	5.00E-05 I		1.60E+01 I	1.61E+01 I		0.0042 C	0.00039 C	0.0002 C	0.36 C	0.04 C	2 E	0.001 E
Diesel emissions			1.43E-03 I				52 N	5.2 N					
Diethyl phthalate	84662	8.00E-01 I					29000 N	2900 N	1100 N	1E+06 N	63000 N	520 E	110 E
Diethylene glycol, monobutyl ether	112345		5.71E-03 N				210 N	21 N					
Diethylene glycol, monoethyl ether	111900	2.00E+00 N					73000 N	7300 N	2700 N	1E+06 N	160000 N		
Diethylformamide	617845	1.10E-02 N					400 N	40 N	15 N	22000 N	860 N		
Di(2-ethylhexyl)adipate	103231	6.00E-01 I		1.20E-03 I			56 C	5.2 C	2.6 C	4800 C	530 C		
Diethylstilbestrol	56531			4.70E+03 N			0.00001 C	1E-06 C	7E-07 C	0.0012 C	0.00014 C		
Difenzoquat (Avenge)	43222486	8.00E-02 I					2900 N	290 N	110 N	160000 N	6300 N		
Diflubenzuron	35367385	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N		
1,1-Difluoroethane	75376		1.14E+01 I			☒	69000 N	42000 N					
Diisopropyl methylphosphonate (DIMP)	1445756	8.00E-02 I					2900 N	290 N	110 N	160000 N	6300 N		
Dimethipin	55290647	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N		
Dimethoate	60515	2.00E-04 I					7.3 N	0.73 N	0.27 N	410 N	16 N		
3,3'-Dimethoxybenzidine	119904			1.40E-02 N			4.8 C	0.45 C	0.23 C	410 C	46 C		
Dimethylamine	124403		5.71E-06 W				0.21 N	0.021 N					
2,4-Dimethylaniline hydrochloride	21436964			5.80E-01 N			0.12 C	0.011 C	0.0054 C	9.9 C	1.1 C		
2,4-Dimethylaniline	95681			7.50E-01 N			0.09 C	0.0083 C	0.0042 C	7.6 C	0.85 C		
N-N-Dimethylaniline	121697	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N		
3,3'-Dimethylbenzidine	119937			9.20E+00 N			0.0073 C	0.00068 C	0.00034 C	0.62 C	0.069 C	29 C	0.00039 C
N,N-Dimethylformamide	68122	1.00E-01 N	8.57E-03 I				3700 N	31 N	140 N	200000 N	7800 N		
1,1-Dimethylhydrazine	57147			2.60E+00 W	3.50E+00 W		0.026 C	0.0018 C	0.0012 C	2.2 C	0.25 C		
1,2-Dimethylhydrazine	540738			3.70E+01 W	3.70E+01 W		0.0018 C	0.00017 C	0.00009 C	0.15 C	0.017 C		
2,4-Dimethylphenol	105679	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N	5400 E	3 E
2,6-Dimethylphenol	576261	6.00E-04 I					22 N	2.2 N	0.81 N	1200 N	47 N		
3,4-Dimethylphenol	95658	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Dimethyl phthalate	131113	1.00E+01 N					370000 N	37000 N	14000 N	1E+06 N	780000 N	1600 E	1200 E
Dimethyl terephthalate	120616	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N		
1,2-Dinitrobenzene	528290	4.00E-04 N					15 N	1.5 N	0.54 N	820 N	31 N		
1,3-Dinitrobenzene	99650	1.00E-04 I					3.7 N	0.37 N	0.14 N	200 N	7.8 N		
1,4-Dinitrobenzene	100254	4.00E-04 N					15 N	1.5 N	0.54 N	820 N	31 N		
4,6-Dinitro-o-cyclohexyl phenol	131895	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N		

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2,4-Dinitrophenol	51285	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N	360 N	0.1 E
Dinitrotoluene mixture				6.80E-01 I			0.099 C	0.0092 C	0.0046 C	8.4 C	0.94 C		
2,4-Dinitrotoluene	121142	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N	120 E	0.2 E
2,6-Dinitrotoluene	606202	1.00E-03 N					37 N	3.7 N	1.4 N	2000 N	78 N	370 E	0.1 E
Dinoseb	88857	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
di-n-Octyl phthalate	117840	2.00E-02 N					730 N	73 N	27 N	41[illegible] N	1600 N	1000000 E	1000000 E
1,4-Dioxane	123911			1.10E-02 I			6.1 C	0.57 C	0.29 C	520 C	58 C		
Diphenamid	957517	3.00E-02 I					1100 N	110 N	41 N	61000 N	2300 N		
Diphenylamine	122394	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
1,2-Diphenylhydrazine	122667			8.00E-01 I	7.70E-01 I		0.084 C	0.0081 C	0.0039 C	7.2 C	0.8 C		
Diquat	85007	2.20E-03 I					80 N	8 N	3 N	4500 N	170 N		
Direct black 38	1937377			8.60E+00 N			0.0078 C	0.00073 C	0.00037 C	0.67 C	0.074 C		
Direct blue 6	2602462			8.10E+00 N			0.0083 C	0.00077 C	0.00039 C	0.71 C	0.079 C		
Direct brown 95	16071866			9.30E+00 N			0.0072 C	0.00067 C	0.00034 C	0.62 C	0.069 C		
Disulfoton	298044	4.00E-05 I					1.5 N	0.15 N	0.054 N	82 N	3.1 N		
1,4-Dithiane	505293	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
Diuron	330541	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N		
Dodine	2439103	4.00E-03 I					150 N	15 N	5.4 N	8200 N	310 N		
Endosulfan	115297	6.00E-03 I					220 N	22 N	8.1 N	12000 N	470 N	1 E	3 E
Endothall	145733	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N		
Endrin	72208	3.00E-04 I					11 N	1.1 N	0.41 N	610 N	23 N	16 E	0.4 E
Epichlorohydrin	106898	2.00E-03 N	2.86E-04 I	9.90E-03 I	4.20E-03 I		6.8 C	1 N	0.32 C	580 C	65 C		
1,2-Epoxybutane	106887		5.71E-03 I				210 N	21 N					
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N		
Ethion	563122	5.00E-04 I					18 N	1.8 N	0.68 N	1000 N	39 N		
2-Ethoxyethanol acetate	111159	3.00E-01 A					11000 N	1100 N	410 N	610000 N	23000 N		
2-Ethoxyethanol	110805	4.00E-01 N	5.71E-02 I				15000 N	210 N	540 N	820000 N	31000 N		
Ethyl acrylate	140885			4.80E-02 N			1.4 C	0.13 C	0.066 C	120 C	13 C		
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
Ethyl acetate	141786	9.00E-01 I					33000 N	3300 N	1200 N	1E+06 N	70000 N		
Ethylbenzene	100414	1.00E-01 I	2.86E-01 I			☒	1300 N	1000 N	140 N	200000 N	7800 N	260 E	5 E
Ethylene cyanohydrin	109784	3.00E-01 N					11000 N	1100 N	410 N	610000 N	23000 N		
Ethylene diamine	107153	2.00E-02 N					730 N	73 N	27 N	41000 N	1600 N		
Ethylene glycol	107211	2.00E+00 I					73000 N	7300 N	2700 N	1E+06 N	160000 N		
Ethylene glycol, monobutyl ether	111762		5.71E-03 N				210 N	21 N					
Ethylene oxide	75218			1.02E+00 N	3.50E-01 N		0.066 C	0.018 C	0.0031 C	5.6 C	0.63 C		
Ethylene thiourea (ETU)	96457	8.00E-05 I		1.19E-01 N			0.57 C	0.053 C	0.027 C	48 C	5.4 C		
Ethyl ether	60297	2.00E-01 I				☒	1200 N	730 N	270 N	410000 N	16000 N		
Ethyl methacrylate	97632	9.00E-02 N					3300 N	330 N	120 N	180000 N	7000 N		

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Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05 i					0.37 n	0.037 n	0.014 n	20 n	0.78 n		
Ethylnitrosourea	759739			1.40E+02 w			0.00048 c	0.00005 c	0.00002 c	0.041 c	0.0046 c		
Ethylphthalyl ethyl glycolate	84720	3.00E+00 i					110000 n	11000 n	4100 n	1E+06 n	230000 n		
Express	10120	8.00E-03 i					290 n	29 n	11 n	16000 n	630 n		
Fenamiphos	22224926	2.50E-04 i					9.1 n	0.91 n	0.34 n	510 n	20 n		
Fluometuron	2164172	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Fluoride	7782414	6.00E-02 i					2200 n	220 n	81 n	120000 n	4700 n		
Fluoridone	59756604	8.00E-02 i					2900 n	290 n	110 n	160000 n	6300 n		
Flurprimidol	56425913	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Flutolanil	66332965	6.00E-02 i					2200 n	220 n	81 n	120000 n	4700 n		
Fluvalinate	69409945	1.00E-02 i					370 n	37 n	14 n	20000 n	780 n		
Folpet	133073	1.00E-01 i		3.50E-03 i			19 c	1.8 c	0.9 c	1600 c	180 c		
Fomesafen	72178020			1.90E-01 i			0.35 c	0.033 c	0.017 c	30 c	3.4 c		
Fonofos	944229	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Formaldehyde	50000	2.00E-01 i			4.55E-02 i		7300 n	0.14 c	270 n	410000 n	16000 n		
Formic Acid	64186	2.00E+00 n					73000 n	7300 n	2700 n	1E+06 n	160000 n		
Fosetyl-al	39148248	3.00E+00 i					110000 n	11000 n	4100 n	[illegible]E+06 n	230000 n		
Furan	110009	1.00E-03 i					37 n	3.7 n	1.4 n	2000 n	78 n		
Furazolidone	67458			3.80E+00 n			0.018 c	0.0016 c	0.00083 c	1.5 c	0.17 c		
Furfural	98011	3.00E-03 i	1.43E-02 a				110 n	52 n	4.1 n	6100 n	230 n		
Furium	531828			5.00E+01 n			0.0013 c	0.00013 c	0.00006 c	0.11 c	0.013 c		
Furmecyclox	60568050			3.00E-02 i			2.2 c	0.21 c	0.11 c	190 c	21 c		
Glufosinate-ammonium	77182822	4.00E-04 i					15 n	1.5 n	0.54 n	820 n	31 n		
Glycidaldehyde	765344	4.00E-04 i	2.86E-04 n				15 n	1 n	0.54 n	820 n	31 n		
Glyphosate	1071836	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Haloxyfop-methyl	69806402	5.00E-05 i					1.8 n	0.18 n	0.068 n	100 n	3.9 n		
Harmony	79277273	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
HCH (alpha)	319846			6.30E+00 i	6.30E+00 i		0.011 c	0.00099 c	0.0005 c	0.91 c	0.1 c	0.9 e	0.0004 e
HCH (beta)	319857			1.80E+00 i	1.80E+00 i		0.037 c	0.0035 c	0.0018 c	3.2 c	0.35 c	16 e	0.002 e
HCH (gamma) Lindane	58899	3.00E-04 i		1.30E+00 n			0.052 c	0.0048 c	0.0024 c	4.4 c	0.49 c	4.2 c	0.006 e
HCH-technical	608731			1.80E+00 i	1.79E+00 i		0.037 c	0.0035 c	0.0018 c	3.2 c	0.35 c		
Heptachlor	76448	5.00E-04 i		4.50E+00 i	4.55E+00 i	☒	0.0023 c	0.0014 c	0.0007 c	1.3 c	0.14 c	0.3 e	0.06 e
Heptachlor epoxide	1024573	1.30E-05 i		9.10E+00 i	9.10E+00 i	☒	0.0012 c	0.00069 c	0.00035 c	0.63 c	0.07 c	1 e	0.03 e
Hexabromobenzene	87821	2.00E-03 i				☒	12 n	7.3 n	2.7 n	4100 n	160 n		
Hexachlorobenzene	118741	8.00E-04 i		1.60E+00 i	1.61E+00 i	☒	0.0066 c	0.0039 c	0.002 c	3.6 c	0.4 c	1 e	0.8 e
Hexachlorobutadiene	87683	2.00E-04 n		7.80E-02 i	7.70E-02 i	☒	0.14 c	0.081 c	0.04 c	73 c	8.2 c	1 e	0.1 e
Hexachlorocyclopentadiene	77474	7.00E-03 i	2.00E-05 n			☒	0.15 n	0.073 n	9.5 n	14000 n	550 n	2 e	10 e
Hexachlorodibenzo-p-dioxin mixture	19408743			6.20E+03 i	4.55E+03 i		0.00001 c	1E-06 c	5E-07 c	0.0009 c	0.0001 c		
Hexachloroethane	67721	1.00E-03 i		1.40E-02 i	1.40E-02 i	☒	0.75 c	0.45 c	0.23 c	410 c	46 c	49 e	0.2 e

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Hexachlorophene	70304	3.00E-04 i					11 n	1.1 n	0.41 n	610 n	23 n		
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	3.00E-03 i		1.10E-01 i			0.61 c	0.057 c	0.029 c	52 c	5.8 c		
1,6-Hexamethylene diisocyanate	822060		2.86E-06 i				0.1 n	0.01 n					
n-Hexane	110543	6.00E-02 n	5.71E-02 i			■	350 n	210 n	81 n	120000 n	4700 n	32 n	13 n
Hexazinone	51235042	3.30E-02 i					1200 n	120 n	45 n	67000 n	2600 n		
Hydrazine, hydrazine sulfate	302012			3.00E+00 i	1.71E+01 i		0.022 c	0.00037 c	0.0011 c	1.9 c	0.21 c		
**Hydrogen chloride	7647010		5.71E-03 i				210 n	21 n					
**Hydrogen sulfide	7783064	3.00E-03 i	2.85E-04 i				110 n	1 n	4.1 n	6100 n	230 n		
Hydroquinone	123319	4.00E-02 n					1500 n	150 n	54 n	82000 n	3100 n		
Imazalil	35554440	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Imazaquin	81335377	2.50E-01 i					9100 n	910 n	340 n	510000 n	20000 n		
Iprodione	36734197	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n		
**Iron	7439896	3.00E-01 e i					11000 n	1100 n	410 n	610000 n	23000 n		
Isobutanol	78831	3.00E-01 i				■	1800 n	1100 n	410 n	610000 n	23000 n		
Isophorone	78591	2.00E-01 i		9.50E-04 i			71 c	6.6 c	3.3 c	6000 c	670 c	3400 e	0.2 e
Isopropalin	33820530	1.50E-02 i					550 n	55 n	20 n	31000 n	1200 n		
Isopropyl methyl phosphonic acid	1832548	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Isoxaben	82558507	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Kepone	143500			1.80E+01 e			0.0037 c	0.00035 c	0.00018 c	0.32 c	0.035 c		
Lactofen	77501634	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Linuron	330552	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Lithium	7439932	2.00E-02 e					730 n	73 n	27 n	41000 n	1600 n		
Londax	83056996	2.00E-01 i					7300 n	730 n	270 n	410000 n	16000 n		
Malathion	121755	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Maleic anhydride	108316	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Maleic hydrazide	123331	5.00E-01 i					18000 n	1800 n	680 n	1E+06 n	39000 n		
Malononitrile	109773	2.00E-05 n					0.73 n	0.073 n	0.027 n	[illegible] n	1.6 n		
Mancozeb	8018017	3.00E-02 n					1100 n	110 n	41 n	61000 n	2300 n		
Maneb	12427382	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Manganese and compounds	7439965	5.00E-03 i	1.43e-05 i				180 n	0.052 n	6.8 n	10000 n	390 n		
Mephosfolan	950107	9.00E-05 n					3.3 n	0.33 n	0.12 n	180 n	7 n		
Mepiquat chloride	24307264	3.00E-02 i					1100 n	110 n	41 n	61000 n	2300 n		
**Mercuric chloride	7487947	3.00E-04 i					11 n	1.1 n	0.41 n	610 n	23 n		
Mercury (inorganic)	7439976	3.00E-04 n	8.57E-05 n				11 n	0.31 n	0.41 n	610 n	23 n	7 e	3 e
Mercury (methyl)	22967926	1.00E-04 i					3.7 n	0.37 n	0.14 n	200 n	7.8 n		
Merphos	150505	3.00E-05 i					1.1 n	0.11 n	0.041 n	61 n	2.3 n		
Merphos oxide	78488	3.00E-05 i					1.1 n	0.11 n	0.041 n	61 n	2.3 n		
Metalaxyl	57837191	6.00E-02 i					2200 n	220 n	81 n	120000 n	4700 n		
Methacrylonitrile	126987	1.00E-04 i	2.00E-04 a				3.7 n	0.73 n	0.14 n	200 n	1.8 n		

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Methamidophos	10265926	5.00E-05 I					1.8 N	0.18 N	0.068 N	100 N	3.9 N		
Methanol	67561	5.00E-01 I					18000 N	1800 N	680 N	1E+06 N	39000 N		
Methidathion	950378	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Methomyl	16752775	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
Methoxychlor	72435	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N	41 E	62 E
2-Methoxyethanol acetate	110496	2.00E-03 A					73 N	7.3 N	2.7 N	4100 N	160 N		
2-Methoxyethanol	109864	1.00E-03 N	5.71E-03 I				37 N	21 N	1.4 N	2000 N	78 N		
2-Methoxy-5-nitroaniline	99592			4.60E-02 N			1.5 C	0.14 C	0.069 C	120 C	14 C		
Methyl acetate	79209	1.00E+00 N					37000 N	3700 N	1400 N	1E+06 N	78000 N		
Methyl acrylate	96333	3.00E-02 A					1100 N	110 N	41 N	61000 N	2300 N		
2-Methylaniline hydrochloride	636215			1.80E-01 N			0.37 C	0.035 C	0.018 C	32 C	3.5 C		
2-Methylaniline	95534			2.40E-01 N			0.28 C	0.026 C	0.013 C	24 C	2.7 C		
Methyl chlorocarbonate	79221	1.00E+00 W					37000 N	3700 N	1400 N	1E+06 N	78000 N		
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 I					18 N	1.8 N	0.68 N	1000 N	39 N		
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Methylcyclohexane	108872		8.57E-01 N				31000 N	3100 N				60 E	1500 E
Methylene bromide	74953	1.00E-02 A				O	61 N	37 N	14 N	20000 N	780 N		
Methylene chloride	75092	6.00E-02 I	8.57E-01 N	7.50E-03 I	1.64E-03 I	O	4.1 C	3.8 C	0.42 C	760 C	85 C	7 E	0.01 E
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 N		1.30E-01 N	1.30E-01 N		0.52 C	0.048 C	0.024 C	44 C	4.9 C		
4,4'-Methylenebisbenzenamine	101779			2.50E-01 W			0.27 C	0.025 C	0.013 C	23 C	2.6 C		
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611			4.60E-02 I			1.5 C	0.14 C	0.069 C	120 C	14 C		
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 I			O	0.035 N	0.021 N					
Methyl ethyl ketone	78933	6.00E-01 I	2.86E-01 I			O	1900 N	1000 N	810 N	1E+06 N	47000 N		
Methyl hydrazine	60344			1.10E+00 W			0.061 C	0.0057 C	0.0029 C	5.2 C	0.58 C		
Methyl isobutyl ketone	108101	8.00E-02 N	2.29E-02 A				2900 N	84 N	110 N	160000 N	6300 N		
Methyl methacrylate	80626	8.00E-02 N					2900 N	290 N	110 N	160000 N	6300 N		
2-Methyl-5-nitroaniline	99558			3.30E-02 N			2 C	0.19 C	0.096 C	170 C	19 C		
Methyl parathion	298000	2.50E-04 I					9.1 N	0.91 N	0.34 N	510 N	20 N	28 E	0.041 N
2-Methylphenol (o-cresol)	95487	5.00E-02 I					1800 N	180 N	68 N	100000 N	3900 N	12000 E	6 E
3-Methylphenol (m-cresol)	103394	5.00E-02 I					1800 N	180 N	68 N	100000 N	3900 N		
4-Methylphenol (p-cresol)	106445	5.00E-03 N					180 N	18 N	6.8 N	10000 N	390 N		
Methyl styrene (mixture)	25013154	6.00E-03 A	1.14E-02 A			O	60 N	42 N	8.1 N	12000 N	470 N	100 N	1 N
Methyl styrene (alpha)	98839	7.00E-02 A				O	430 N	260 N	95 N	140000 N	5500 N	8.8 E	7.5 N
Methyl tertbutyl ether (MTBE)	1634044	5.00E-03 E	8.57E-01 I			O	180 N	3100 N	6.8 N	10000 N	390 N		
Metolachlor (Dual)	51218452	1.50E-01 N					5500 N	550 N	200 N	310000 N	12000 N		
Metribuzin	21087649	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
Mirex	2385855	2.00E-04 I		1.80E+00 W			0.037 C	0.0035 C	0.0018 C	3.2 C	0.35 C		
Molinate	2212671	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N		

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Molybdenum	7439987	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Monochloramine	10599903	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Naled	300765	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
2-Naphthylamine	91598			1.30e+02 e			0.00052 c	0.00005 c	0.00002 c	0.044 c	0.0049 c		
Napropamide	15299997	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
Nickel refinery dust					8.40E-01 i			0.0075 c					
Nickel and compounds	7440020	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n	6900 s	21 s
Nickel subsulfide	12035722				1.70E+00 i			0.0037 c					
Nitrapyrin	1929824	1.50E-03 w					55 n	5.5 n	2 n	3100 n	120 n		
Nitrate	14797558	1.60E+00 i					58000 n	5800 n	2200 n	1E+06 n	130000 n		
Nitric Oxide	10102439	1.00E-01 w					3700 n	370 n	140 n	200000 n	7800 n		
Nitrite	14797650	1.00E-01 i					[illegible] n	[illegible] n	[illegible] n	[illegible] n	[illegible] n		
2-Nitroaniline	88744	6.00E-05 w	5.71E-05 n				2.2 n	0.21 n	0.081 n	120 n	4.7 n		
3-Nitroaniline	99092	3.00E-03 o					110 n	11 n	4.1 n	6100 n	230 n		
4-Nitroaniline	100016	3.00E-03 o					110 n	11 n	4.1 n	6100 n	230 n		
Nitrobenzene	98953	5.00E-04 i	5.71E-04 A			☒	3.4 n	2.1 n	0.68 n	1000 n	39 n	110 s	0.09 s
Nitrofurantoin	67209	7.00E-02 n					2600 n	260 n	95 n	140000 n	5500 n		
Nitrofurazone	59870			1.50E+00 n	9.40E+00 n		0.045 c	0.00067 c	0.0021 c	3.8 c	0.43 c		
Nitrogen dioxide	10102440	1.00E+00 w					37000 n	3700 n	1400 n	1E+06 n	78000 n		
Nitroguanidine	556887	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n		
4-Nitrophenol	100027	6.20E-02 o					2300 n	230 n	84 n	130000 n	4800 n		
2-Nitropropane	79469		5.71E-03 i		9.40E+00 n		210 n	0.00067 c					
N-Nitrosodi-n-butylamine	924163			5.40E+00 i	5.60E+00 i		0.012 c	0.0011 c	0.00058 c	1.1 c	0.12 c		
N-Nitrosodiethanolamine	1116547			2.80E+00 i			0.024 c	0.0022 c	0.0011 c	2 c	0.23 c		
N-Nitrosodiethylamine	55185			1.50E+02 i	1.51E+02 i		0.00045 c	0.00004 c	0.00002 c	0.038 c	0.0043 c		
N-Nitrosodimethylamine	62759			5.10E+01 i	4.90E+01 i		0.0013 c	0.00013 c	0.00006 c	0.11 c	0.013 c		
N-Nitrosodiphenylamine	86306			4.90E-03 i			14 c	1.3 c	0.64 c	1200 c	130 c	29 c	0.2 s
N-Nitroso di-n-propylamine	621647			7.00E+00 i			0.0096 c	0.00089 c	0.00045 c	0.82 c	0.091 c	0.014 c	0.00002 s
N-Nitroso-N-methylethylamine	10595956			2.20E+01 i			0.0031 c	0.00028 c	0.00014 c	0.26 c	0.029 c		
N-Nitrosopyrrolidine	930552			2.10E+00 i	2.13E+00 i		0.032 c	0.0029 c	0.0015 c	2.7 c	0.3 c		
m-Nitrotoluene	99081	1.00E-02 n				☒	61 n	37 n	14 n	20000 n	780 n	460 s	0.42 n
o-Nitrotoluene	88722	1.00E-02 n				☒	61 n	37 n	14 n	20000 n	780 n	460 s	0.42 n
p-Nitrotoluene	99990	1.00E-02 n				☒	61 n	37 n	14 n	20000 n	780 n	460 s	0.42 n
Norflurazon	27314132	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n		
NuStar	85509199	7.00E-04 i					26 n	2.6 n	0.95 n	1400 n	55 n		
Octabromodiphenyl ether	32536520	3.00E-03 i					110 n	11 n	4.1 n	6100 n	230 n		
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Octamethylpyrophosphoramide	152169	2.00E-03 n					73 n	7.3 n	2.7 n	4100 n	160 n		
Oryzalin	19044883	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		

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Oxadiazon	19666309	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Oxamyl	23135220	2.50E-02 i					910 n	91 n	34 n	51000 n	2000 n		
Oxyfluorfen	42874033	3.00E-03 i					110 n	11 n	4.1 n	6100 n	230 n		
Paclobutrazol	76738620	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Paraquat	1910425	4.50E-03 i					160 n	16 n	6.1 n	[illegible]200 n	350 n		
Parathion	56382	6.00E-03 n					220 n	22 n	8.1 n	[illegible]00 n	470 n	110 s	3.9 s
Pebulate	1114712	5.00E-02 n					1800 n	180 n	68 n	100000 n	3900 n		
Pendimethalin	40487421	4.90E-02 i					1500 n	150 n	54 n	82000 n	3100 n		
Pentabromo-6-chloro cyclohexane	87843			2.30E-02 n			2.9 c	0.27 c	0.14 c	250 c	28 c		
Pentabromodiphenyl ether	32534819	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Pentachlorobenzene	608935	8.00E-04 i				☒	4.9 n	2.9 n	1.1 n	1600 n	63 n	570 n	48 n
Pentachloronitrobenzene	82688	3.00E-03 i		2.60E-01 n		☒	0.041 c	0.024 c	0.012 c	22 c	2.5 c		
Pentachlorophenol	87865	3.00E-02 i		1.20E-01 i			0.56 c	0.052 c	0.026 c	48 c	5.3 c	7.9 c	0.2 s
Permethrin	52645531	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		
Phenmedipham	13684634	2.50E-01 i					9100 n	910 n	340 n	510000 n	20000 n		
Phenol	108952	6.00E-01 i					22000 n	2200 n	810 n	1E+06 n	47000 n	21000 s	49 s
m-Phenylenediamine	108452	6.00E-03 i					220 n	22 n	8.1 n	12000 n	470 n		
p-Phenylenediamine	106503	1.90E-01 n					6900 n	690 n	260 n	390000 n	15000 n		
Phenylmercuric acetate	62384	8.00E-05 i					2.9 n	0.29 n	0.11 n	160 n	6.3 n		
2-Phenylphenol	90437			1.94E-03 n			35 c	3.2 c	1.6 c	3000 c	330 c		
Phorate	298022	2.00E-04 n					7.3 n	0.73 n	0.27 n	410 n	16 n		
Phosmet	732116	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
**Phosphine	7803512	3.00E-04 i	8.57E-05 n				11 n	0.31 n	0.41 n	610 n	23 n		
**Phosphoric acid	7664382	i	2.86E-03				100 n	10 n					
Phosphorus (white)	7723140	2.00E-05 i					0.73 n	0.073 n	0.027 n	41 n	1.6 n		
p-Phthalic acid	100210	1.00E+00 n					37000 n	3700 n	1400 n	1E+06 n	78000 n		
Phthalic anhydride	85449	2.00E+00 i	3.43E-02 n				73000 n	130 n	2700 n	1E+06 n	160000 n		
Picloram	1918021	7.00E-02 i					2600 n	260 n	95 n	140000 n	5500 n		
Pirimiphos-methyl	29232937	1.00E-02 i					370 n	37 n	14 n	20000 n	780 n		
Polybrominated biphenyls		7.00E-06 n		8.90E+00 n			0.0076 c	0.0007 c	0.00035 c	0.64 c	0.072 c		
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00 i			0.0087 c	0.00081 c	0.00041 c	0.74 c	0.083 c		
Aroclor 1016	12674112	7.00E-05 i					2.6 n	0.26 n	0.095 n	140 n	5.5 n		
Aroclor 1254	11097691	2.00E-05 i					0.73 n	0.073 n	0.027 n	41 n	1.6 n		
Polychlorinated terphenyls (PCTs)				4.50E+00 s			0.015 c	0.0014 c	0.0007 c	1.3 c	0.14 c		
Polynuclear aromatic hydrocarbons												110000 s	
Acenaphthene	83329	6.00E-02 i					2200 n	220 n	81 n	120000 n	4700 n	120 s	200 s
Anthracene	120127	3.00E-01 i					11000 n	1100 n	410 n	610000 n	23000 n	6.8 s	4300 s
Benz[a]anthracene	56553			7.30E-01 s	6.10E-01 s		0.092 c	0.01 c	0.0043 c	7.8 c	0.88 c	27 s	0.7 s
Benzo[b]fluoranthene	205992			7.30E-01 s	6.10E-01 s		0.092 c	0.01 c	0.0043 c	7.8 c	0.88 c	23 s	4 s

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Benzo[k]fluoranthene	207089			7.30E-02 e	6.10E-02 e		0.92 c	0.1 c	0.043 c	78 c	8.8 c		4 e
Benzo[a]pyrene	50328			7.30E+00 i	6.10E+00 w		0.0092 c	0.001 c	0.00043 c	0.78 c	0.088 c	11 s	4 e
Carbazole	86748			2.00E-02 n			3.4 c	0.31 c	0.16 c	290 c	32 c	11 s	0.5 e
Chrysene	218019			7.30E-03 e	6.10E-03 e		9.2 c	1 c	0.43 c	780 c	88 c	3.6 s	1 e
Dibenz[ah]anthracene	53703			7.30E+00 e	6.10E+00 e		0.0092 c	0.001 c	0.00043 c	0.78 c	0.088 c	7.2 s	11 e
Fluoranthene	206440	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n	68 s	980 e
Fluorene	86737	4.00E-02 i					1500 n	150 n	54 n	82000 n	3100 n	89 s	160 e
Indeno[1,2,3-cd]pyrene	193395			7.30E-01 e	6.10E-01 e		0.092 c	0.01 c	0.0043 c	7.8 c	0.88 c	280 s	35 e
Naphthalene	91203	4.00E-02 w					1500 n	150 n	54 n	82000 n	3100 n	180 s	30 e
Pyrene	129000	3.00E-02 i					1100 n	110 n	41 n	61000 n	2300 n	56 s	1400 e
Prochloraz	67747095	9.00E-03 i		1.50E-01 i			0.45 c	0.042 c	0.021 c	38 c	4.3 c		
Profluralin	26399360	6.00E-03 n					220 n	22 n	8.1 n	12000 n	470 n		
Prometon	1610180	1.50E-02 i					550 n	55 n	20 n	31000 n	1200 n		
Prometryn	7287196	4.00E-03 i					150 n	15 n	5.4 n	8200 n	310 n		
Pronamide	23950585	7.50E-02 i					2700 n	270 n	100 n	150000 n	5900 n		
Propachlor	1918167	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Propanil	709988	5.00E-03 i					180 n	18 n	6.8 n	10[illegible] n	390 n		
Propargite	2312358	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Propargyl alcohol	107197	2.00E-03 i					73 n	7.3 n	2.7 n	4100 n	160 n		
Propazine	139402	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Propham	122429	2.00E-02 i					730 n	73 n	27 n	41000 n	1600 n		
Propiconazole	60207901	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Propylene glycol	57556	2.00E+01 n					730000 n	73000 n	27000 n	1E+06 n	1000000 n		
Propylene glycol, monoethyl ether	52125538	7.00E-01 n					26000 n	2600 n	950 n	1E+06 n	55000 n		
Propylene glycol, monomethyl ether	107982	7.00E-01 n	5.71E-01 i				26000 n	2100 n	950 n	1E+06 n	55000 n		
Propylene oxide	75569		8.57E-03 i	2.40E-01 i	1.29E-02 i		0.28 c	0.49 c	0.013 c	24 c	2.7 c		
Pursuit	81335775	2.50E-01 i					9100 n	910 n	340 n	510000 n	20000 n		
Pydrin	51630581	2.50E-02 i					910 n	91 n	34 n	51000 n	2000 n		
Pyridine	110861	1.00E-03 i					37 n	3.7 n	1.4 n	2000 n	78 n		
Quinalphos	13593038	5.00E-04 i					18 n	1.8 n	0.68 n	1000 n	39 n		
Quinoline	91225			1.20E+01 n			0.0056 c	0.00052 c	0.00026 c	0.48 c	0.053 c		
Resmethrin	10463868	3.00E-02 i					1100 n	110 n	41 n	61000 n	2300 n		
Ronnel	299843	5.00E-02 n					1800 n	180 n	68 n	100000 n	3900 n		
Rotenone	83794	4.00E-03 i					150 n	15 n	5.4 n	8200 n	310 n		
Savey	78587050	2.50E-02 i					910 n	91 n	34 n	51000 n	2000 n		
Selenious Acid	7783008	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Selenium	7782492	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		3 e
Selenourea	630104	5.00E-03 n					180 n	18 n	6.8 n	10000 n	390 n		
Sethoxydim	74051802	9.00E-02 i					3300 n	330 n	120 n	180000 n	7000 n		

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Risk-Based Concentrations: Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion: Industrial mg/kg	Soil Ingestion: Residential mg/kg	Soil Screening Levels-Transfers from Soil to: Air mg/kg	Soil Screening Levels-Transfers from Soil to: Groundwater mg/kg
Silver and compounds	7440224	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		
Simazine	122349	5.00E-03 i		1.20E-01 n			0.56 c	0.052 c	0.026 c	48 c	5.3 c		
Sodium azide	26628228	4.00E-03 i					150 n	15 n	5.4 n	8200 n	310 n		
Sodium diethyldithiocarbamate	148185	3.00E-02 i		2.70E-01 n			0.25 c	0.023 c	0.012 c	21 c	2.4 c		
Sodium fluoroacetate	62748	2.00E-05 i					0.73 n	0.073 n	0.027 n	41 n	1.6 n		
Sodium metavanadate	13718268	1.00E-03 n					37 n	3.7 n	1.4 n	2000 n	78 n		
Strontium, stable	7440246	6.00E-01 i					22000 n	2200 n	810 n	1E+06 n	47000 n		
Strychnine	57249	3.00E-04 i					11 n	1.1 n	0.41 n	610 n	23 n		
Styrene	100425	2.00E-01 i	2.86E-01 i			VOC	1600 n	1000 n	270 n	410000 n	16000 n	1400 s	2 s
Systhane	88671890	2.50E-02 i					910 n	91 n	34 n	51000 n	2000 n		
2,3,7,8-TCDD (dioxin)	1746016			1.56E+05 n	1.16E+05 n		4E-07 c	5E-08 c	c	4E-05 c	4E-06 c		
Tebuthiuron	34014181	7.00E-02 i					2600 n	260 n	95 n	140000 n	5500 n		
Temephos	3383968	2.00E-02 n					730 n	73 n	27 n	41000 n	1600 n		
Terbacil	5902512	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Terbufos	13071799	2.50E-05 n					0.91 n	0.091 n	0.034 n	51 n	2 n		
Terbutryn	886500	1.00E-03 i					37 n	3.7 n	1.4 n	2000 n	78 n		
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04 i				VOC	1.8 n	1.1 n	0.41 n	610 n	23 n	91 n	0.69 n
1,1,1,2-Tetrachloroethane	630206	3.00E-02 i		2.60E-02 i	2.59E-02 i	VOC	0.41 c	0.24 c	0.12 c	220 c	25 c		
1,1,2,2-Tetrachloroethane	79345			2.00E-01 i	2.03E-01 i	VOC	0.052 c	0.031 c	0.016 c	29 c	3.2 c	0.4 s	0.001 s
Tetrachloroethylene (PCE)	127184	1.00E-02 i		5.20E-02 s	2.03E-03 s	VOC	1.1 c	3.1 c	0.061 c	110 c	12 c	11 s	0.04 s
2,3,4,6-Tetrachlorophenol	58902	3.00E-02 i					1100 n	110 n	41 n	61000 n	2300 n		
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 n		VOC	0.00053 c	0.00031 c	0.00016 c	0.29 c	0.032 c		
Tetrachlorovinphos	961115	3.00E-02 i		2.40E-02 n			2.8 c	0.26 c	0.13 c	240 c	27 c		
Tetraethyldithiopyrophosphate	3689245	5.00E-04 i					18 n	1.8 n	0.68 n	1000 n	39 n		
Tetraethyl lead	78002	1.00E-07 i					0.0037 n	0.00037 n	0.00014 n	0.2 n	0.0078 n	0.00068 n	0.000034 n
**1,1,1,2-Tetrafluoroethane	811972	i	2.29E+01			VOC	140000 n	84000 n					
Thallic oxide	1314325	7.00E-05 w					2.6 n	0.26 n	0.095 n	140 n	5.5 n		
Thallium													0.4 s
Thallium acetate	563688	9.00E-05 i					3.3 n	0.33 n	0.12 n	180 n	7 n		
Thallium carbonate	6533739	8.00E-05 i					2.9 n	0.29 n	0.11 n	160 n	6.3 n		
Thallium chloride	7791120	8.00E-05 i					2.9 n	0.29 n	0.11 n	160 n	6.3 n		
Thallium nitrate	10102451	9.00E-05 i					3.3 n	0.33 n	0.12 n	180 n	7 n		
Thallium selenite	12039520	9.00E-05 w					3.3 n	0.33 n	0.12 n	180 n	7 n		
Thallium sulfate	7446186	8.00E-05 i					2.9 n	0.29 n	0.11 n	160 n	6.3 n		
Thiobencarb	28249776	1.00E-02 i					370 n	37 n	14 n	20000 n	780 n		
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 n					1100 n	110 n	41 n	61000 n	2300 n		
Thiofanox	39196184	3.00E-04 n					11 n	1.1 n	0.41 n	610 n	23 n		
Thiophanate-methyl	23564058	8.00E-02 i					2900 n	290 n	110 n	160000 n	6300 n		
Thiram	137268	5.00E-03 i					180 n	18 n	6.8 n	10000 n	390 n		

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Risk-Based Concentrations: Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion: Industrial mg/kg	Soil Ingestion: Residential mg/kg	Soil Screening Levels-Transfers from Soil to: Air mg/kg	Groundwater mg/kg
Tin and compounds		6.00E-01 n					22000 n	2200 n	810 n	1E+06 n	47000 n		
Toluene	108883	2.00E-01 i	1.14E-01 i			■	750 n	420 n	270 n	410000 n	16000 n	520 s	5 s
Toluene-2,4-diamine	95807			3.20E+00 n			0.021 c	0.002 c	0.00099 c	1.8 c	0.2 c		
Toluene-2,5-diamine	95705	6.00E-01 n					22000 n	2200 n	810 n	1E+06 n	47000 n		
Toluene-2,6-diamine	823405	2.00E-01 n					7300 n	730 n	270 n	410000 n	16000 n		
o-Toluidine	106490			1.90E-01 n			0.35 c	0.033 c	0.017 c	30 c	3.4 c		
Toxaphene	8001352			1.10E+00 i	1.12E+00 i		0.061 c	0.0056 c	0.0029 c	5.2 c	0.58 c	5 s	0.04 s
Tralomethrin	66841256	7.50E-03 i					270 n	27 n	10 n	15000 n	590 n		
Triallate	2303175	1.30E-02 i					470 n	47 n	18 n	27000 n	1000 n		
Triasulfuron	82097505	1.00E-02 i					370 n	37 n	14 n	20000 n	780 n		
1,2,4-Tribromobenzene	615543	5.00E-03 i				■	30 n	18 n	6.8 n	10000 n	390 n		
Tributyltin oxide (TBTO)	56359	3.00E-05 i					1.1 n	0.11 n	0.041 n	61 n	2.3 n		
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 n			2.3 c	0.22 c	0.11 c	200 c	22 c		
2,4,6-Trichloroaniline	634935			3.40E-02 n			2 c	0.18 c	0.093 c	170 c	19 c		
1,2,4-Trichlorobenzene	120821	1.00E-02 i	5.71e-02 n			■	190 n	210 n	14 n	20000 n	780 n	240 s	2 s
1,1,1-Trichloroethane	71556	9.00E-02 w	2.86E-01 w			■	1300 n	1000 n	120 n	180000 n	7000 n	980 s	0.9 s
1,1,2-Trichloroethane	79005	4.00E-03 i		5.70E-02 i	5.60E-02 i	■	0.19 c	0.11 c	0.055 c	100 c	11 c	0.8 s	0.01 s
Trichloroethylene (TCE)	79016	6.00E-03 s		1.10E-02 w	6.00E-03 s	■	1.6 c	1 c	0.29 c	520 c	58 c	3 s	0.02 s
Trichlorofluoromethane	75694	3.00E-01 i	2.00E-01 A			■	1300 n	730 n	410 n	610000 n	23000 n	790 n	13 n
2,4,5-Trichlorophenol	95954	1.00E-01 i					3700 n	370 n	140 n	200000 n	7800 n	8200 s	120 s
2,4,6-Trichlorophenol	88062			1.10E-02 i	1.09E-02 i		6.1 c	0.57 c	0.29 c	520 c	58 c	150 c	0.06 s
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02 i					370* n	37 n	14 n	20000 n	780 n		
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03 i					290 n	29 n	11 n	16000 n	630 n		
1,1,2-Trichloropropane	598776	5.00E-03 i				■	30 n	18 n	6.8 n	10000 n	390 n	13 n	0.14 n
1,2,3-Trichloropropane	96184	6.00E-03 i		7.00e+00 i		■	0.0015 c	0.00089 c	0.00045 c	0.82 c	0.091 c	0.00003 c	6.000E-06 c
1,2,3-Trichloropropene	96195	5.00E-03 n				■	30 n	18 n	6.8 n	10000 n	390 n		
1,1,2-Trichloro-1,2,2- trifluoroethane	76131	3.00E+01 i	8.57E+00 n			■	59000 n	31000 n	41000 n	1E+06 n	1000000 n	2400 s	3100 n
Tridiphane	58138082	3.00E-03 i					110 n	11 n	4.1 n	6100 n	230 n		
Triethylamine	121448		2.00E-03 i				73 n	7.3 n					
Trifluralin	1582098	7.50E-03 i		7.70E-03 i			8.7 c	0.81 c	0.41 c	740 c	83 c		
**1,2,4-Trimethylbenzene	95636	5.00e-02 s				■	300 n	180 n	68 n	100000 n	3900 n		
**1,3,5-Trimethylbenzene	108678	5.00e-02 s				■	300 n	180 n	68 n	100000 n	3900 n	98 s	0.26 n
Trimethyl phosphate	512561			3.70E-02 n			1.8 c	0.17 c	0.085 c	150 c	17 c		
1,3,5-Trinitrobenzene	99354	5.00E-05 i					1.8 n	0.18 n	0.068 n	100 n	3.9 n		
Trinitrophenylmethylnitramine	479458	1.00E-02 n					370 n	37 n	14 n	20000 n	780 n		
2,4,6-Trinitrotoluene	118967	5.00E-04 i		3.00E-02 i			2.2 c	0.21 c	0.11 c	190 c	21 c		
Uranium (soluble salts)	7440611	3.00E-03 i					110 n	11 n	4.1 n	6100 n	230 n		
Vanadium	7440622	7.00E-03 n					260 n	26 n	9.5 n	14000 n	550 n		
Vanadium pentoxide	1314621	9.00E-03 i					330 n	33 n	12 n	18000 n	700 n		

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Vanadium sulfate	36907423	2.00E-02 n					730 n	73 n	27 n	41000 n	1600 n		
Vernam	1929777	1.00E-03 i					37 n	3.7 n	1.4 n	2000 n	78 n		
Vinclozolin	50471448	2.50E-02 i					910 n	91 n	34 n	51000 n	2000 n		
Vinyl acetate	108054	1.00E+00 n	5.71E-02 i				37000 n	210 n	1400 n	1E+06 n	78000 n	370 e	84 e
Vinyl bromide	593602		8.57E-04 i			■	5.2 n	3.1 n				2 n	0.018 n
Vinyl chloride	75014			1.90E+00 n	3.00E-01 n	■	0.019 c	0.021 c	0.0017 c	3 c	0.34 c	0.002 e	0.01 e
Warfarin	81812	3.00E-04 i					11 n	1.1 n	0.41 n	610 n	23 n	0.046 n	1800 n
m-Xylene	108323	2.00E+00 n	2.00E-01 w			■	1400 n	730 n	2700 n	1E+06 n	160000 n	950 e	240 n
o-Xylene	9.55E+04	2.00E+00 n	2.00E-01 w			■	1400 n	730 n	2700 n	1E+06 n	160000 n	730 e	1.50E+02 n
p-Xylene	1.06E+05		8.57E-02 w			■	520 n	310 n				1000 e	2.20E+02 n
Xylene (mixed)	1.33E+06	2.00E+00 i				■	12000 n	7300 n	2700 n	1E+06 n	160000 n	320 e	7.40E+01 e
Zinc	7.44E+06	3.00E-01 i					11000 n	1100 n	410 n	610000 n	23000 n		4.20E+04 e
Zinc phosphide	1.31E+06	3.00E-04 i					11 n	1.1 n	0.41 n	610 n	23 n		
Zineb	1.21E+07	5.00E-02 i					1800 n	180 n	68 n	100000 n	3900 n		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107

October 20, 1995

SUBJECT: Risk-Based Concentration Table, July - December 1995

FROM: Roy L. Smith, Ph.D.
Office of RCRA
Technical & Program Support Branch (3HW70)

TO: RBC Table mailing list

Attached is the EPA Region III risk-based concentration (RBC) table, which we distribute semi-annually to all interested parties.

IMPORTANT MESSAGE

EPA Region III has established a homepage on the World Wide Web which you can find at http://earth1.epa.gov:80/ or http://www.epa.gov/. Our homepage will soon include the RBC table in downloadable form. We strongly encourage all RBC table users having Internet access to obtain the table electronically rather than on paper. In this way, users can obtain the most current issue immediately in a form that can be used directly as input for risk assessment calculations. This distribution method will also save large amounts of paper and cost substantially less.

For those lacking Internet access, it's once again time to re-register to receive a paper copy of the RBC table. We need to hear from you periodically to ensure that you still have an interest and that we have your correct address. Please fax your registration request to Vanessa Sizer at 215-597-9890, including your name, address, and phone number. Please don't phone to re-register; we need hard copy to document your continued interest. If we don't hear from you by March 30, 1996, we'll assume you no longer need a paper copy. Thanks for your cooperation.

CONTENTS, USES, AND LIMITATIONS OF THE RBC TABLE

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through September 1, 1995, HEAST through May 1995, the EPA-NCEA Superfund Health Risk Technical Support Center, and other EPA sources) for nearly 600 chemicals. These toxicity constants have been combined with "standard" exposure scenarios to calculate RBCs--chemical concentrations corresponding to fixed levels of risk (*i.e.*, a hazard quotient of 1, or lifetime cancer risk of 10^{-6}, whichever occurs at a lower concentration) in water, air, fish tissue, and soil.

The RBC table also includes soil screening levels (SSLs) for protection of groundwater