

Georgia Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
HAZARDOUS SITE RESPONSE PROGRAM

**GUIDANCE ON TARGET SOIL CONCENTRATIONS FOR TYPE 1 AND
TYPE 3 RISK REDUCTION STANDARDS**

The purpose of this document is to assist with the determination of Type 1 (generic residential) and Type 3 (generic nonresidential) target concentrations for soil as specified in Section 391-3-19-.07 of the Georgia Rules for Hazardous Site Response. The term "target concentration" is used here to indicate the maximum concentration that complies with the applicable risk reduction standard's criteria for soil, more specifically with Rules 391-3-19-.07(6)(c) and (8)(d). This guidance does not address all factors that EPD must consider in determining whether corrective action is complete under Type 1 or Type 3 standards; the reader is directed in particular to Rules 391-3-19-.07(4)(a)-(d).

TYPE 1 STANDARDS

The Type 1 standards apply specifically to residential properties, but can be used to demonstrate compliance with the risk reduction standards at any property, including those for which the current or anticipated land use is nonresidential. Type 1 target soil concentrations, defined in Rule 391-3-19-.07(6)(c), apply to any point above the water table in soil that has been affected by the release.

Figure 1 is a flowchart for determining Type 1 target soil concentrations. The flowchart uses the following abbreviations:

- "App III Table 2" refers to concentrations listed in Table 2 (Type 1 Soil Criteria) in Appendix III of the Rules for Hazardous Site Response. App III Table 2 lists concentrations for metals only, and the concentrations assume analysis for total concentrations (not for extractable, available, or otherwise mobile fractions).
- "App I NC" refers to the notification concentrations listed in Appendix I (Regulated Substances and Soil Concentrations that Trigger Notification) of the Rules for Hazardous Site Response; notification concentrations that are shown in square brackets in Appendix I are not applicable to the calculation of target soil concentrations.
- "100X" refers to multiplication by 100 of the concentration that is listed in Table 1 (Groundwater Criteria) in Appendix III of the Rules for Hazardous Site Response; the resulting number (expressed as mg/kg) is to be applied to the total concentration of a substance in the soil, not to the leachate.

- "Leachate test" refers to that maximum total concentration of substance in representative soil from the site which, when subjected to the Toxicity Characteristic Leaching Procedure (TCLP) or other EPD-approved extraction procedure, will produce a leachate with a concentration that does not exceed Type 1 groundwater criteria. EPD currently has not approved any procedure other than the TCLP. *Note: The leachate test is optional but, when used, will in many cases determine the soil target concentration. Since the resulting concentration is unknown until the test is actually performed on a specific soil, EPD cannot establish target soil concentrations that apply to all sites.*
- "T1_Noncar" and "T1_Car" refer to the noncarcinogenic and carcinogenic Type 1 soil concentration limits defined at Rules 391-3-19-.07(6)(c)(2) and (3), respectively; the lesser of these two values is provided in Table 1 of this document under the column labelled "residential". T1_Noncar and T1_Car concentrations and their derivations are presented in Appendix A of this guidance. Note that these concentrations serve as "floor" values within the Type 2 standards.
- If a value is not available (e.g., T1-Noncar, where an RfD has not been established), that criterion should be neglected rather than taken to equal zero.

TYPE 3 STANDARDS

Type 3 standards can be used to demonstrate compliance with the risk reduction standards only at properties, or portions of properties, that are classified as having a nonresidential current land use. Two sets of Type 3 soil criteria are defined in Rule 391-3-19-.07(8)(d). The first set, which serves to protect groundwater, applies at any point above the water table in soil that has been affected by a release. The second set, which addresses human exposure through ingestion and/or inhalation of soil particles, applies only to soil within 2 feet of the land surface and is relevant only where such target concentrations are more stringent than those derived from the first set.

Figure 2 illustrates the process for determining Type 3 target soil concentrations. The terms "App I NC", "100X", "leachate test", and "App III Table 2" were defined under Type 1 above. "Table 1" refers to the table immediately following Figure 2 which provides the lesser of the noncarcinogenic and carcinogenic Type 3 concentrations defined at Rules 391-3-19-.07(8)(d)(2)(i) and (ii), respectively, for the *nonresidential* scenario. The Type 3 noncarcinogenic and carcinogenic soil concentrations are listed and their derivation indicated in Appendix A of this guidance document, which follows Table 1. The noncarcinogenic and carcinogenic soil concentrations that are applicable under Type 4 standards shall not be lower than those indicated for Type 3 standards.

Figure 1: Process for Determining Type I Target Concentrations for Soil

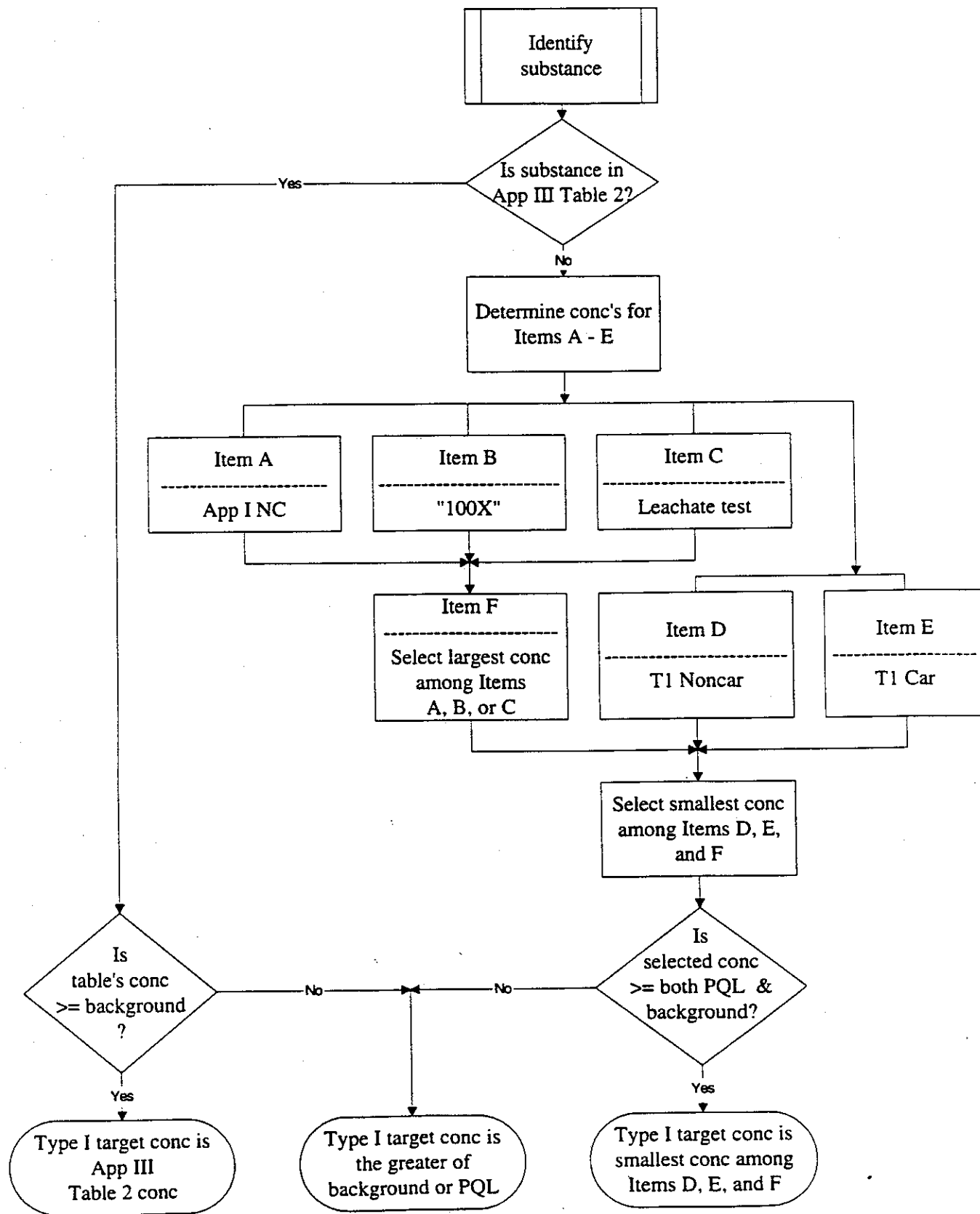


Figure 2: Process for Determining Type 3 Target Concentrations for Soil

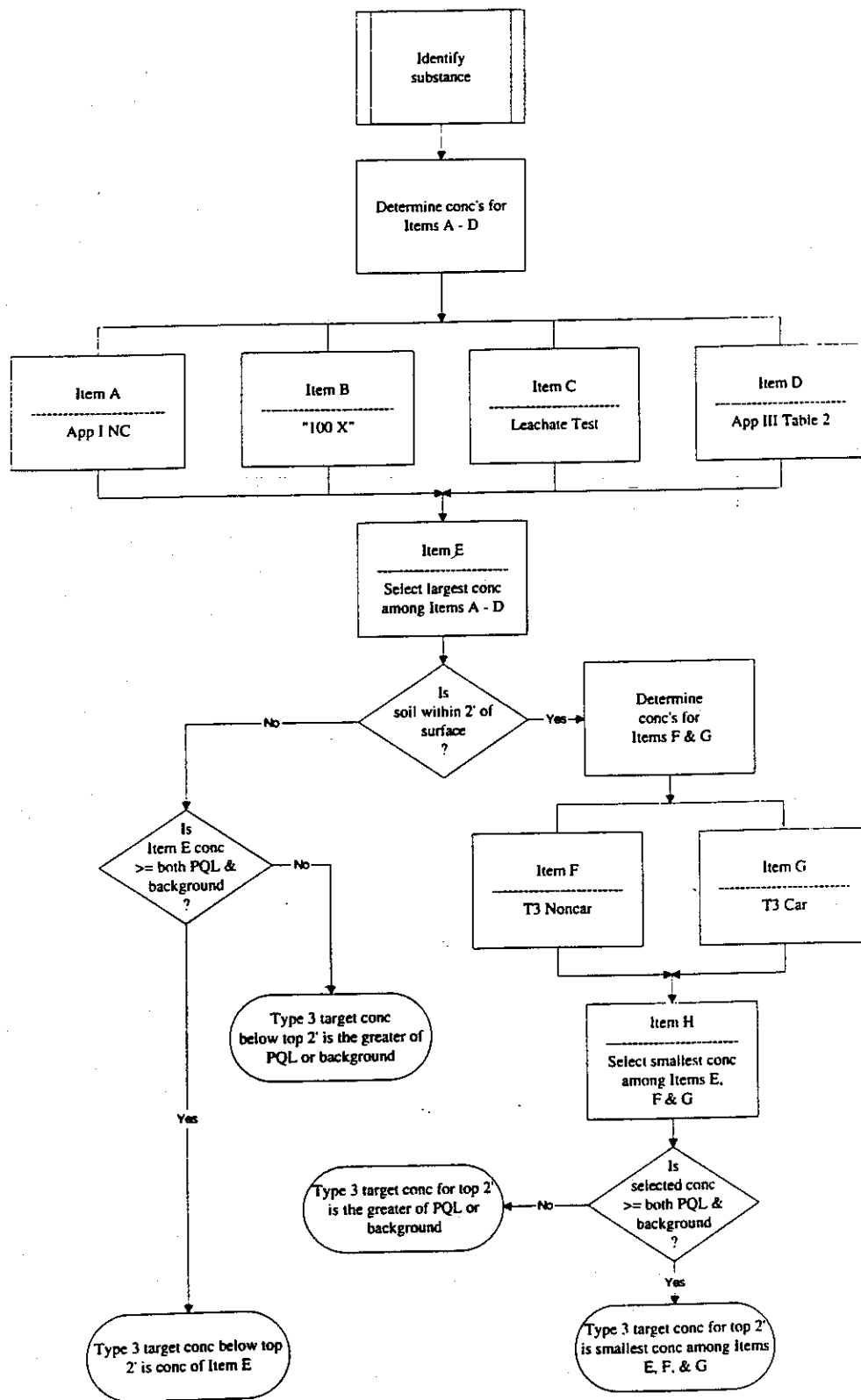


TABLE 1. CARCINOGENIC/NON-CARCINOGENIC SOIL CRITERIA (MG/KG) BASED ON STANDARDIZED INGESTION AND INHALATION ASSUMPTIONS

WARNING: Concentrations in the following table are not necessarily the final target soil concentrations under any of the risk reduction types. The narrative and flowcharts on the preceding pages should be consulted to understand how the following table is used in conjunction with groundwater protection criteria, background, and detection limits to determine the final target soil concentrations.

The column labelled "Residential" gives the lesser of the T1_car and T1_noncar values taken from the table in Appendix A of this guidance, which are calculated from Equations 6 and 7 of RAGS, Part B, using standardized residential exposure assumptions. Similarly, the "Non-residential" column is the lesser of the T3_car and T3_noncar values from the table in Appendix A, which are calculated from the same equations but which use standardized non-residential exposure assumptions.

Concentrations under "Residential" directly apply to Type 1 and are minimum values under Type 2. Concentrations under "Non-residential" directly apply to Type 3 and are minimum values under Type 4.

Concentrations of metals marked with an asterisk (*) under "Residential" are not applicable to Type 1 since Rule 391-3-19-.07(6)(c) requires compliance with concentrations in Appendix III Table 2 of the Rules for these naturally-occurring substances.

The symbol for infinity (∞) here indicates that the calculated concentration is in excess of 10% of soil's dry weight, at which concentration the soil would be inherently waste-like and unlikely to meet the requirements of Rules 391-3-19-.07(4)(a)-(d).

CAS No.	Regulated Substance	Residential	Non-residential
83329	Acenaphthene	38000	∞
75070	Acetaldehyde	∞	∞
67641	Acetone	64000	∞
75865	Acetone cyanohydrin	45000	∞
75058	Acetonitrile	150	160
98862	Acetophenone	1.1	1.2
107028	Acrolein	0.048	0.050

CAS No.	Regulated Substance	Residential	Non-residential
79061	Acrylamide	2.2	5.1
79107	Acrylic acid	45	47
107131	Acrylonitrile	1.1	1.4
116063	Aldicarb	640	2000
309002	Aldrin	0.84	3.0
107186	Allyl alcohol	3200	10000
20859738	Aluminum phosphide	260	820
504245	Aminopyridine, 4-	13	41
7664417	Ammonia	∞	∞
7773060	Ammonium sulfamate	∞	∞
62533	Aniline	0.056	.059
120127	Anthracene	∞	∞
7440360	Antimony (AppIII Table 2 = 4)	260*	820
1309644	Antimony trioxide	260	820
140578	Aramite	600	2300
12674112	Arochlor 1016	45	140
7440382	Arsenic (AppIII Table 2 = 20)	192*	613
7784421	Arsine	∞	∞
7440393	Barium (AppIII Table 2 = 1000)	44000*	∞
542621	Barium cyanide	64000	∞
56553	Benz(a)anthracene	19	63
71432	Benzene	11	14
108985	Benzenethiol	6.4	20
92875	Benzidine	0.065	0.25
50328	Benzo(a)pyrene	2.0	7.7
205992	Benzo(b)fluoranthene	20	70
207089	Benzo(k)fluoranthene	200	780
65850	Benzoic acid	∞	∞
98077	Benzotrichloride	1.1	4.4
100447	Benzyl chloride	88	340
7440417	Beryllium (AppIII Table 2 = 2)	3.5*	13

CAS No.	Regulated Substance	Residential	Non-residential
111444	Bis(2-chloroethyl) ether	1.6	2.3
117817	Bis(2-ethylhexyl)phthalate	1100	4100
542881	Bis(chloromethyl) ether	0.001	0.002
7637072	Boron trifluoride	∞	∞
75252	Bromoform	290	410
101553	Bromophenyl phenyl ether, 4-	37000	∞
71363	Butanol, 1-	64000	∞
85687	Butyl benzyl phthalate	∞	∞
75605	Cacodylic acid	1900	6100
7440439	Cadmium (AppIII Table 2 = 2)	320*	1000
592018	Calcium cyanide	26000	82000
133062	Captan	4300	16000
63252	Carbaryl	64000	∞
1563662	Carbofuran	3200	10000
75150	Carbon disulfide	16	17
56235	Carbon tetrachloride	5.4	7.1
75876	Chloral	1300	4100
57749	Chlordane	11	41
126998	Chloro-1,3-butadiene, 2-	13000	41000
3165933	Chloro-o-toluidine hydrochloride, 4-	32	120
107200	Chloroacetaldehyde	4400	14000
79118	Chloroacetic acid	1300	4100
106478	Chloroaniline, p-	2600	8200
108907	Chlorobenzene	240	250
510156	Chlorobenzilate	55	210
124481	Chlorodibromomethane	1800	6800
75003	Chloroethane	13000	14000
110758	Chloroethylvinyl ether, 2-	16000	51000
67663	Chloroform	3.7	4.6
91587	Chloronaphthalene, 2-	51000	∞
95578	Chlorophenol, 2-	3200	10000

CAS No.	Regulated Substance	Residential	Non-residential
107051	Chloropropene, 3-	1.3	1.3
2921882	Chlorpyrifos	1900	6100
7440473	Chromium (AppIII Tab 2 =100)	3200*	10000
218019	Chrysene	1900	6600
8007452	Coal tar creosote	∞	∞
7440484	Cobalt (AppIII Table 2 = 20)	38000*	∞
7440508	Copper (AppIII Table 2 = 100)	24000*	76000
544923	Copper cyanide	3200	10000
8001589	Creosote	∞	∞
123739	Crotonaldehyde	7.9	30
98828	Cumene	26000	82000
57125	Cyanides (soluble salts and complexes) N.O.S.	13000	41000
460195	Cyanogen	26000	82000
506683	Cyanogen bromide	58000	∞
506774	Cyanogen chloride	32000	∞
108941	Cyclohexanone	∞	∞
131895	Cyclohexyl-4, 6-dinitrophenol, 2-	1300	4100
108918	Cyclohexylamine	∞	∞
72548	DDD	62	240
72559	DDE	44	170
50293	DDT	44	170
75990	Dalapon	19000	61000
8065483	Demeton	26	82
117840	Di-n-octyl phthalate	13000	41000
2303164	Diallate	240	940
95807	Diaminotoluene, 2,4-	4.7	18
823405	Diaminotoluene, 2,6-	∞	∞
333415	Diazinon	580	1800
53703	Dibenz (a,h) anthracene	2.0	7.8
96128	Dibromochloropropane	11	41

CAS No.	Regulated Substance	Residential	Non-residential
84742	Dibutyl phthalate	64000	∞
1918009	Dicamba	19000	61000
616239	Dichloro-1-propanol, 2,3-	1900	6100
764410	Dichloro-2-butene, 1,4-	57000	71000
541731	Dichlorobenzene, m-	57000	∞
95501	Dichlorobenzene, o-	58000	∞
106467	Dichlorobenzene, p-	6200	24000
91941	Dichlorobenzidine, 3,3' -	33	130
75274	Dichlorobromomethane	240	920
75718	Dichlorodifluoromethane	∞	∞
75343	Dichloroethane, 1,1-	1200	1300
107062	Dichloroethane, 1,2-	3.5	4.4
75354	Dichloroethylene, 1,1-	250	950
156605	Dichloroethylene, trans-1,2-	13000	41000
108601	Dichloroisopropyl ether	210	820
120832	Dichlorophenol, 2,4-	1900	6100
94757	Dichlorophenoxyacetic acid, 2,4-	6400	20000
78875	Dichloropropane, 1,2-	220	840
542756	Dichloropropene, 1,3-	85	330
62737	Dichlorvos	52	200
115322	Dicofol	34	130
141662	Dicrotophos	64	200
60571	Dieldrin	0.93	3.6
84662	Diethyl phthalate	∞	∞
123911	Diethylene dioxide, 1,4- (Dioxane, 1,4-)	1400	5200
56531	Diethylstilbestrol	0.003	0.012
60515	Dimethoate	130	410
119904	Dimethoxybenzidine, 3,3' -	1100	4100
131113	Dimethyl phthalate	∞	∞
124403	Dimethylamine	∞	∞

CAS No.	Regulated Substance	Residential	Non-residential
119937	Dimethylbenzidine, 3,3'	1.6	6.2
57147	Dimethylhydrazine, 1,1-	5.7	22
540738	Dimethylhydrazine, 1,2-	4.0	15
105679	Dimethylphenol, 2,4-	13000	41000
528290	Dinitrobenzene, 1,2-	260	820
100254	Dinitrobenzene, 1,4-	260	820
99650	Dinitrobenzene, m-	64	200
51285	Dinitrophenol, 2,4-	1300	4100
606202	Dinitrotoluene	640	2000
121142	Dinitrotoluene, 2,4-	1300	4100
88857	Dinoseb	640	2000
122394	Diphenylamine	16000	51000
122667	Diphenylhydrazine, 1,2-	19	72
85007	Diquat dibromide	1400	4500
298044	Disulfoton	26	82
330541	Diuron	1300	4100
115297	Endosulfan (mixed isomers)	3800	12000
145733	Endothall	13000	41000
72208	Endrin	190	610
106898	Epichlorohydrin	1300	4100
2104645	EPN (see Ethyl p-nitro...)	-	-
563122	Ethion	320	1000
110805	Ethoxyethanol, 2-	∞	∞
141786	Ethyl acetate	∞	∞
140885	Ethyl acrylate	310	1200
60297	Ethyl ether	∞	∞
97632	Ethyl methacrylate	58000	∞
2104645	Ethyl p-nitrophenyl phenylphosphorothioate	6.4	20
100414	Ethylbenzene	12000	15000
107153	Ethylene diamine	13000	41000

CAS No.	Regulated Substance	Residential	Non-residential
106934	Ethylene dibromide	0.18	0.67
75218	Ethylene oxide	15	56
96457	Ethylene thiourea (ETU)	51	160
759739	Ethylnitrosourea	0.11	0.41
22224926	Fenamiphos	160	510
206440	Fluoranthene	26000	82000
86737	Fluorene	26000	82000
16984488	Fluoride	38000	∞
944229	Fonofos	1300	4100
50000	Formaldehyde	∞	∞
64186	Formic acid	∞	∞
110009	Furan	640	2000
98011	Furfural	1900	6100
765344	Glycidaldehyde	260	820
608731	HCH-technical	8.3	32
76448	Heptachlor	3.3	13
1024573	Heptachlor expoxide	1.6	6.3
118741	Hexachlorobenzene	9.3	36
87683	Hexachlorobutadiene	130	410
319846	Hexachlorocyclohexane (alpha)	2.4	9.1
319857	Hexachlorocyclohexane (beta)	8.3	32
77474	Hexachlorocyclopentadiene	4400	14000
19408743	Hexachlorodibenzo-p-dioxins	0.002	0.009
67721	Hexachloroethane	640	2000
70304	Hexachlorophene	190	610
302012	Hydrazine / hydrazine sulfate	5.0	19
7647010	Hydrogen chloride	∞	∞
74908	Hydrogen cyanide	13000	41000
7783064	Hydrogen sulfide	1900	6100
123319	Hydroquinone	26000	82000
193395	Indeno (1,2,3-cd) pyrene	20	78

CAS No.	Regulated Substance	Residential	Non-residential
78831	Isobutyl alcohol	∞	∞
78591	Isophorone	∞	∞
1832548	Isopropyl methyl phosphonic acid	64000	∞
143500	Kepone	0.83	3.2
7439921	Lead (AppIII Table 2 = 75)	n.a.	n.a.
78002	Lead - tetraethyl	0.064	0.20
58899	Lindane	120	440
121755	Malathion	13000	41000
108316	Maleic anhydride	64000	∞
123331	Maleic hydrazide	∞	∞
109773	Malononitrile	13	41
950107	Mephosfolan	58	180
7439976	Mercury (inorganic) (AppIII Table 2 = 0.5)	0.012*	0.012
126987	Methacrylonitrile	64	200
10265926	Methamidophos	32	100
67561	Methanol	∞	∞
950378	Methidathion	640	2000
16752775	Methomyl	16000	51000
72435	Methoxychlor	3200	10000
74839	Methyl bromide	4.3	4.5
74873	Methyl chloride	11000	44000
79221	Methyl chlorocarbonate	∞	∞
78933	Methyl ethyl ketone	5200	5600
60344	Methyl hydrazine	14	52
80626	Methyl methacrylate	51000	∞
298000	Methyl parathion	160	510
99558	Methyl-5-nitroaniline, 2-	450	1700
636215	Methylaniline hydrochloride, 2-	83	320
101144	Methylene bis(2-chloroaniline), 4,4' -	110	440
74953	Methylene bromide	6400	20000

CAS No.	Regulated Substance	Residential	Non-residential
75092	Methylene chloride	93	120
108101	Methylisobutylketone	51000	∞
95487	Methylphenol, 2- [o-Cresol]	32000	∞
108394	Methylphenol, 3- [m-Cresol]	32000	∞
106445	Methylphenol, 4- [p-Cresol]	3200	10000
924163	N-Nitrosodi-n-butylamine	2.8	11
621647	N-Nitrosodi-n-propylamine	2.1	8.2
1116547	N-Nitrosodiethanolamine	5.3	20
55185	N-Nitrosodiethylamine	0.10	0.38
62759	N-Nitrosodimethylamine	0.29	1.1
86306	N-Nitrosodiphenylamine	3000	12000
10595956	N-Nitrosomethylethylamine	0.68	2.6
930552	N-Nitrosopyrrolidine	7.1	27
300765	Naled	1300	4100
91203	Naphthalene	26000	82000
7440020	Nickel (AppIII Table 2 = 50)	13000*	41000
10102439	Nitric oxide	64000	∞
100016	Nitroaniline, 4-	1900	6100
98953	Nitrobenzene	320	1000
10102440	Nitrogen dioxide	∞	∞
100027	Nitrophenol, p-	40000	∞
79469	Nitropropane, 2-	56000	70000
99081	Nitrotoluene, m-	6400	20000
88722	Nitrotoluene, o-	6400	20000
99990	Nitrotoluene, p-	6400	20000
152169	Octamethylpyrophosphoramidate	1300	4100
1336363	PCBs	1.9	7.4
1910425	Paraquat	2900	9200
56382	Parathion	3800	12000
608935	Pentachlorobenzene	510	1600
82688	Pentachloronitrobenzene	57	220

CAS No.	Regulated Substance	Residential	Non-residential
87865	Pentachlorophenol	120	480
108952	Phenol	∞	∞
106503	Phenylenediamine, p-	∞	∞
62384	Phenylmercuric acetate	51	160
298022	Phorate	130	410
732116	Phosmet	13000	41000
7803512	Phosphine	190	610
7723140	Phosphorus, elemental	13	41
85449	Phthalic anhydride	∞	∞
151508	Potassium cyanide	32000	∞
506616	Potassium silver cyanide	∞	∞
23950585	Pronamide	48000	∞
2312358	Propargite	13000	41000
107197	Propargyl alcohol	1300	4100
57556	Propylene glycol	∞	∞
75569	Propylene oxide	62	240
129000	Pyrene	19000	61000
110861	Pyridine	640	2000
91225	Quinoline	1.2	4.8
7783008	Selenious Acid	3200	10000
7782492	Selenium (AppIII Table 2 = 2)	3200*	10000
630104	Selenourea	3200	10000
7440224	Silver (AppIII Table 2 = 2)	3200*	10000
506649	Silver cyanide	64000	∞
93721	Silvex	5100	16000
26628228	Sodium azide	2600	8200
143339	Sodium cyanide	26000	82000
62748	Sodium fluoroacetate	13	41
57249	Strychnine and salts	190	610
100425	Styrene	19000	22000
1746016	TCDD, 2,3,7,8-	9.6 E -5	3.7 E -4

CAS No.	Regulated Substance	Residential	Non-residential
13071799	Terbufos	16	51
95943	Tetrachlorobenzene, 1,2,4,5-	190	610
630206	Tetrachloroethane, 1,1,1,2-	270	350
79345	Tetrachloroethane, 1,1,2,2-	8.9	12
127184	Tetrachloroethylene	88	140
58902	Tetrachlorophenol, 2,3,4,6-	19000	61000
3689245	Tetraethyldithiopyrophosphate	320	1000
1314325	Thallic oxide	45	140
7440280	Thallium (AppIII Table 2 = 2)	45*	140
563688	Thallium acetate	58	180
6533739	Thallium carbonate	51	160
7791120	Thallium chloride	51	160
10102451	Thallium nitrate	58	180
12039520	Thallium selenite	58	180
7446186	Thallium sulfate	51	160
39196184	Thiofanox	190	610
137268	Thiram	3200	10000
108883	Toluene	3200	3500
95534	Toluidine, o-	62	240
106490	Toluidine, p-	79	300
8001352	Toxaphene	14	52
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	∞	∞
120821	Trichlorobenzene, 1,2,4-	6400	20000
71556	Trichloroethane, 1,1,1-	3400	3700
79005	Trichloroethane, 1,1,2-	130	170
79016	Trichloroethylene	53	69
75694	Trichlorofluoromethane	780	820
95954	Trichlorophenol, 2,4,5-	64000	∞
88062	Trichlorophenol, 2,4,6-	1400	5200
93765	Trichlorophenoxyacetic acid, 2,4,5-	6400	20000

CAS No.	Regulated Substance	Residential	Non-residential
96184	Trichloropropane, 1,2,3-	2.1	8.2
121448	Triethylamine	∞	∞
99354	Trinitrobenzene, 1,3,5-	32	100
7440622	Vanadium (AppIII Tab 2 = 100)	4500*	14000
1314621	Vanadium pentoxide	5800	18000
108054	Vinyl acetate	∞	∞
75014	Vinyl chloride	0.15	0.19
81812	Warfarin	190	610
1330207	Xylene (total)	∞	∞
95476	Xylene, o-	∞	∞
106423	Xylene, p-	∞	∞
7440666	Zinc (AppIII Table 2 = 100)	∞*	∞
557211	Zinc cyanide	32000	∞
1314847	Zinc phosphide	190	610

Total number of unique rows = 325

APPENDIX A: DEVELOPMENT OF SOIL CONCENTRATION LIMITS BASED ON
CANCER AND NONCANCER TOXICITIES

The six page table which immediately follows this discussion is a compilation of the Types 1 and 3 noncarcinogenic and carcinogenic soil concentration limits for all regulated substances for which sufficient data currently are available to perform the appropriate calculations cited in the rules. Each substance is identified with a CAS Number and with a single chemical name by which it is alphabetically ordered. The Type 1 noncarcinogenic concentration limit (T1_Noncar) is the maximum concentration of regulated substance which is unlikely to result in any noncancer toxic effects as determined using Equation 7 of RAGS, Part B, and the standard residential exposure assumptions listed in Appendix III Table 3 of the Rules for Hazardous Site Response. The Type 1 carcinogenic concentration limit (T1_Car) is the concentration for which the upperbound on the estimated cancer risk is less than or equal to 10^{-5} (or 10^{-4} for Class C carcinogens) as determined using Equation 6 of RAGS, Part B, and the standard residential exposure assumptions listed in Appendix III Table 3. Likewise, the Type 3 noncarcinogenic (T3_Noncar) and carcinogenic concentration limits (T3_Car) are the maximum concentrations calculated using the RAGS Equations 7 and 6, respectively, and the standard nonresidential exposure assumptions in Appendix III Table 3.

Upon incorporating the standardized exposure assumptions detailed in Appendix III Table 3 into the RAGS equations, EPD calculated the various soil concentration limits in mg/kg as follows:

$$\begin{aligned} T1_Noncar &= 73 / [(RfDo^{-1} \times 1.14E-04) + (RfDi^{-1} \times 15\{VF^{-1} + 1/4.63E+09\})] \\ T1_Car &= 1.703E-03 / [(SFo \times 1.14E-04) + (SF_i \times 15\{VF^{-1} + 1/4.63E+09\})] \\ T1_Car (Class C) &= 1.703E-02 / [(SFo \times 1.14E-04) + (SF_i \times 15\{VF^{-1} + 1/4.63E+09\})] \\ T3_Noncar &= 102.2 / [(RfDo^{-1} \times 5E-05) + (RfDi^{-1} \times 20\{VF^{-1} + 1/4.63E+09\})] \\ T3_Car &= 2.862E-03 / [(SFo \times 5E-05) + (SF_i \times 20\{VF^{-1} + 1/4.63E+09\})] \\ T3_Car (Class C) &= 2.862E-02 / [(SFo \times 5E-05) + (SF_i \times 20\{VF^{-1} + 1/4.63E+09\})] \end{aligned}$$

where

RfDo is the oral chronic reference dose in mg/kg-day;
RfDi is the inhalation chronic reference dose in mg/kg-day;
SFo is the oral cancer slope factor in kg-day/mg;
SF_i is the inhalation cancer slope factor in kg-day/mg;
VF is the soil-to-air volatilization factor in m³/kg; and
E is shorthand for base-10 scientific notation.

The VFs were calculated using the equation provided in Appendix III Table 3 of the rules (which is identical to RAGS Equation 8). This equation is as follows after the default assumptions listed in Table 3 have been incorporated:

$$VF = 0.2436Di^{-1/2}H^{-1}Koc(0.35 + 0.8402Koc/H)^{-1/2}$$

where

Di is the molecular diffusivity in cm²/s;

H is Henry's Law Constant in atm-m³/mol; and

Koc is the organic carbon partition coefficient in cm³/g.

Values for RfDo, RfDi, SFo, and SFi appearing on the table were taken from the current version of IRIS or, if not listed in IRIS, from the current version of HEAST. If not available in the current versions of IRIS or HEAST, values were used from older versions. The values for Di, H, and Koc on the table come from a number of sources as documented in EPD's databases.

In cases where one or several of the chemical-specific inputs were not available, modified versions of the equations were used. The Notes column in the table indicates the nature of the modification, if any. If a value for only one of the two variables in variable pairs RfDo/RfDi or SFo/SFi was not available for a particular chemical, the term containing that variable in the equations was equated to zero. For example, if no RfDo were available, the T1_Noncar equation was:

$$T1_Noncar = 73 / [(RfDi^{-1} \times 15\{VF^{-1} + 1/4.63E+09\})]$$

If both values of a pair were not available, the respective T1_ and T3_Noncar and T1_ and T3_Car concentrations could not be calculated. If any of the Di, H, and Koc values were not available, the term VF⁻¹ was equated to zero. For example, the T1_Car equation was modified to the following in such cases:

$$T1_Car = 1.703E-03 / [(SFo \times 1.14E-04) + (SFi \times 15\{1/4.63E+09\})]$$

In cases where one of the variable pairs and any of the Di, H, and Koc inputs were both missing, the equations were modified according to the conventions described above. The T1_Noncar equation for a substance lacking a value for RfDi and H was calculated as follows:

$$T1_Noncar = 73 / [RfDo^{-1} \times 1.14E-04]$$

If the RfDo and H were not available, the equation was:

$$T1_Noncar = 73 / [RfDi^{-1} \times 15\{1/4.63E+09\}]$$

It should be noted that as additional data become available, EPD will incorporate them as appropriate into its databases and update this manual accordingly.

NONCARCINOGENIC AND CARCINOGENIC RISK REDUCTION CRITERIA OPTIONS WITH CHEMICAL-SPECIFIC INPUTS

CAS No.	Substance	T1 noncar (mg/kg)	T1 car (mg/kg)	T3 noncar (mg/kg)	T3 car (mg/kg)	Car Class	Notes	RfD _o (mg/kg-day)	RfD _i (mg/kg-day)	SF _o (kg-day/mg)	SF _i (mg)	DI (cm ² /s)	KOC (cm ³ /g)	H ₃ (atm-m ³ /mol)
83329	Acenaphthene	3.84E+04		1.23E+05			c,d	6.00E-02			7.70E-03	0.04210	5.62E+03	7.5E-03
75070	Acetaldehyde	5.79E+07	6.83E+07	6.08E+07	8.60E+07		b,e,h		2.57E-03			0.13249	2.86E-01	
67641	Acetone	6.40E+04		2.04E+05			c,d	1.00E-01				0.10930	2.58E-01	1.2E-03
75865	Acetone cyanohydrin	4.48E+04		1.43E+05			d,h,i	7.00E-02	2.86E-03			0.08700		
75058	Acetonitrile	1.52E+02		1.64E+02			d	6.00E-03	1.43E-02			0.12600	1.93E-01	2.00E-05
98862	Acetophenone	1.12E+00		1.18E+00			d	1.00E-01	5.71E-06			0.07200	1.82E+01	1.10E-05
107028	Acrolein	4.80E-02		5.04E-02			d	2.00E-02	5.71E-06			0.11000	6.04E-01	1.20E-04
1.28E+02	Acrylamide	2.22E+00		4.09E+02			c	2.00E-04	4.50E+00			0.10100	1.03E-01	1.00E-09
4.50E+01	Acrylic acid	1.10E+00		4.73E+01			d	5.00E-01	1.00E-03			0.09900	1.45E-02	1.20E-07
107131	Acrylonitrile	6.60E+00		6.98E+00				1.00E-03	5.71E-04			0.10800	8.15E-01	8.84E-05
6.40E+02	Aldicarb	1.92E+01		2.04E+03			c,d,g,h,i	1.00E-03						
309002	Aldrin	107186	8.40E-01	6.13E+01	2.95E+00		c	3.00E-05	1.70E+01			0.04100	1.51E+06	3.20E-04
120127	Allyl alcohol	3.20E+03		1.02E+04			c	5.00E-03					2.69E-01	
0859738	Aluminum phosphide	2.56E+02		8.18E+02			c,d,g,h,i	4.00E-04						
504245	Aminopyridine, 4-	1.28E+01		4.09E+01			c,d,g,h,i	2.00E-05						
7664417	Ammonia	6.44E+08		6.77E+08			b,d,g,h		2.86E-02				3.10E+00	
7773060	Ammonium sulfamate	1.28E+05		4.09E+05			c,d,g,h,i	2.00E-01						
62533	Aniline	5.65E-02	2.62E+03	5.93E-02	1.00E+04		b,f	2.86E-04	5.70E-03			0.08065	3.94E+00	1.360E-01
120127	Anthracene	1.92E+05		6.13E+05			c,d	3.00E-01				0.03240	1.40E+03	4.6E-03
7440360	Antimony	2.56E+02		8.18E+02			c,d,g,h,i	4.00E-04						
1309644	Antimony trioxide	2.56E+02		8.18E+02			c,d,g,h,i	4.00E-04						
109578	Aramite	3.20E+04	5.98E+02	1.03E+05	2.29E+03		c,h	5.00E-02	2.50E-02			0.03800	1.58E+05	
2674112	Arochlor 1016 (PCBs)	4.48E+01		1.43E+02			c,d,g,h,i	7.00E-05					1.07E+05	
7440382	Arsenic	1.92E+02	3.48E+04	6.13E+02	4.39E+04		c,e,g,h,i	3.00E-04	1.43E-05					
7784421	Arsine	3.22E+05		3.38E+05			b,d,g,h,i	7.00E-02	1.43E-04					
7440393	Barium	4.42E+04		1.37E+05			d,g,h,i	7.00E-02						
542621	Barium cyanide	6.40E+04		2.04E+05			c,d,g,h,i	1.00E-01						
56553	Benz(a)anthracene	2.41E+01	1.90E+01	2.53E+01	6.55E+01		a	1.00E-05	1.71E-03			0.05100	2.19E+05	1.5E-04
71432	Benzene	6.40E+00	1.11E+01	2.04E+01	1.42E+01		b	3.00E-03	1.71E-03			0.09234	6.31E+01	5.56E-03
108985	Benzenethiol	1.92E+03	6.50E-02	2.04E+01	2.49E-01		c,d,g,h,i	1.00E-05				0.06300	1.82E+01	
92875	Benztidine	2.04E+00		6.13E+03			c,h	1.00E-05				0.05295	6.31E+05	1.55E-06
50328	Benzo(a)pyrene	1.97E+01	2.04E+00	7.73E+00	7.01E+01		a	7.30E-01	6.10E+00			0.02260	6.31E+05	2.5E-04
205992	Benzo(b)fluoranthene	1.97E+01	2.05E+02	7.01E+01	7.84E+02		a	7.30E-01	6.10E-01				5.50E+05	
207089	Benzo(k)fluoranthene	2.05E+02		7.84E+02			a,g,h	4.00E+00						
65850	Benzoic acid	2.56E+06		8.18E+06			c,d,g,h						7.76E-01	
98077	Benzotrichloride	1.15E+00		1.15E+00	4.40E+00		c,d,g,h						1.15E+04	
100447	Benzyl chloride	8.79E+01		8.79E+01	3.37E+02		a,f,g,h						6.92E+02	
7440417	Beryllium	3.20E+03	3.47E+00	1.02E+04	1.33E+01		c,g,h,i	5.00E-03				0.07200	6.31E+00	1.700E-05
111444	Bis(2-chloroethyl) ether	1.64E+00		2.25E+00			a	2.00E-02					1.35E+07	
117817	Bis(2-ethylhexyl)phthalate	1.28E+04	1.07E+03	4.09E+04	4.09E+03		c,f,g,h	2.00E-02				0.08600	1.20E+00	1.200E-04
542881	Bis(chloromethyl) ether	1.44E-03		1.84E-03			a	2.00E-04						
7637072	Boron trifluoride	4.51E+06		4.73E+06			b,d,g,h,i	2.00E-04						
75252	Bromoform	1.28E+04	2.92E+02	4.09E+04	4.10E+02		c	2.00E-02				0.10880	1.12E+02	5.32E-04
101553	Bromophenyl phenyl ether, 4-	3.71E+04		1.19E+05			c	5.80E-02						
71363	Butanol, 1-	6.40E+04		2.04E+05			c,d,g,h,i	1.00E-01					3.18E+00	
85687	Butyl benzyl phthalate	1.28E+05		4.09E+05			c,d,g,h	2.00E-01					1.70E+04	
75605	Cacodylic acid	1.92E+03		6.13E+03			c,d,g,h	3.00E-03					2.40E+00	
7440439	Cadmium	3.20E+02	8.35E+04	1.02E+03	1.05E+05		c,e,g,h,i	5.00E-04						
592018	Calcium cyanide	2.56E+04		8.18E+04			c,d,g,h,i	4.00E-02					6.40E+03	
133062	Captan	8.32E+04	4.27E+03	2.66E+05	1.64E+04		c,f,g,h	1.30E-01						
63252	Carbaryl	6.40E+04		2.04E+05			c,d,g,h,i	1.00E-01						
1563662	Carbofuran	3.20E+03		1.02E+04			c,d,g,h,i	5.00E-03						
75150	Carbon disulfide	1.58E+01		1.66E+01			d	1.00E-01	2.86E-03					
56235	Carbon tetrachloride	7.22E+00	5.44E+00	7.66E+00	7.08E+00		c,d,g,h,i	7.00E-04	5.71E-04			0.10700	6.92E+01	3.00E-02
75876	Chloral	1.28E+03		4.09E+03			c	2.00E-03				0.08451	2.57E+02	2.94E-02
57749	Chlordane	3.84E+01	1.12E+01	1.23E+02	4.10E+01		c	6.00E-05						
126998	Chloro-1,3-butadiene, 2-	1.28E+04		4.08E+04			d,g,h	2.00E-02						
3165933	Chloro-o-toluidine hydrochloride,	1.28E+04	3.25E+01	4.08E+04	1.24E+02		a,f,g,h,i	2.00E-02						4.90E-05
107200	Chloroacetaldehyde	4.42E+03		1.41E+04			c,d,g,h,i	6.90E-03						

JAS No.	Substance	T1_noncar (mg/kg)	T1_car (mg/kg)	T3_noncar (mg/kg)	T3_car (mg/kg)	Car Class	Notes	Rfd_o (mg/kg.day)	Rfd_i (mg/kg.day)	SF_o (kg.day/mg)	SF_i (mg/day/mg)	Di (cm2/s)	Koc (cm3/g)	H (atm-m3/mol)	
79118	Chloroacetic acid	1.28E+03		4.09E+03			c,d,g,h,i	2.00E-03							
106478	Chloroaniline, p-	2.56E+03		8.18E+03			c,d,g,h	4.00E-03					4.07E+01		
108907	Chlorobenzene	2.39E+02		2.54E+02			d	2.00E-02	5.71E-03			0.07627	3.78E+02	4.538E-03	
510156	Chlorobenzilate	1.28E+04	5.53E+01	4.09E+04	2.12E+02		c,h	2.00E-02		2.70E-01	2.70E-01	0.04000	1.10E+04		
124481	Chlorodibromomethane	1.28E+04	1.78E+03	4.09E+04	6.81E+03	C	c,f,g,h	2.00E-02		8.40E-02			8.13E+01		
75003	Chloroethane	1.30E+04		1.42E+04			d	4.00E-01	2.86E+00				1.1031	1.29E+01	6.919E-03
110758	Chloroethylvinyl ether, 2-	1.60E+04		5.11E+04			c,d,g,h,i	2.50E-02					0.09404	3.80E+01	4.053E-03
67663	Chloroform	6.40E+03	3.66E+00	2.04E+04	4.61E+00		c	1.00E-02		6.10E-03	8.05E-02				
91587	Chloronaphthalene, 2-	5.12E+04		1.64E+05			c,d,g,h,i	8.00E-02					6.61E+01		
95578	Chlorophenol, 2-	3.20E+03		1.02E+04			c,d,g,h	5.00E-03					0.09900	1.35E+01	9.072E-03
107051	Chloropropene, 3-	1.27E+00		1.33E+00			d	5.00E-02	2.86E-04						
2921862	Chlorpyrifos	1.92E+03		6.13E+03			c,d,g,h,i	3.00E-03					7.30E-03	6.10E-03	
7440473	Chromium	3.20E+03	1.25E+04	1.02E+04	1.58E+04		c,e,g,h,i	5.00E-03		4.20E+01					
218019	Chrysene		1.93E+03	6.63E+03			a			7.30E-03	6.10E-03		0.04800	2.19E+05	9.500E-05
8007452	Coal tar creosote		2.42E+05	3.05E+05			a			2.17E+00					
7440484	Cobalt	3.84E+04		1.23E+05			a,e,g,h,i						2.51E+03		
7440508	Copper	2.38E+04		7.58E+04			c,d,g,h,i								
544923	Copper cyanide	3.20E+03		1.02E+04			c,d,g,h,i								
8001589	Creosote		2.39E+05	3.01E+05			a,e,g,h,i			2.20E+00					
123739	Crotonaldehyde	6.40E+03	7.86E+00	2.04E+04	3.01E+01		c,g,h,i	1.00E-02	2.57E-03	1.90E+00	1.90E+00				
98828	Cumene	2.56E+04		8.17E+04			d,g,h	4.00E-02							
57125	Cyanides (soluble salts and	1.28E+04		4.09E+04			c,d,g,h,i	2.00E-02							
460195	Cyanogen	2.56E+04		8.18E+04			c,d,g,h,i	4.00E-02							
506683	Cyanogen bromide	5.76E+04		1.84E+05			c,d,g,h,i	9.00E-02							
506774	Cyanogen chloride	3.20E+04		1.02E+05			c,d,g,h,i	5.00E-02							
108941	Cyclohexanone	3.20E+06		1.02E+07			c,d,g,h,i	2.00E-03							
131895	Cyclohexyl-4,6-dinitrophenol, 2-	1.28E+03		4.09E+03			c,d,g,h,i	2.00E-01							
108918	Cyclohexylamine	1.28E+05		4.09E+05			c,d,g,h,i			2.40E-01			7.76E+05		
72548	DDD		6.23E+01	2.38E+02			a,f,g,h			3.40E-01			4.37E+06		
72559	DDE		4.39E+01	1.68E+02			a,f,g,h			3.40E-01			3.89E+06		5.100E-04
50293	DDT	3.20E+02		1.02E+03			c,g								
75990	Dalapon	1.92E+04		6.13E+04			c,d,g,h,i	3.00E-02							
8065483	Demeton	2.56E+01		8.18E+01			c,d,g,h,i	4.00E-05							
117840	Di-n-octyl phthalate	1.28E+04		4.09E+04			c,d,g,h	2.00E-02							
2303164	Diallate		2.45E+02	9.38E+02			a,f,g,h			6.10E-02			3.98E+07		
95807	Diaminotoluene, 2,4-		4.67E+00	1.79E+01			c,d,g,h			3.20E+00			1.48E+04		
823405	Diaminotoluene, 2,6-						c,d,g,h						1.05E+00		
333415	Diazinon	1.28E+05		4.09E+05			c,d,g,h	2.00E-01					1.05E+00		
56703	Dibenz(a,h)anthracene	5.76E+02		1.84E+03			c,d,g,h,i	9.00E-04					3.31E+06		
53703	Dibenz(a,h)anthracene		2.05E+00	7.84E+00			a,g,h			7.30E+00	6.10E+00				
96128	Dibromochloropropane	1.29E+06		1.35E+06			b,g,h			1.40E+00	2.42E-03		8.71E+01		
84742	Dibutyl phthalate	6.40E+04		2.04E+05			c,d,g,h	1.00E-01					2.34E+04		
1918009	Dicamba	1.92E+04		6.13E+04			c,d,g,h,i	3.00E-02							
764410	Dichloro-1-propanol, 2,3-	1.92E+03		6.13E+03			c,d,g,h,i	3.00E-03							
541731	Dichloro-2-butene, 1,4-	5.70E+04		1.82E+05			a,e,g,h,i	8.90E-02			9.30E+00				
95501	Dichlorobenzene, o-	5.76E+04		1.84E+05			d,g,h	9.00E-02					1.70E+03		
106467	Dichlorobenzene, p-	5.16E+09	6.23E+03	5.42E+09	2.38E+04	C	b,f,g,h	2.40E-02	5.71E-02	2.40E-02			1.20E+03		
91941	Dichlorobenzidine, 3,3'-	1.28E+04	2.41E+02	4.09E+04	1.27E+02		a,f,g,h	2.00E-02	2.29E-01	4.50E-01			2.09E+03		
75718	Dichlorodifluoromethane	1.28E+05		4.09E+05	9.23E+02		c,f,g,h	2.00E-02		6.20E-02			5.80E+01		
75343	Dichloroethane, 1,1-	3.96E+01		1.32E+02			d	1.00E-01	5.71E-02				0.09643	2.88E+01	5.871E-03
107062	Dichloroethane, 1,2-	5.76E+03	3.48E+00	4.15E+01	4.44E+00		b	1.00E-01	1.43E-01	9.10E-02	9.10E-02		0.09643	1.35E+01	1.178E-03
75354	Dichloroethylene, 1,1-	1.28E+04	2.49E+02	1.84E+04	9.54E+02	C	c,h	9.00E-03	2.86E-03	6.00E-01	1.75E-01		0.08386	6.17E+01	
156605	Dichloroethylene, trans-1,2-	1.28E+04		4.09E+04			c,d,g,h	2.00E-02					3.98E+01		
106601	Dichloroisopropyl ether		2.13E+02	8.18E+02			a,i			7.00E-02	7.00E-02		0.06300	1.100E-04	
120832	Dichlorophenol, 2,4-	1.92E+03		6.13E+03			c,d,g,h	3.00E-03					3.09E+02		
94757	Dichlorophenoxyacetic acid, 2,4-	6.40E+03		2.04E+04			c,d,g,h	1.00E-02					4.79E+00		
78875	Dichloropropane, 1,2-	2.57E+07	2.20E+02	2.70E+07	8.42E+02		b,f,g,h	8.42E+02	1.14E-03	6.80E-02			4.68E+01		
542756	Dichloropropane, 1,3-	1.92E+02	8.54E+01	6.13E+02	3.27E+02		g	3.00E-04	5.71E-03	1.75E-01	1.30E-01		2.69E+01		3.550E-03
62737	Dichlorvos	3.20E+02	5.15E+01	1.02E+03	1.97E+02		c,f,g,h,i	5.00E-04		2.90E-01					
115322	Dicofol		3.40E+01	1.30E+02			a,f,g,h,i			4.40E-01					

CAS No.	Substance	T1_noncar (mg/kg)	T1_car (mg/kg)	T3_noncar (mg/kg)	T3_car (mg/kg)	Car Class	Notes	RfD_o (mg/kg-day)	RfD_i (mg/kg-day)	SF_o (kg-day/mg)	SF_i (kg-day/mg)	D1 (cm2/s)	Koc (cm3/g)	H (atm-m3/mol)
141662	Dicrotophos	6.40E+01		2.04E+02			C,d,g,h,i	1.00E-04						
60571	Dieldrin	3.20E+01	9.34E-01	1.02E+02	3.58E+00		C,g,h	5.00E-05			1.60E+01	1.61E+01	1.20E+05	
84562	Diethyl phthalate	5.12E+05		1.64E+06			C,d,g,h	8.00E-01					9.77E+01	
123911	Diethylene dioxide, 1,4-		1.36E+03	5.20E+03			a,f,g,h				1.10E-02		1.54E-01	
56531	Diethylstilbestrol		3.18E-03	1.22E-02			a,f,g,h				4.70E+03		1.23E+04	
60515	Dimethoate			4.09E+02			C,d,g,h	2.00E-04					1.36E+00	
119904	Dimethoxybenzidine, 3,3'-	1.28E+02	1.07E+03		4.09E+03		a,f,g,h	1.00E+01			1.40E-02		3.09E+01	
131113	Dimethyl phthalate	6.40E+06		2.04E+07			C,d,g,h		5.71E-06			0.12577	1.58E+01	
124403	Dimethylamine	1.29E+05		1.35E+05			b,d,h						2.20E+00	
57976	Dimethylbenz(a)anthracene, 7,12-						a,d,g,h						4.37E+06	
119937	Dimethylbenzidine, 3,3'-	1.62E+00		6.22E+00			a,f,g,h				9.20E+00		3.55E+02	
57147	Dimethylhydrazine, 1,1-	5.75E+00		2.20E+01			a,g,h				2.60E+00		2.00E-01	
540738	Dimethylhydrazine, 1,2-	4.04E+00		1.55E+01			a,g,h,i				3.70E+00		2.00E-01	
105679	Dimethylphenol, 2,4-	1.28E+04		4.09E+04			C,d,g,h	2.00E-02					1.95E+02	
256E+02				8.18E+02			C,d,g,h,i	4.00E-04					2.04E+01	
528290	Dinitrobenzene, 1,2-	2.56E+02		8.18E+02			C,d,g,h,i	4.00E-04					8.13E-01	
100254	Dinitrobenzene, 1,4-	6.40E+01		2.04E+02			C,d,g,h	1.00E-04					2.51E+01	
99650	Dinitrobenzene, m-	1.28E+03		4.09E+03			C,d,g,h	2.00E-03					4.79E+01	
51285	Dinitrophenol, 2,4-	6.40E+02		2.04E+03			C,d,g,h	1.00E-03					1.05E+02	
506202	Dinitrotoluene	1.28E+03		4.09E+03			C,d,g,h	2.00E-03					2.00E+03	
121142	Dinitrotoluene, 2,4-	6.40E+02		2.04E+03			C,d,g,h	1.00E-03					2.00E+03	
88857	Dinoseb	1.60E+04		5.11E+04			C,d,g,h	2.50E-02					2.51E+01	
122394	Diphenylamine		1.87E+01		7.15E+01		a,g,h				8.00E-01	7.70E-01		
122667	Diphenylhydrazine, 1,2-	1.41E+03		4.50E+03			C,d,g,h,i	2.20E-03						
85007	Diquat dibromide						a,d,g,h,i						8.71E+02	
2764729	Diquat dication						C,d,g,h							
298044	Disulfoton	2.56E+01		8.18E+01			C,d,g,h	4.00E-05					1.00E+04	
330541	Diuron	1.28E+03		4.09E+03			C,d,g,h,i	2.00E-03					1.00E+04	
115297	Endosulfan (mixed isomers)	3.84E+03		1.23E+04			C,d,g,h	6.00E-03					1.00E+04	
959988	Endosulfan I						a,d,g,h							
13213659	Endosulfan II						a,d,g,h					0.09005	2.24E+00	
145733	Endosulfan	1.28E+04		4.09E+04			C,d,g,h,i	2.00E-02					3.98E+04	
72208	Endrin	1.92E+02		6.13E+02			C,d,g,h	3.00E-04					2.95E-01	
106898	Epichlorohydrin	1.28E+03	1.51E+03	4.09E+03	5.78E+03		G,h,g,h	2.00E-04	2.86E-04	9.90E-03	4.20E-03			
563122	Ethion	3.20E+02		1.02E+03			C,d,g,h,i	5.00E-04					2.88E-01	
110805	Ethoxyethanol, 2-	2.56E+05		8.17E+05			d,g,r	4.00E-01	5.71E-02					
141786	Ethyl acetate	5.76E+05		1.84E+06			C,d,h	9.00E-01					2.24E+00	
140895	Ethyl acrylate		3.11E+02		1.19E+03		a,f,g,h,i				4.80E-02			
60297	Ethyl ether	1.28E+05		4.09E+05			C,d,g,h	2.00E-01					3.55E+00	
97632	Ethyl methacrylate	5.76E+04		1.84E+05			C,d,g,h	9.00E-02					1.86E+01	
62500	Ethyl methanesulfonate						a,d,g,h						5.37E-01	
2104645	Ethyl p-nitrophenyl	6.40E+00		2.04E+01			C,d,g,h,i	1.00E-05	2.86E-01					
100414	Ethylbenzene	1.25E+04		1.51E+04			d	2.00E-02				0.07070	1.00E+03	8.043E-03
107153	Ethylene diamine	1.28E+04		4.09E+04			C,d,g,h,i	1.00E-01					2.63E+01	
106934	Ethylene dibromide	1.29E+06		1.35E+06			b,g,h	2.00E-02	5.71E-05	8.50E+01	7.70E-01		7.94E-02	
75218	Ethylene oxide	1.46E+01		5.61E+01			a,g,h			1.02E+00	3.50E-01			
96457	Ethylene thiourea (ETU)	5.12E+01		1.64E+02			C,f,g,h,i	8.00E-05			1.19E-01			
759739	Ethylnitrosourea		1.07E-01		4.09E-01		a,f,g,h,i				1.40E+02			
52857	Famphur						a,d,g,h						8.91E+01	
1224926	Fenamiphos	1.60E+02		5.11E+02			C,d,g,h,i	2.50E-04					4.27E+04	
206440	Fluoranthene	2.56E+04		8.18E+04			C,d,g,h	4.00E-02					8.13E+03	
86737	Fluorene	2.56E+04		8.18E+04			C,d,g,h	4.00E-02						
6984488	Fluoride	3.84E+04		1.23E+05			C,d,g,h,i	6.00E-02						
944229	Fonofos	1.28E+03		4.09E+03			C,d,g,h,i	2.00E-03					5.01E-02	
50000	Formaldehyde	1.28E+05		4.09E+05			C,g,h	2.00E-01			4.55E-02		2.00E-03	
64186	Formic acid	1.28E+06		4.09E+06			C,d,g,h	2.00E+00					1.00E+01	
110009	Furan	6.40E+02		2.04E+03			C,d,g,h	1.00E-03						
98011	Furfural	1.92E+03		6.13E+03			d,g,h,i	3.00E-03	1.43E-02					
765344	Glycidaldehyde	2.56E+02		8.18E+02			d,g,h,i	4.00E-04	2.86E-04					
608731	HCH-technical	3.20E+02		1.02E+03			a,g,h,i	5.00E-04			1.79E+00		1.62E+05	
76448	Heptachlor	8.32E+00		3.32E+00			C,g,h	4.50E+00			4.55E+00			
1024573	Heptachlor epoxide		1.64E+00	2.66E+01	6.29E+00		C,g,h	1.30E-05			9.10E+00		7.94E+04	

AS No.	Substance	T1_noncar (mg/kg)	T1_car (mg/kg)	T3_noncar (mg/kg)	T3_car (mg/kg)	Car Class	Notes	RfD_o (mg/kg-day)	RfD_i (mg/kg-day)	SF_o (kg-day/mg)	SF_i (mg)	Di (cm2/s)	Koc (cm3/g)	H (atm-m3/mol)
118741	Hexachlorobenzene	5.12E+02	9.34E+00	1.64E+03	3.58E+01		C, g, h	8.00E-04	8.00E-04	1.60E+00	1.61E+00		2.58E+05	
87683	Hexachlorobutadiene	1.28E+02	1.92E+03	4.09E+02	7.34E+03	C	C, g, h	2.00E-04	2.00E-04	7.80E-02	7.70E-02		2.88E+04	
319846	Hexachlorocyclohexane (alpha)	2.37E+00	2.37E+00	9.08E+00	9.08E+00		a, g, h			6.30E+00	6.30E+00		2.69E+03	
319857	Hexachlorocyclohexane (beta)	8.30E+00	8.30E+00	1.39E+04	3.18E+01		a, g, h			1.80E+00	1.80E+00		2.69E+03	
77474	Hexachlorocyclohexadiene	4.44E+03	2.41E-03	1.39E+04	9.23E-03		d, g, h	7.00E-03	2.00E-05	6.20E+03	4.55E+03		5.25E+04	
9408743	Hexachlorodibenzo-p-dioxins	6.40E+02	1.07E+04	2.04E+03	4.09E+04	C	a, g, h, i	1.00E-03	1.00E-03	1.40E-02	1.40E-02		4.07E+03	
67721	Hexachloroethane	1.92E+02	4.98E+00	6.13E+02	1.91E+01		C, d, g, h	3.00E-04	3.00E-04	3.00E+00	1.71E+01		1.00E+05	
302012	Hydrazine, hydrazine sulfate	4.51E+07	4.09E+04	4.73E+07	4.73E+07		a, g, h, i	2.00E-03	2.00E-03					
7647010	Hydrogen chloride	1.28E+04	4.09E+04	4.09E+04	4.09E+04		b, d, g, h, i	2.00E-02	2.00E-02					
74908	Hydrogen cyanide	1.92E+03	6.13E+03	6.13E+03	6.13E+03		c, d, g, h, i	3.00E-03	2.57E-04					
7783064	Hydrogen sulfide	2.56E+04	8.18E+04	8.18E+04	8.18E+04		c, d, g, h, i	4.00E-02	4.00E-02					
123319	Hydroquinone	1.92E+05	2.05E+01	6.13E+05	7.84E+01		a, g, h	3.00E-01	3.00E-01	7.30E-01	6.10E-01		1.82E+06	
193395	Indeno(1,2,3-cd) pyrene	1.28E+05	1.57E+05	4.09E+05	6.02E+05	C	c, d, g, h, i	2.00E-01	2.00E-01	9.50E-04			2.75E+00	
78831	Isobutyl alcohol	6.40E+04	8.30E-01	2.04E+05	3.18E+00		a, f, g, h, i	1.00E-01	1.00E-01	1.80E+01			7.94E+01	
78591	Isophorone	6.40E+02	1.15E+02	2.04E+01	2.04E+01		a, d, g, h, i	1.00E-07	1.00E-07				1.41E+04	
1832548	Isopropyl methyl phosphonic acid	6.40E+04	1.15E+02	6.13E+02	4.40E+02	C	c, d, g, h, i	3.00E-04	3.00E-04	1.30E+00			2.51E+03	
143500	Kepon	6.40E+02	1.15E+02	2.04E+01	2.04E+01		a, d, g, h, i	1.00E-07	1.00E-07					
7439921	Lead	6.40E+02	1.15E+02	6.13E+02	4.40E+02	C	c, d, g, h, i	3.00E-04	3.00E-04	1.30E+00			2.51E+03	
78002	Lead - tetraethyl	1.28E+04	1.28E+04	4.09E+04	4.09E+04		c, f, g, h	2.00E-02	2.00E-02					
58899	Lindane	1.28E+04	6.40E+04	2.04E+05	2.04E+05		c, d, g, h, i	1.00E-01	1.00E-01					
121755	Malathion	3.20E+05	1.02E+06	1.02E+06	1.02E+06		c, d, g, h, i	5.00E-01	5.00E-01					
108316	Maleic anhydride	1.28E+01	1.84E+02	1.84E+02	1.84E+02		c, d, g, h, i	9.00E-05	9.00E-05					
123331	Maleic hydrazide	1.17E-02	1.17E-02	1.23E-02	1.23E-02		d	3.00E-04	8.57E-05	1.00E-04	2.00E-04		0.13000	1.146E-02
109773	Malononitrile	6.40E+01	1.02E+02	1.02E+02	1.02E+02		c, d, g, h, i	5.00E-05	5.00E-05				1.66E+00	
950107	Mephosfolan	3.20E+05	1.02E+06	1.02E+06	1.02E+06		c, d, g, h, i	5.00E-01	5.00E-01					
7439976	Mercury (inorganic)	3.20E+05	1.02E+06	1.02E+06	1.02E+06		c, d, g, h, i	5.00E-05	5.00E-05				7.94E+04	
126987	Methacrylonitrile	3.20E+05	1.02E+06	1.02E+06	1.02E+06		c, d, g, h, i	5.00E-03	5.00E-03				5.75E+00	6.200E-03
0285926	Methamidophos	3.20E+05	1.02E+06	1.02E+06	1.02E+06		c, d, g, h, i	1.40E-03	1.43E-03	1.30E-02	6.30E-03		0.11827	8.255E-03
67561	Methanol	6.40E+02	1.15E+02	4.52E+00	4.40E+04	C	d	1.00E-04	1.00E-04	1.10E+00			0.09485	4.660E-05
950378	Methidathion	6.40E+02	1.15E+02	2.04E+06	2.04E+06		a, i	1.00E+00	1.00E+00				5.50E+00	
6752775	Methomyl	3.20E+03	1.36E+01	5.56E+03	5.20E+01		d	6.00E-01	2.86E-01				2.95E+02	
72435	Methoxychlor	5.12E+04	1.36E+01	1.64E+05	5.20E+01		c, d, g, h, i	8.00E-02	8.00E-02					
74839	Methyl bromide	1.60E+02	4.53E+02	5.11E+02	1.73E+03		c, d, g, h	2.50E-04	2.50E-04	3.30E-02				
74873	Methyl chloride	6.40E+02	8.30E-01	1.02E+04	3.18E+02		a, f, g, h, i	1.80E-01	1.80E-01	1.80E+01				
79221	Methyl chloroacetate	4.48E+02	1.15E+02	1.43E+03	4.40E+02		a, d, g, h, i	7.00E-04	7.00E-04	1.30E-01	1.30E-01		1.00E+07	
78933	Methyl ethyl ketone	6.40E+03	9.33E+01	2.04E+04	2.04E+04		c, g, h, i	1.00E-02	1.00E-02	1.30E-01	1.30E-01		1.62E+01	
80626	Methyl methacrylate	5.12E+04	1.36E+01	5.90E+03	1.21E+02		c, d, g, h	6.00E-02	6.00E-02	7.50E-03	1.64E-03		0.10830	2.476E-03
298000	Methyl parathion	1.60E+02	8.30E-01	1.63E+05	1.63E+05		d, g, h	8.00E-02	8.57E-01				8.51E+00	
99558	Methyl-5-nitroaniline, 2-	3.20E+04	2.77E+00	1.02E+05	1.06E+01		a, g, h	5.00E-02	5.00E-02	5.40E+00	5.60E+00		7.41E+00	
636215	Methylaniline hydrochloride, 2-	3.20E+04	2.77E+00	1.02E+05	1.06E+01		c, d, g, h	5.00E-02	5.00E-02	5.40E+00	5.60E+00		5.75E+01	
56495	Methylcholanthrene, 3-	4.48E+02	1.15E+02	1.43E+03	4.40E+02		a, g, h, i	5.00E-03	5.00E-03				1.23E+02	
101144	Methylene bis(2-chloroaniline),	6.40E+03	2.13E+00	2.04E+04	8.18E+00		c, g, h, i	1.00E-02	1.00E-02	1.30E-01	1.30E-01		1.07E+01	
74953	Methylene bromide	5.12E+03	9.33E+01	5.90E+03	1.21E+02		c, d, g, h	6.00E-02	6.00E-02	7.50E-03	1.64E-03		0.10830	2.476E-03
75092	Methylene chloride	5.12E+04	1.36E+01	1.63E+05	1.63E+05		d, g, h	8.00E-02	8.57E-01				8.51E+00	
108101	Methylisobutylketone	3.20E+04	2.77E+00	1.02E+05	1.06E+01		a, f, g, h, i	5.00E-02	5.00E-02	5.40E+00	5.60E+00		7.41E+00	
95487	Methylphenol, 2- (o-cresol)	3.20E+04	2.77E+00	1.02E+05	1.06E+01		c, d, g, h	5.00E-02	5.00E-02	5.40E+00	5.60E+00		5.75E+01	
108394	Methylphenol, 3- (m-Cresol)	3.20E+04	2.77E+00	1.02E+05	1.06E+01		c, d, g, h	5.00E-02	5.00E-02	5.40E+00	5.60E+00		5.75E+01	
106445	Methylphenol, 4- (p-cresol)	3.20E+04	2.77E+00	1.02E+05	1.06E+01		c, d, g, h	5.00E-02	5.00E-02	5.40E+00	5.60E+00		1.23E+02	
924163	N-Nitrosodi-n-butylamine	3.20E+03	2.77E+00	1.02E+05	1.06E+01		a, g, h	5.00E-03	5.00E-03				1.07E+01	
621647	N-Nitrosodi-n-propylamine	1116547	2.13E+00	2.04E+04	8.18E+00		a, f, g, h, i	7.00E-04	7.00E-04	1.30E-01	1.30E-01		1.07E+01	
1116547	N-Nitrosodimethanamine	5.12E+03	9.33E+01	5.90E+03	1.21E+02		a, f, g, h, i	6.00E-02	6.00E-02	7.50E-03	1.64E-03		0.10830	2.476E-03
55185	N-Nitrosodimethylamine	9.96E-02	9.96E-02	3.82E-01	3.82E-01		a, g, h	1.50E+02	1.51E+02				9.33E-01	
62759	N-Nitrosodimethylamine	2.93E-01	2.93E-01	1.12E+00	1.12E+00		a, g, h	5.10E+01	5.10E+01	4.90E+01	4.90E+01		6.92E+02	
86306	N-Nitrosodiphenylamine	3.05E+03	3.05E+03	1.17E+04	1.17E+04		a, f, g, h	4.90E-03	4.90E-03				1.07E+01	
0595956	N-Nitrosomethylethylamine	6.79E-01	6.79E-01	2.60E+00	2.60E+00		a, f, g, h	2.20E+01	2.20E+01				9.55E-01	
100754	N-Nitrosopiperidine	7.11E+00	7.11E+00	2.73E+01	2.73E+01		a, d, g, h	2.10E+00	2.10E+00	2.13E+00	2.13E+00		2.69E-01	
930552	N-Nitrosopyrrolidine	1.28E+03	1.28E+03	4.09E+03	4.09E+03		a, g, h	2.00E-03	2.00E-03				1.29E+03	
300765	Naled	2.56E+04	2.56E+04	8.18E+04	8.18E+04		c, d, g, h, i	4.00E-02	4.00E-02					
91203	Naphthalene	2.56E+04	2.56E+04	8.18E+04	8.18E+04		c, d, g, h	4.00E-02	4.00E-02					

AS No.	Substance	T1_noncar (mg/kg)	T1_car (mg/kg)	T3_noncar (mg/kg)	T3_car (mg/kg)	Car Class	Notes	RfD_o (mg/kg-day)	SF_o (kg-day/mg)	SF_i (cm2/s)	Koc (cm3/g)	H (atm-m3/mol)
91598	Naphthylamine, 2-											
1440020	Mickel	1.28E+04	1.94E+00	4.09E+04	7.43E+00		a, d, g, h	2.00E-02		0.05571	5.89E+01	
102439	Nitric oxide	6.40E+03		2.04E+05			c, d, g, h, i	1.00E-01				
100016	Nitroaniline, 4-	1.92E+03		6.13E+03			c, d, g, h, i	3.00E-03				
98953	Nitrobenzene	3.20E+02		1.02E+03			d, g, h	5.00E-04				
102440	Nitrogen dioxide	6.40E+05		2.04E+06			c, d, g, h, i	1.00E+00				
55630	Nitroglycerin						a, d, g, h, i					
100027	Nitrophenol, p-	3.97E+04		1.27E+05			c, d, g, h	6.20E-02				
79469	Nitropropane, 2-	1.29E+08		1.35E+08			b, e, g, h		9.40E+00			
99081	Nitrotoluene, m-	6.40E+03		2.04E+04			c, d, g, h, i	1.00E-02				
88722	Nitrotoluene, o-	6.40E+03		2.04E+04			c, d, g, h, i	1.00E-02				
99990	Nitrotoluene, p-	6.40E+03		2.04E+04			c, d, g, h, i	1.00E-02				
152169	Octamethylpyrophosphoramide	1.28E+03		4.09E+03			c, d, g, h, i	2.00E-03				
1336363	PCBs						a, f, h, i					
1910425	Paraquat	2.88E+03		9.20E+03			c, d, g, h, i	4.50E-03				
56382	Parathion	3.84E+03		1.23E+04			c, d, g, h	6.00E-03				
608935	Pentachlorobenzene	5.12E+02		1.64E+03			c, d, g, h	8.00E-04				
82688	Pentachloronitrobenzene	1.92E+03		6.13E+03			c, f, g, h	3.00E-03				
87865	Pentachlorophenol	1.92E+04		6.13E+04			c, f, g, h	3.00E-02				
108952	Phenol	3.84E+05		1.23E+06			c, d, h	6.00E-01				
106503	Phenylenediamine, p-	1.22E+05		3.88E+05			c, d, g, h, i	1.90E-01				
62384	Phenylmercuric acetate	5.12E+01		1.64E+02			c, d, g, h, i	8.00E-05				
298022	Phorate	1.28E+02		4.09E+02			c, d, g, h	2.00E-04				
732116	Phosmet	1.28E+04		4.09E+04			c, d, g, h, i	2.00E-02				
7803512	Phosphine	1.92E+02		6.13E+02			d, g, h, i	3.00E-04				
7723140	Phosphorus, elemental	1.28E+01		4.09E+01			c, d, g, h, i	2.00E-05				
85449	Phthalic anhydride	1.28E+06		4.09E+06			d, g, h, i	2.00E+00				
151508	Potassium cyanide	3.20E+04		1.02E+05			c, d, g, h, i	5.00E-02				
506616	Potassium silver cyanide	1.28E+05		4.09E+05			c, d, g, h, i	2.00E-01				
3950585	Pronamide	4.80E+04		1.53E+05			c, d, g, h	7.50E-02				
2312358	Propargite	1.28E+04		4.09E+04			c, d, g, h	3.00E-02				
107197	Propargyl alcohol	1.28E+03		4.09E+03			c, d, g, h, i	2.00E-02				
57556	Propylene glycol	1.28E+07		4.09E+07			c, d, g, h, i	2.00E-03				
75569	Propylene oxide	1.93E+08		6.23E+08			b, g, h	8.57E-03				
129000	Pyrene	1.92E+04		6.13E+04			c, d, g, h, i	2.00E+01				
110861	Pyridine	6.40E+02		2.04E+03			c, d, g, h	3.00E-02				
94597	Safrole						a, f, g, h, i	1.00E-03				
7783008	Selenious Acid	3.20E+03		1.02E+04			a, d, g, h	5.00E-03				
7782492	Selenium	3.20E+03		1.02E+04			c, d, g, h, i	5.00E-03				
630104	Selencourea	3.20E+03		1.02E+04			c, d, g, h, i	5.00E-03				
7440224	Silver	3.20E+03		1.02E+04			c, d, g, h, i	5.00E-03				
506649	Silver cyanide	6.40E+04		2.04E+05			c, d, g, h, i	1.00E-01				
93721	Silvex	5.12E+03		1.64E+04			c, d, g, h	8.00E-03				
6626228	Sodium azide	2.56E+03		8.18E+03			c, d, g, h, i	4.00E-03				
143339	Sodium cyanide	2.56E+04		8.18E+04			c, d, g, h, i	4.00E-02				
62748	Sodium fluoroacetate	1.28E+01		4.09E+01			c, d, g, h, i	2.00E-05				
57249	Strychnine and salts	1.92E+02		6.13E+02			c, d, g, h, i	3.00E-04				
100425	Styrene	1.87E+04		2.18E+04			c, d, g, h, i	2.00E-01				
1746616	TCDD, 2,3,7,8-						c, d	2.86E-01				
3071799	Terbufos	1.60E+01		5.11E+01			a, g, h	1.56E+05				
95943	Tetrachlorobenzene, 1,2,4,5-	1.92E+02		6.13E+02			c, d, g, h, i	2.50E-05				
630206	Tetrachloroethane, 1,1,1,2-	1.92E+04		6.13E+04			c, d, g, h	3.00E-04				
79345	Tetrachloroethane, 1,1,2,2-	8.88E+00		1.22E+01			c	3.00E-02				
127184	Tetrachloroethylene	8.77E+01		1.39E+02			a	2.60E-02				
59902	Tetrachlorophenol, 2,3,4,6-	6.40E+03		2.04E+04			c, d, g, h	1.00E-02				
3689245	Tetraethyldithiopyrophosphate	3.20E+02		6.13E+03			c, d, g, h	3.00E-02				
1314325	Thallic oxide	4.48E+01		1.43E+02			c, d, g, h, i	7.00E-05				
7440280	Thallium						a, d, g, h, i					
563688	Thallium acetate	5.76E+01		1.84E+02			c, d, g, h, i	9.00E-05				
6533739	Thallium carbonate	5.12E+01		1.64E+02			c, d, g, h, i	8.00E-05				

AS No.	Substance	T1_noncar (mg/kg)	T1_car (mg/kg)	T3_noncar (mg/kg)	T3_car (mg/kg)	Car Class	Notes	RfD_o (mg/kg-day)	RfD_i (mg/kg-day)	SF_o (kg-day/mg)	SF_i (kg-day/mg)	Di (cm2/s)	Koc (cm3/g)	H (atm-m3/mol)
791120	Thallium chloride	5.12E+01		1.64E+02			c,d,g,h,i	8.00E-05						
1102451	Thallium nitrate	5.76E+01		1.84E+02			c,d,g,h,i	9.00E-05						
2039520	Thallium selenite	5.76E+01		1.84E+02			c,d,g,h,i	9.00E-05						
7446186	Thallium sulfate	5.12E+01		1.64E+02			c,d,g,h,i	8.00E-05						
2196184	Thiofanox	1.92E+02		6.13E+02			c,d,g,h,i	3.00E-04						
137268	Thiram	3.20E+03		1.02E+04			c,d,g,h,i	5.00E-03						
108883	Toluene	3.23E+03	6.23E+01	3.45E+03	2.38E+02		d	2.00E-01	1.14E-01	2.40E-01	0.08301	2.69E+02	6.356E-03	
95534	Toluidine, o-		7.86E+01		3.01E+02		a,f,g,h			1.90E-01		1.74E+01		
106490	Toluidine, p-		1.36E+01		5.20E+01		a,g,h			1.10E+00		2.04E+04		
3001352	Toluene						d,g,h					9.33E+02		
76131	Trichloro-1,2,2-trifluoroethane,	1.92E+07		6.13E+07			d	3.00E+01	8.57E+00			1.56E+03		
120821	Trichlorobenzene, 1,2,4-	6.40E+03		2.04E+04			d,g,h	1.00E-02	5.71E-02			1.78E+02		
71556	Trichloroethane, 1,1,1-	3.39E+03		3.71E+03			d	9.00E-02	2.86E-01			2.69E+01		
79005	Trichloroethane, 1,1,2-	2.56E+03		8.18E+03			d	4.00E-03		5.70E-02	0.08447	1.45E+02	1.720E-02	
79016	Trichloroethylene	3.84E+03	1.31E+02	1.23E+04	1.71E+02	C	c	6.00E-03		1.10E-02	0.08447	5.37E+01	9.607E-04	
75694	Trichlorofluoromethane	7.78E+02	5.31E+01	8.19E+02	6.87E+01		d	3.00E-01	2.00E-01		0.08606	1.26E+02	1.167E-02	
95954	Trichlorophenol, 2,4,5-	6.40E+04		2.04E+05			d	1.00E-01			0.08329	1.29E+02	1.218E-01	
88062	Trichlorophenol, 2,4,6-		1.36E+03		5.20E+03		a,d,g,h			1.10E-02		8.51E+02		
93765	Trichlorophenoxyacetic acid,	6.40E+03		2.04E+04			a,g,h	1.00E-02				1.78E+02		
96184	Trichloropropane, 1,2,3-	3.84E+03	2.13E+00	1.23E+04	8.18E+00		c,d,g,h	6.00E-03		7.00E+00		2.69E+01		
121448	Triethylamine	4.51E+07		4.73E+07			b,d,g,h,i	2.00E-03				4.57E+01		
99354	Trinitrobenzene, 1,3,5-	3.20E+01		1.02E+02			c,d,g,h	5.00E-05				1.12E+01		
126727	Tris(2,3-dibromopropyl)phosphate						a			1.90E+00	3.00E-01	0.11375	1.10E+01	2.241E-02
7440622	Vanadium	4.48E+03		1.43E+04			a,d,g,h							
1314621	Vanadium pentoxide	5.76E+03		1.84E+04			c,d,g,h,i	7.00E-03						
108054	Vinyl acetate	6.40E+05		2.04E+06			c,d,g,h,i	9.00E-03						
75014	Vinyl chloride	1.50E-01		1.92E-01			d,g,h,i	1.00E+00	5.71E-02					
81812	Warfarin	1.92E+02		6.13E+02			a	3.00E-04						
1330207	Xylene (total)	1.28E+06		4.09E+06			c,d	2.00E+00						
108383	Xylene, m-						a,d,g,h							
95476	Xylene, o-	1.92E+06		4.09E+06			d,g,h	2.00E+00	2.00E-01			1.23E+03		
106423	Xylene, p-	1.92E+09		2.03E+09			b,d,g,h	8.57E-02				1.05E+03		
7440566	Zinc	1.92E+05		6.13E+05			c,d,g,h,i	3.00E-01				1.32E+03		
557211	Zinc cyanide	3.20E+04		1.02E+05			c,d,g,h,i	5.00E-02						
131484	Zinc phosphide	1.92E+02		6.13E+02			c,d,g,h,i	3.00E-04						

TOTAL NO. OF SUBSTANCES: 338

NOTES:
a. Noncancer criteria are not calculable because RfD_o and RfD_i data are not available.
b. No RfD_o available; 1/RfD_o term is equated to zero in RAGS Eqn. 7 (T1_ and T3_Noncar).
c. No RfD_i available; 1/RfD_i term is equated to zero in RAGS Eqn. 7 (T1_ and T3_Noncar).
d. Cancer criteria are not calculable because SF_o and SF_i data are not available.
e. No SF_o data available; SF_o term is equated to zero in RAGS Eqn. 6 (T1_ and T3_Car).
f. No SF_i data available; SF_i term is equated to zero in RAGS Eqn. 6 (T1_ and T3_Car).
g. No Di available; VF terms are equated to zero in RAGS Eqn. 6 and 7.
h. No H available; VF terms are equated to zero in RAGS Eqn. 6 and 7.
i. No Koc available; VF terms are equated to zero in RAGS Eqn. 6 and 7.