OIL/HAZ. MATERIAL	CAS #	Modeled? Y/N	SOLUBILITY mg/L	REF	Diffusion Coeff. cm2/sec	REF	HENRY'S LAW CONSTANT atm-m3/mol	REF	Chemic Group (a)	Koc ml/g	REF	MOL. WT. g/mole	REF
acenaphthene	83329	Y	4.2	a	0.042	a	1.55E-04	a		7080.0	a	100	
acenaphthylene	208968	Y	16.1	b	0.040	c	1.13E-04	b		2770.0	c	154	
acetone	208968	Y	1000000.0	a	0.124	a	3.88E-05	a		0.6	a	58	
aldrin	309002	N,g											
anthracene	120127	N,h											
antimony	7440360												
arsenic	7440382												
barium	7440393												
Benzene	71432	Y	1750.0	a	0.088	a	5.55E-03	a		58.9	a	78	
BENZO(a)ANTHRACENE	56553	N,g											
BENZO(a)PYRENE	50328	N,g											
BENZO(b)FLUORANTHENE	205992	N,g											
BENZO(g,h,i)PERYLENE	191242	N,g											
BENZO(k)FLUORANTHENE	207089	N,g											
BERYLLIUM	7440417												
Biphenyl-1,1-	92524	Y	7.0	c	0.062	f	3.00E-04	b		2300.0	c	154	
Bis(2-Chloroethyl)ether	111444	Y	17200.0	a	0.069	a	1.80E-05	a		15.5	a	143	
Bis(2-Chloroisopropyl)ether	39638329	Y	1300.0	b	0.063	f	1.13E-04	e	1	359.8	f	171	
BIS(2-ETHYLHEXYL)PHTHALATE	117817	N,h											
Bromodichloromethane	75274	Y	6740.0	a	0.030	a	1.60E-03	a		55.0	a	164	
Bromoform	75252	Y	3100.0	a	0.015	a	5.35E-04	a		87.1	a	253	
Bromomethane	74839	Y	15223.0	b	0.073	d	6.24E-03	b		10.5	d	95	
CADMIUM	7440439												
CARBON TETRACHLORIDE	56235	Y	793.4	a	0.078	a	3.04E-02	a		174.0	a	154	
CHLORDANE	57749	N,g											
Chloroaniline-p	106478	Y	5300.0	a	0.048	a	3.31E-07	a		66.1	a	128	
chlorobenzene	108907	Y	472.0	a	0.073	a	3.70E-03	a		219.0	a	113	

OIL/HAZ. MATERIAL	Density gm/ml	REF	Highest of GW Stds. mg/L	DEGRADATION RATE SOIL per day	GW per day	DAF 85%	DAF 90%	DAF 95%
acenaphthene	1.00		5			194	104	39
acenaphthylene	0.90		3			44	29	11
acetone	0.79		50			1	1	1
aldrin								
anthracene								
antimony								
arsenic								
barium								
Benzene	0.88		7	Soil,0.0433/d,Water,.000506/d		299	171	69
BENZO(a)ANTHRACENE								
BENZO(a)PYRENE								
BENZO(b)FLUORANTHENE								
BENZO(g,h,i)PERYLENE								
BENZO(k)FLUORANTHENE								
BERYLLIUM								
Biphenyl-1,1-	1.00		50			35	23	10
Bis(2-Chloroethyl)ether	1.20		50			1	1	1
Bis(2-Chloroisopropyl)ether	1.11	I	50			4	3	2
BIS(2-ETHYLHEXYL)PHTHALATE								
Bromodichloromethane	2.00		50			2	1	1
Bromoform	2.89	I	50			2	2	1
Bromomethane	1.70		50			5	3	2
CADMIUM								
CARBON TETRACHLORIDE	1.60		50			2611	924	423
CHLORDANE								
Chloroaniline-p	1.40		50			2	1	1
chlorobenzene	1.10		1			12	7	4

OIL/HAZ. MATERIAL	CAS #	Modeled? Y/N	SOLUBILITY mg/L	REF	Diffusion Coeff. cm2/sec	REF	HENRY'S LAW CONSTANT atm-m3/mol	REF	Chemic Group (a)	Koc ml/g	REF	MOL. WT. g/mole	REF
chloroform	67663	Y	7920.0	a	0.104	a	3.67E-03	a		39.8	a	119	
chlorophenol-2	95578	Y	22000.0	a	0.050	a	3.91E-04	a		388.4	f	129	
CHROMIUM(III)	16065831												
CHROMIUM(VI)	18540299												
CHRYSENE	218019	N,h											
CYANIDE	57125	N,g											
DIBENZO(a,h)ANTHRACENE	53703	N,g											
Dibromochloromethane	124481	Y	2600.0	a	0.020	a	7.83E-04	a		63.1	a	208	
Dichlorobenzene-1,2	95501	Y	156.0	a	0.069	a	1.90E-03	a		617.0	a	147	
Dichlorobenzene-1,3	541731	Y	134.0	b	0.069	f	3.10E-03	b	2	708.0	f	147	
Dichlorobenzene-1,4	106467	Y	73.8	a	0.069	d	2.43E-03	a		617.0	a	147	
DICHLOROBENZIDINE, 3,3'-	91941	N,g											
DICHLORODIPHENYL DICHLOROETHANE	72548	N,h											
DICHLORODIPHENYLDICHLOROETHYLEI	72559	N,g											
DICHLORODIPHENYLTRICHLOROETHAN	50293	N,h											
Dichloroethane-1,1	75343	Y	5057.0	a	0.074	a	5.62E-03	a		31.6	a	99	
Dichloroethane-1,2	107062	Y	8524.0	a	0.104	a	9.79E-04	a		17.4	a	99	
Dichloroethylene-1,1	75354	Y	2250.0	a	0.090	a	2.61E-02	a		58.9	a	97	
Dichloroethylene-1,2-cis	156592	Y	3500.0	a	0.074	a	4.08E-03	a		35.5	a	97	
Dichloroethylene-1,2-trans	156605	Y	6300.0	a	0.071	a	9.38E-03	a		52.5	a	97	
Dichlorophenol-2,4	120832	Y	4500.0	a	0.035	a	3.16E-06	a		147.5	f	163	
Dichloropropane-1,2	78875	Y	2800.0	a	0.078	a	2.80E-03	a		43.7	a	113	
Dichloropropene-1,3	542756	Y	2800.0	a	0.063	a	1.77E-02	a		45.7	a	111	
DIELDRIN	60571	N,h											
Diethyl phthalate	84662	Y	1080.0	a	0.026	a	4.50E-07	a		288.0	a	222	
Dimethyl phthalate	131113	Y	4000.0	b	0.057	f	1.05E-07	b	1	37.4	f	194	
Dimethylphenol-2,4-	105679	Y	7870.0	a	0.058	a	2.00E-06	a		209.0	a	122	
Dinitrophenol-2,4-	51285	Y	2790.0	a	0.027	a	4.43E-07	a		0.01	f	184	
Dinitrotoluene-2,4	121142	Y	270.0	a	0.203	a	9.26E-08	a		95.5	a	182	
DIOXIN	1746016	N,g											

OIL/HAZ. MATERIAL	Density gm/ml	REF	Highest of GW Stds. mg/L	DEGRADATION RATE SOIL per day	GW per day	DAF 85%	DAF 90%	DAF 95%
chloroform	1.50		10			5	4	2
chlorophenol-2	1.30		40			5	3	2
CHROMIUM(III)								
CHROMIUM(VI)								
CHRYSENE								
CYANIDE								
DIBENZO(a,h)ANTHRACENE								
Dibromochloromethane	2.50		50			2	1	1
Dichlorobenzene-1,2	1.30		10			15	11	5
Dichlorobenzene-1,3	1.30		10			27	17	9
Dichlorobenzene-1,4	1.20		30			19	13	6
DICHLOROBENZIDINE, 3,3'-								
DICHLORODIPHENYL DICHLOROETHANE								
DICHLORODIPHENYLDICHLOROETHYLEI								
DICHLORODIPHENYLTRICHLOROETHAN								
Dichloroethane-1,1	1.20		50			5	4	2
Dichloroethane-1,2	1.20		50			2	1	1
Dichloroethylene-1,1	1.20		50			480	243	99
Dichloroethylene-1,2-cis	1.30		50			4	3	2
Dichloroethylene-1,2-trans	1.30		50			14	9	5
Dichlorophenol-2,4	1.38	I	4			2	2	1
Dichloropropane-1,2	1.20		30			3	2	1
Dichloropropene-1,3	1.20		2			37	28	11
DIELDRIN								
Diethyl phthalate	1.20		6			4	3	1
Dimethyl phthalate	1.20		50			1	1	1
Dimethylphenol-2,4-	0.96		20			3	3	1
Dinitrophenol-2,4-	1.70		2			1	1	1
Dinitrotoluene-2,4	1.30		2			2	2	1
DIOXIN								

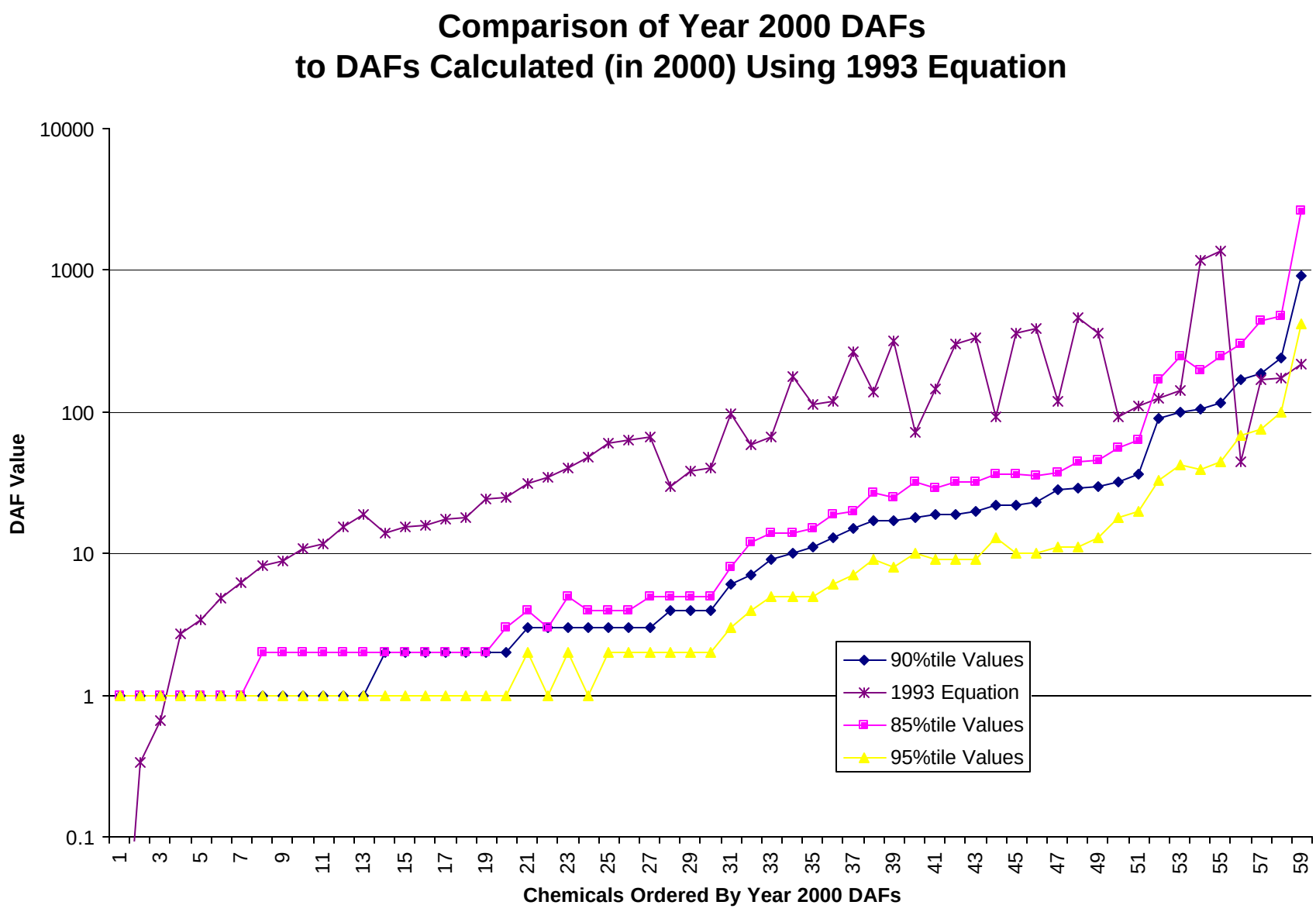
OIL/HAZ. MATERIAL	CAS #	Modeled? Y/N	SOLUBILITY mg/L	REF	Diffusion Coeff. cm2/sec	REF	HENRY'S LAW CONSTANT atm-m3/mol	REF	Chemic Group (a)	Koc ml/g	REF	MOL. WT. g/mole	REF
Endosulfan	115297	Y	0.5	a	0.012	a	1.12E-05	a		2140.0	a	407	
ENDRIN	72208	N,h											
Ethylbenzene	100414	Y	169.0	a	0.075	a	7.88E-03	a		363.0	a	106	
ETHYLENE DIBROMIDE	106934	Y	4300000.0	e	0.085	f	6.73E-04	e	2	45.9	f	188	
FLUORANTHENE	206440	N,h											
FLUORENE	86737	N,h											
HEPTACHLOR	76448	N,g											
HEPTACHLOR EPOXIDE	1024573	N,g											
HEXACHLOROBENZENE	118741	N,g											
HEXACHLOROBUTADIENE	87683	N,h											
HEXACHLOROCYCLOHEXANE, GAMMA (	58899	Y	6.8	a	0.014	a	1.40E-05	a		1070.0	a	291	
Hexachloroethane	67721	Y	50.0	a	0.003	a	3.89E-03	a		1780.0	a	237	
INDENO(1,2,3-cd)PYRENE	193395	N,g											
LEAD	7439921												
MERCURY	7439976												
METHOXYCHLOR	72435	N,h											
Methyl ethyl ketone	78933	Y	223000.0	b	0.092	f	5.59E-05	b	1	1.9	f	72	
Methyl isobutyl ketone	108101	Y	19000.0	b	0.073	f	1.38E-04	b	1	15.1	f	100	
Methyl Mercury	22967926	Y											
Methyl tert butyl ether	1634044	Y	48000.0	e	0.081	f	5.91E-04	e		27.0	e	88	
Methylene chloride	75092	Y	13000.0	a	0.101	a	2.19E-03	a		11.7	a	85	
Methylnaphthalene,2-	91576	Y	24.6	b	0.056	c	5.18E-04	b		2130.0	c	142	
Naphthalene	91203	Y	31.0	a	0.059	a	4.83E-04	a		2000.0	a	128	
NICKEL	7440020												
Pentachlorophenol	87865	Y	1950.0	a	0.056	a	2.44E-08	a		591.6	f	266	
C5 to C8 Aliphatic Hydrocarbons		N,g											
C9 to C12 Aliphatic Hydrocarbons		N,g											
C9 to C18 Aliphatic Hydrocarbons		N,h											
C19 to C36 Aliphatic Hydrocarbons		N,h											
C9 to C10 Aromatic Hydrocarbons		Y	51.0	c	0.050	c	7.95E-03	c		1778.0	c	120	
C11 to C22 Aromatic Hydrocarbons		Y	5.8	c	0.040	c	7.22E-04	c		5012.0	c	152	

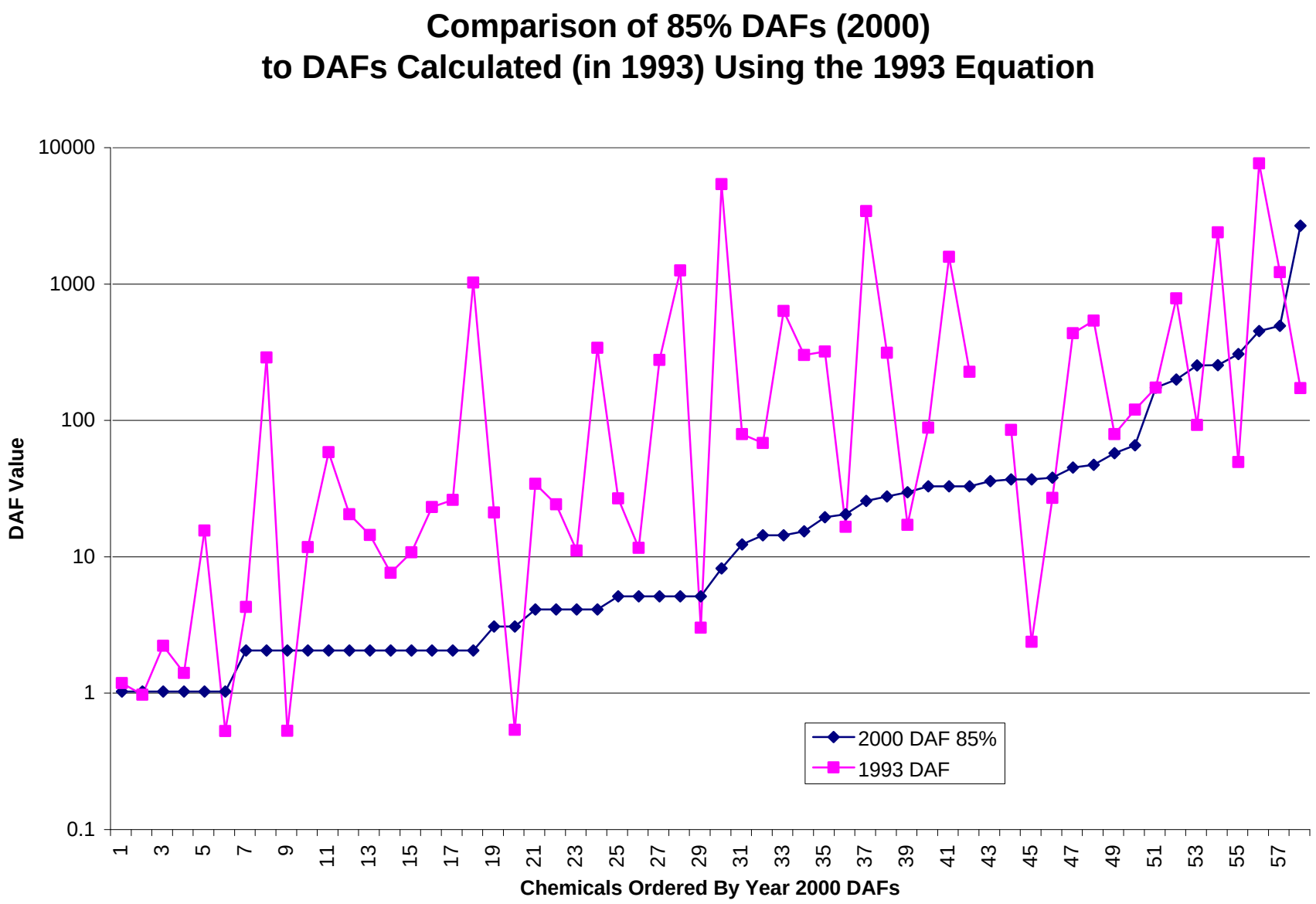
OIL/HAZ. MATERIAL	Density gm/ml	REF	Highest of GW Stds. mg/L	DEGRADATION RATE SOIL per day	GW per day	DAF 85%	DAF 90%	DAF 95%
Endosulfan	1.70		0.04			46	30	13
ENDRIN								
Ethylbenzene	0.87		4			64	36	20
ETHYLENE DIBROMIDE	2.17	j	50			2	1	1
FLUORANTHENE								
FLUORENE								
HEPTACHLOR								
HEPTACHLOR EPOXIDE								
HEXACHLOROBENZENE								
HEXACHLOROBUTADIENE								
HEXACHLOROCYCLOHEXANE, GAMMA (	1.87	k	0.8			14	10	5
Hexachloroethane	2.10		5			25	17	8
INDENO(1,2,3-cd)PYRENE								
LEAD								
MERCURY								
METHOXYCHLOR								
Methyl ethyl ketone	0.81		50			1	1	1
Methyl isobutyl ketone	0.80		50			1	1	1
Methyl Mercury								
Methyl tert butyl ether	0.74		50			2	1	1
Methylene chloride	1.30		50			2	2	1
Methylnaphthalene,2-	1.00		10			36	22	10
Naphthalene	1.00		6			32	20	9
NICKEL								
Pentachlorophenol	2.00		0.08			8	6	3
C5 to C8 Aliphatic Hydrocarbons								
C9 to C12 Aliphatic Hydrocarbons								
C9 to C18 Aliphatic Hydrocarbons								
C19 to C36 Aliphatic Hydrocarbons								
C9 to C10 Aromatic Hydrocarbons	0.89	f	5					
C11 to C22 Aromatic Hydrocarbons	1.20	f	50					

OIL/HAZ. MATERIAL	CAS #	Modeled? Y/N	SOLUBILITY mg/L	REF	Diffusion Coeff. cm2/sec	REF	HENRY'S LAW CONSTANT atm-m3/mol	REF	Chemic Group (a)	Koc ml/g	REF	MOL. WT. g/mole	REF
Phenanthrene	85018	Y	1.15	b	0.033	c	2.33E-05	b		8140.0	c	178	
Phenol	108952	Y	82800.0	a	0.082	a	3.97E-07	a		28.8	a	94	
POLYCHLORINATED BIPHENYLS (PCBs)	1336363	N,g											
PYRENE	129000	N,h											
SELENIUM	7782492												
SILVER	7440224												
Styrene	100425	Y	310.0	a	0.071	a	2.75E-03	a		776.0	a	104	
Tetrachloroethane-1,1,1,2	630206	Y	1100.0	b	0.071	f	2.42E-03	b	2	137.2	f	168	
Tetrachloroethane-1,1,2,2	79345	Y	2970.0	a	0.071	a	3.45E-04	a		93.3	a	168	
Tetrachloroethylene	127184	Y	200.0	a	0.072	a	1.84E-02	a		155.0	a	166	
THALLIUM	7440280												
Toluene	108883	Y	526.0	a	0.087	a	6.64E-03	a		182.0	a	92	
Trichlorobenzene-1,2,4	120821	Y	300.0	a	0.030	a	1.42E-03	a		1780.0	a	181	
Trichloroethane-1,1,1	71556	Y	1334.0	a	0.078	a	1.72E-02	a		110.0	a	133	
Trichloroethane-1,1,2	79005	Y	4420.0	a	0.078	a	9.13E-04	a		50.1	a	133	
Trichloroethylene	79061	Y	1100.0	a	0.079	a	1.03E-02	a		166.0	a	131	
Trichlorophenol-2,4,5-	95954	Y	1200.0	a	0.029	a	4.33E-06	a		1597.3	f	197	
Trichlorophenol-2,4,6-	88062	Y	800.0	a	0.032	a	7.79E-06	a		381.2	f	197	
Vanadium	7440622												
Vinyl Chloride	75014	Y	2760.0	a	0.106	a	2.70E-02	a		18.6	a	63	
Xylene-O	1330207	Y	178.0	a	0.087	a	5.19E-03	a		363.0	a	106	
ZINC	7440666												

OIL/HAZ. MATERIAL	Density gm/ml	REF	Highest of GW Stds. mg/L	DEGRADATION RATE SOIL per day	GW per day	DAF 85%	DAF 90%	DAF 95%
Phenanthrene	1.03	c	0.3			248	117	44
Phenol	1.10		50			1	1	1
POLYCHLORINATED BIPHENYLS (PCBs)								
PYRENE								
SELENIUM								
SILVER								
Styrene	0.91		50			29	19	9
Tetrachloroethane-1,1,1,2	1.50		50			5	4	2
Tetrachloroethane-1,1,2,2	1.60		20			2	2	1
Tetrachloroethylene	1.62		5			247	99	42
THALLIUM								
Toluene	0.87		50			32	18	10
Trichlorobenzene-1,2,4	1.50		0.5			32	19	9
Trichloroethane-1,1,1	1.34		50			169	89	33
Trichloroethane-1,1,2	1.40		50			2	2	1
Trichloroethylene	1.46		20			56	32	18
Trichlorophenol-2,4,5-	1.50		0.2			20	15	7
Trichlorophenol-2,4,6-	1.50		40			4	3	2
Vanadium								
Vinyl Chloride	0.91		40			440	185	76
Xylene-O	0.88		50			36	22	13
ZINC								

a: EPA's Soil Screening Guidance documentation, 1996
b:Superfund Chemical Data Matrix windows 1.0 (SCDMWIN)
c:Selection of Representative TPH Fractions based on Fate and Transport Considerations, Volume 3, Total Petroleum Hydrocarbon Criteria Working Group Series, July 1997
d: EPA's User's Guide for the Johnson & Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings, Appendix C, September 1997
e: Table 3-1, page 32-34, Background Documentation for the Development of the MCP Numerical Standards, MA DEP, April, 1994.
f: Estimated by MADEP
g: Soil standards controlled by Direct contact
h: Koc greater than 10,000ml/g
I: Sax, Dangerous Properties of Industrial Materials, 6th edition, Van Nostrand Reinhold company
j: The Merck Index, 11th edition, 1989
k: Verschueren, Handbook of environmental data on organic chemicals, second edition, John Wiley & Sons
Chemical group =1(adopted from the EPA's SSL): Semi-volatile non-ionizing organic compounds
Chemical group =2(adopted from the EPA's SSL):VOCs, chlorinated benzenes and certain chlorinated pesticides


Comparison of Year 2000 DAFs
to DAFs Calculated (in 2000) Using 1993 Equation
DAF Value
10000
1000
100
10
1
0.1
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
51
53
55
57
59
Chemicals Ordered By Year 2000 DAFs
90%tile Values
1993 Equation
85%tile Values
95%tile Values


Comparison of 85% DAFs (2000)
to DAFs Calculated (in 1993) Using the 1993 Equation
DAF Value
10000
1000
100
10
1
0.1
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
51
53
55
57
Chemicals Ordered By Year 2000 DAFs
2000 DAF 85%
1993 DAF