
APPENDIX K

Soil Organic Carbon (K_{oc}) / Water (K_{ow}) Partition Coefficients

Table K-1. Values Used for K_{oc} / K_{ow} Correlation

Chemical	log K_{ow}	Calculated		Measured	
		log K_{oc}	K_{oc}	log K_{oc}	K_{oc} (geomean)
Benzene	2.13	1.77	59	1.79	61.7
Bromoform	2.35	1.94	87	2.10	126
Carbon tetrachloride	2.73	2.24	174	2.18	152
Chlorobenzene	2.86	2.34	219	2.35	224
Chloroform	1.92	1.60	40	1.72	52.5
Dichlorobenzene, 1,2- (<i>o</i>)	3.43	2.79	617	2.58	379
Dichlorobenzene, 1,4- (<i>p</i>)	3.42	2.79	617	2.79	616
Dichloroethane, 1,1-	1.79	1.50	32	1.73	53.4
Dichloroethane, 1,2-	1.47	1.24	17	1.58	38.0
Dichloroethylene, 1,1-	2.13	1.77	59	1.81	65
Dichloroethylene, <i>trans</i> -1,2-	2.07	1.72	52	1.58	38
Dichloropropane, 1,2-	1.97	1.64	44	1.67	47.0
Dieldrin	5.37	4.33	21,380	4.41	25,546
Endosulfan	4.10	3.33	2,138	3.31	2,040
Endrin	5.06	4.09	12,303	4.03	10,811
Ethylbenzene	3.14	2.56	363	2.31	204
Hexachlorobenzene	5.89	4.74	54,954	4.90	80,000
Methyl bromide	1.19	1.02	10	0.95	9.0
Methyl chloride	0.91	0.80	6	0.78	6.0
Methylene chloride	1.25	1.07	12	1.00	10
Pentachlorobenzene	5.26	4.24	17,378	4.51	32,148
Tetrachloroethane, 1,1,2,2-	2.39	1.97	93	1.90	79.0
Tetrachloroethylene	2.67	2.19	155	2.42	265
Toluene	2.75	2.26	182	2.15	140
Trichlorobenzene, 1,2,4-	4.01	3.25	1,778	3.22	1,659
Trichloroethane, 1,1,1-	2.48	2.04	110	2.13	135
Trichloroethane, 1,1,2-	2.05	1.70	50	1.88	75.0
Trichloroethylene	2.71	2.22	166	1.97	94.3
Xylene, <i>o</i> -	3.13	2.56	363	2.38	241
Xylene, <i>m</i> -	3.20	2.61	407	2.29	196
Xylene, <i>p</i> -	3.17	2.59	389	2.49	311

Regression Statistics

Multiple R	0.9870
R Square	0.9742
Adjusted R Square	0.9733
Standard Error	0.1640
Observations	31

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	29.4358	29.4358	1,094	1.4032E-24
Residual	29	0.7804	0.0269		
Total	30	30.2161			

	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.0784	0.0748	1.0481	0.3033	-0.0746	0.2314
X Variable 1	0.7919	0.0239	33.0742	0.0000	0.7430	0.8409

Figure K-1. Correlation Plot: $\log K_{ow}$ and $\log K_{oc}$

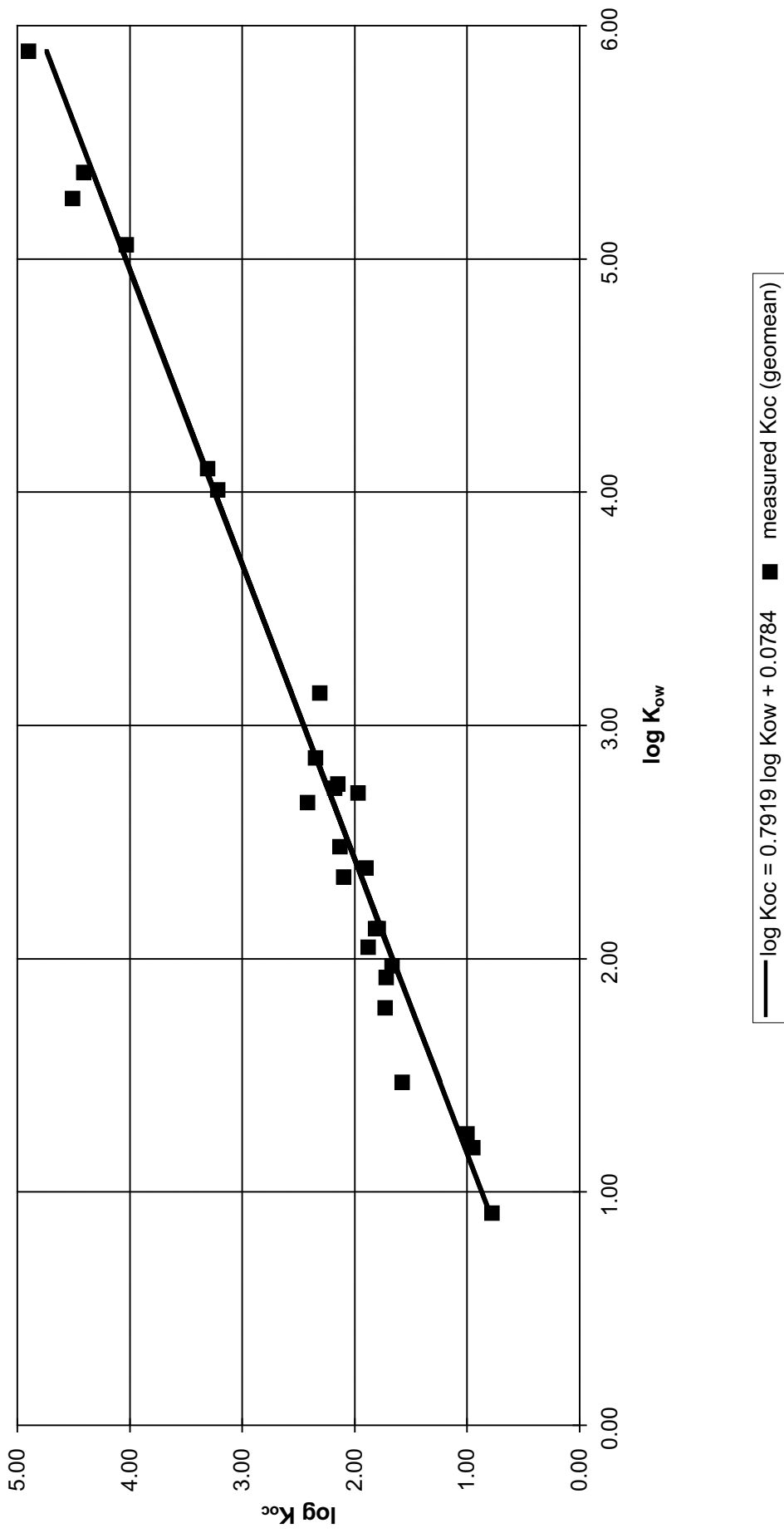


Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments
Acenaphthene	83-32-9	3,890	3.59	Szabo (1990a)	RP-HPLC on PIHAC (humic acids)
		6,166	3.79	Szabo (1990a)	RP-HPLC on CIHAC (humic acids)
		5,028	3.70		
		4,898	3.69		
Acetone	67-64-1				
Aldrin	309-00-2	48,394	4.68	Lord et al. (1980)	"Geescroft/Rothamsted Farm" soil; 2.6% OM; pH=5.1; suspect
		48,978	4.69	Briggs (1981)	Batcombe silt loam (Gr. Br.); 2.05% OC; pH=6.1
		48,686	4.69		
		48,685	4.69		
Anthracene	120-12-7	14,500	4.16	McCarthy & Jimenez (1985)	humic acids
		15,849	4.20	Karickhoff (1981)	soil/sediments average; shake-flask UV
		19,562	4.29	Landrum et al. (1984)	surface water (geomean 5 values)
		23,988	4.38	Hodson & Williams (1988)	cyanopropyl column; HPLC
		26,000	4.41	Karickhoff et al. (1979)	avg. coarse silt fraction, Doe Run & Hickory Hill sediments
		26,303	4.42	Szabo et al. (1990a)	RP-HPLC on PIHAC (humic acids)
		27,840	4.44	Abdul & Gibson (1986)	Flint aquifer sample; 87% sand; foc = 0.0187
		31,329	4.50	Landrum et al. (1984)	humic acid (geomean 8 values)
		33,884	4.53	Szabo et al. (1990a)	RP-HPLC on CIHAC (humic acids)
		24,362	4.39		
		23,493	4.37		
		Benz(a)anthracene	56-55-3	150,000	5.18
199,526	5.30			Landrum et al. (1984)	humic acid
650,000	5.81			Karickhoff et al. (1979)	avg. coarse silt fraction, Doe Run & Hickory Hill sed.
840,000	5.92			Smith et al. (1978) as cited in Di Toro et al. (1985)	40% OC
459,882	5.66				
357,537	5.55				
Benzene	71-43-2	31	1.50	Chiou et al. (1983)	Woodburn silt loam; fom = 0.019; 2.1% clay
		38.2	1.58	Seip et al. (1986)	forest soil with 0.2% OC; column study
		43.5	1.64	Seip et al. (1986)	agricultural soil with 2.2% OC; column study
		49	1.69	Abdul et al. (1987)	batch equilibrium experiments; aquifer material; foc = 0.0105
		53.5	1.73	Seip et al. (1986)	forest soil with 3.7% OC; column study
		60	1.78	Karickhoff (1981)	soils/sediments average; shake flask UV

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments	
Benzene (continued)	71-43-2					
		63	1.80	Piwoni & Banerjee (1989)	0.19 percent organic carbon	
		66	1.82	Szabo et al. (1990a)	RP-HPLC on PIHAC (humic acids)	
		74	1.87	Szabo et al. (1990a)	RP-HPLC on CIHAC (humic acids)	
		83	1.92	Karickhoff et al. (1979)	avg. coarse silt fraction, Doe Run & Hickory Hill sed.	
		92	1.97	Rogers et al. (1980)	Hastings silty clay loam with 2.6% OC	
		98	1.99	Pavlou (1987) as cited in Mackay et al. (1992)		
		100	2.00	Rogers et al. (1980)	Overton silty clay loam with 1.8% OC	
		Average	66	1.82		
		Geometric Mean	62	1.79		
Benzo(a) pyrene	50-32-8					
		478,947	5.68	Smith et al. (1978) as cited in Di Toro (1985)	3.8% OC	
		891,251	5.95	Landrum et al. (1984)	humic acids	
		2,130,000	6.33	McCarthy & Jimenez (1985)	humic acids (average 8 values)	
		Average	1,166,733	6.07		
	Geometric Mean	968,774	5.99			
Benzo(b) fluoranthene	205-99-2					
Benzo(k) fluoranthene	207-08-9					
Bis(2-chlorethyl)ether	111-44-4					
		75.9	1.88	Wilson et al. (1981)	Lincoln sand; 0.087% OC	
	Average	76	1.88			
	Geometric Mean	76	1.88			
Bis(2-ethylhexyl)phthalate (Bis(2-ethylhexyl)ester)	117-81-7					
		87,420	4.94	Russell & McDuffie (1986)	Broome Co., NY, composite soil; 1.59% OC; column study	
		141,254	5.15	Carter & Suffet (1983)	measured change in sorption in presence of humic acids	
		Average	114,337	5.06		
		Geometric Mean	111,123	5.05		
Bromochloromethane	75-27-4					
Bromoform (Tribromomethane)	75-25-2					
		126	2.10	Hutzler et al. (1986)	column, Keweenaw 7 soil; 0.85% OC	
	Average	126	2.10			
	Geometric Mean	126	2.10			

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments
Butyl benzyl phthalate	85-68-7	16,981	4.23	Russell & McDuffie (1986)	Broome County, NY, composite soil with 1.59% OC; column
		11,128	4.05	Gledhill (1980)	3 soils; 1.2-3.4% OC - geometric value calculated from range
		14,055	4.15		
		13,746	4.14		
		Average			
		Geometric Mean			
Carbazole	86-74-8				
Carbon disulfide	75-15-0				
Carbon tetrachloride	56-23-5	123	2.09	Koch (1983)	sorption coefficient (assume Kom) from unpublished source
		127	2.10	Rutherford et al. (1992)	extracted peat; 64% OC
		224	2.35	Abdul et al. (1987)	from MS thesis
		158	2.20		
		Geometric Mean	2.18		
Chlordane	57-74-9				
		44,711	4.65	Johnson-Logan et al. (1992)	geologic material, N. Hollywood dump (avg. 14 values)
		58,884	4.77	Chin & Weber (1989)	humic acid polymers
		51,798	4.71		
		51,310	4.71		
Chlorobenzene	108-90-7				
		83	1.92	Chiou et al. (1983)	Woodburn silt loam; fom = 0.019; 21% clay
		117	2.07	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		164	2.22	Schwarzenbach & Westall (1981)	KS1 collected from field site location; foc = 0.0073
		200	2.30	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not given
		219	2.34	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not given
		260	2.41	Schwarzenbach & Westall (1981)	average of six measurements; foc = 0.0015
		389	2.59	Roberts et al. (1980)	calculated from field data assuming foc = 0.0099
		407	2.61	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not given
		500	2.70	Schwarzenbach & Westall (1981)	field sample; 0.08% OC
		260	2.41		
		224	2.35		
Chlorodibromomethane	124-48-1				
Chloroform	67-66-3				
		28	1.44	Grathwohl (1990)	20 C; soil, sand & loess
		40	1.60	Hutzler et al. (1983)	average of two soils
		76	1.88	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		59	1.77	Loch et al. (1986)	top 20 cm, Eerd soil; 4.06% OC (from unpublished work)

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
Chloroform (continued)	67-66-3	81	1.91	Loch et al. (1986)	top 20 cm, peat soil ; 11.6% OC (from unpublished work)	
	Average	57	1.75			
	Geometric Mean	53	1.72			
Chrysene	218-01-9					
DDD	72-54-8	45,800	4.66	Gustafson (1989)	average value from collected measured values	
	Average	45,800	4.66			
	Geometric Mean	45,800	4.66			
DDE	72-55-9	86,405	4.94	Koch (1983)	sorption coefficient (assume Kom) from unpublished source	
	Average	86,405	4.94			
	Geometric Mean	86,405	4.94			
DDT	50-29-3	285,467	5.46	Gerstl & Minglegrin (1984)	Malkiya soil; 5.82% OM	
		496,476	5.70	Gerstl & Minglegrin (1984)	Neve Yaar soil; 2.82% OM	
		589,537	5.77	Gerstl & Minglegrin (1984)	Kinneret G sediment; 4.39% OM	
		747,887	5.87	Gerstl & Minglegrin (1984)	Kinneret A sediment; 7.85% OM	
		892,067	5.95	Gerstl & Minglegrin (1984)	Gilat soil; 1.25% OM	
		1,741,516	6.24	Gerstl & Minglegrin (1984)	Mivtahim soil; 0.45% OM	
	Average	792,158	5.90			
	Geometric Mean	677,934	5.83			
	Dibenz(a,h)anthracene	53-70-3	565,014	5.75	Means et al. (1980); Hassett et al. (1980)	IL soil; 1.30% OC (EPA-20)
			805,292	5.91	Means et al. (1980); Hassett et al. (1980)	ND sediment; 2.28% OC (EPA-5)
		808,991	5.91	Means et al. (1980); Hassett et al. (1980)	IL sediment; 2.38% OC (EPA-23)	
		1,172,847	6.07	Means et al. (1980); Hassett et al. (1980)	IA sediment; 0.15% OC (EPA-8)	
		1,690,971	6.23	Means et al. (1980); Hassett et al. (1980)	GA sediment; 1.21% OC (EPA-B2)	
		1,687,404	6.23	Means et al. (1980); Hassett et al. (1980)	MO sediment; 2.07% OC (EPA-4)	
		2,277,875	6.36	Means et al. (1980); Hassett et al. (1980)	IA loess; 0.11% OC (EPA-9)	
		2,383,765	6.38	Means et al. (1980); Hassett et al. (1980)	IL sediment; 1.67% OC (EPA-22)	
		2,622,453	6.42	Means et al. (1980); Hassett et al. (1980)	SD sediment; 0.72% OC (EPA-6)	
		2,663,317	6.43	Means et al. (1980); Hassett et al. (1980)	IN sediment; 0.95% OC (EPA-15)	
		2,691,870	6.43	Means et al. (1980); Hassett et al. (1980)	IL sediment; 1.48% OC (EPA-26)	
		2,962,603	6.47	Means et al. (1980); Hassett et al. (1980)	IL sediment; 1.88% OC (EPA-21)	
		3,020,262	6.48	Means et al. (1980); Hassett et al. (1980)	WV soil; 0.48% OC (EPA-14)	

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments	
Dibenz(a,h)anthracene (continued)	53-70-3	3,059,425	6.49	Means et al. (1980); Hassel et al. (1980)	KY sediment; 0.66% OC (EPA-18)	
	Average	2,029,435	6.31			
	Geometric Mean	1,789,101	6.25			
1,2-Dichlorobenzene (o)	95-50-1	267	2.43	Lee et al. (1989)	untreated Marlette soil; B+ horizon; 0.3% OC	
		280	2.45	Lee et al. (1989)	untreated Marlette soil; A horizon; 2.59% OC	
		310	2.49	Chiou et al. (1979)	Williamette silt loam; 0.928% OC; 3.5 degrees Celsius	
		321	2.51	Chiou et al. (1983)	Woodburn silt loam; 1.9% OM; 9% sand; 68% silt; 21% clay	
		386	2.59	Staufner & MacIntyre (1986)	Appalachee sorbent; 1.4% OC; pH = 6.3	
		438	2.64	Staufner & MacIntyre (1986)	Appalachee sorbent; 1.4% OC; pH = 4.1	
		485	2.69	Friesel et al. (1984)	peaty soil; 29% OM	
		497	2.70	Piwoni & Banerjee (1989)	sediment; 0.19% OC; avg. 2 values	
		529	2.72	Friesel et al. (1984)	loc reported as a range; avg. of several exper.	
	Average	390	2.59			
	Geometric Mean	379	2.58			
	1,4-Dichlorobenzene (p)	106-46-7	273	2.44	Chiou et al. (1983)	Woodburn silt loam; fom = 0.019; 2.1% clay
			280	2.45	Southworth & Keller (1986)	Dormont soil with 1.2% OC; 60% clay
		300	2.48	Hutzler et al. (1983)	column; Grayling soil; 1.52% OC; B21 horizon	
		398	2.60	Wilson et al. (1981)	Lincoln sand; 0.087% OC	
		429	2.63	Friesel et al. (1984)	reported as Kom; foc given as a range	
		603	2.78	Schwarzenbach & Westall (1981)	KSt field sample; 0.73% OC	
		665	2.82	Southworth & Keller (1986)	Apison soil with 0.11% OC; 86% clay	
		700	2.85	Hutzler et al. (1983)	batch; average of five soils	
		724	2.86	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not provided	
		733	2.87	Schwarzenbach & Westall (1981)	average of six measurements; aquifer material; foc = 0.0015	
		832	2.92	Chin & Weber (1989)	humic acid polymers	
		850	2.93	Southworth & Keller (1986)	Fullerton soil with 0.06% OC	
		911	2.96	Loch et al. (1986)	top 20 cm of Eerd soil; 0.06% OC; column	
	1,024	3.01	Wu & Gschwend (1986)	Charles River sediment; 8.5% OC		
	1,259	3.10	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not provided		
	1,375	3.14	Schwarzenbach & Westall (1981)	field sample; 0.08% OC		
Average	687	2.84				
Geometric Mean	616	2.79				
3,3-Dichlorobenzidine	91-94-1					

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments
1,1-Dichloroethane	75-34-3	46	1.66	Jury et al. (1990)	soil, selected
		62	1.79	Roy et al. (1987)	computed from an isotherm; 4.04% OC
		54	1.73		
		53	1.73		
1,2-Dichloroethane	107-06-2	22	1.34	Jury et al. (1990)	soil, selected
		33	1.52	Chiou et al. (1979)	Willamette silt loam; 0.928% OC; 20 degrees Celsius
		76	1.88	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		44	1.64		
38	1.58				
1,1-Dichloroethylene	75-35-4	65	1.81	Schwille (1988) (secondary)	
		65	1.81		
		65	1.81		
<i>cis</i> -1,2-Dichloroethylene	156-59-2	38	1.58	Brusseau & Rao (1991)	Tampa sandy aquifer material; 0.13% OC; < 2mm
		38	1.58		
		38	1.58		
1,2-Dichloropropane	78-87-5	47	1.67	Chiou et al. (1979)	Willamette silt loam; 0.928% OC; 20 degrees Celsius
		47	1.67		
		47	1.67		
1,3-Dichloropropene	542-75-6	24	1.38	Leistra (1970)	<i>cis</i> -, avg. 3 soils; computed from vapor phase sorption
		26	1.41	Leistra (1970)	<i>trans</i> -, avg. 3 soils; computed from vapor phase sorption
		32	1.51	Wauchope et al. (1992)	<i>trans</i> -, personal comm. (unpublished source, Dow Chemical)
		27	1.44		
27	1.43				
Dieldrin	60-57-1	23,308	4.37	Sharom et al. (1980)	Beverly sandy loam; 2.5% OM
		26,106	4.42	Sharom et al. (1980)	Plainfield sand; 0.7% OM
		27,399	4.44	Sharom et al. (1980)	Big Creek sediment; 2.8% OM
		25,604	4.41		
25,546	4.41				

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments	
Diethyl phthalate	84-66-2	69	1.84	Russell & McDuffie (1986)	Broome County, NY, composite soil with 1.59% OC; column	
		98	1.99	Russell & McDuffie (1986)	Conklin, NY, sand; 0.26% OC; column; avg. 4 values	
		84	1.92			
		82	1.92			
Average						
Geometric Mean						
Dimethyl phthalate	131-11-3	7.6	0.88	Seip et al. (1986)	forest soil with 0.2% OC; column study	
		42.8	1.63	Seip et al. (1986)	agricultural soil with 2.2% OC; column study	
		72.7	1.86	Seip et al. (1986)	forest soil with 3.7% OC; column study	
		41	1.61			
Average						
Geometric Mean						
Di- <i>n</i> -butyl phthalate	84-74-2	1,384	3.14	Russell & McDuffie (1986)	Broome County, NY, composite soil with 1.59% OC; column	
		1,775	3.25	Russell & McDuffie (1986)	Conklin, NY, sand; 0.26% OC; adsorp.; avg. 4 values; column	
		1,580	3.20			
		1,567	3.20			
Average						
Geometric Mean						
2,4-Dinitrotoluene	121-14-2					
2,6-Dinitrotoluene	606-20-2					
Di- <i>n</i> -octyl phthalate	117-84-0					
Endosulfan	115-29-7	2,040	3.31	Gustafson (1989)	average value from collected measured values	
		2,040	3.31			
		2,040	3.31			
		Average				
Geometric Mean						
Endrin	72-20-8	7,724	3.89	Sharom et al. (1980)	Beverly sandy loam; 2.5% OM	
		7,793	3.89	Sharom et al. (1980)	organic soil; 75.3% OM	
		14,285	4.15	Sharom et al. (1980)	Plainfield sand; 0.7% OM	
		15,885	4.20	Sharom et al. (1980)	Big Creek sediment; 2.8% OM	
Average						
Geometric Mean						
Ethylbenzene	100-41-4	165	2.22	Chiou et al. (1983)	Woodburn silt loam; fom = 0.019; 21% clay	
		184	2.27	Lee et al. (1989)	untreated St. Clair soil; 0.44% OC; 44% clay; B+ horizon	
		191	2.28	Lee et al. (1989)	untreated Oshiterno soil; 0.11% OC; 6.3% clay; B+ horizon	
		240	2.38	Hodson & Williams (1988)	HPLC; cyanopropyl column	

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
Ethylbenzene (continued)	100-41-4	255	2.41	Vowles & Mantoura (1987)	Tamar estuary sediment; 4.02% OC; 0.2% synth. sea salt	
	Average	207	2.32			
	Geometric Mean	204	2.31			
Fluoranthene	206-44-0	41,687	4.62	Szabo et al. (1990a)	RP & HPLC on PIHAC (humic acids)	
		51,658	4.71	Abdul & Gibson (1986)	Flint aquifer sample; 87% sand; foc = 0.0187	
		54,954	4.74	Szabo et al. (1990a)	RP & HPLC on CIHAC (humic acids)	
Average	49,433	4.69				
Geometric Mean	49,096	4.69				
Fluorene	86-73-7	3,989	3.60	Abdul et al. (1986)	Borden aquifer material (avg. 2 values, foc = 0.0091, 0.0121)	
		4,615	3.66	Abdul et al. (1986)	Flint aquifer material (avg. 8 values)	
		5,576	3.75	Abdul et al. (1986)	Warren aquifer material (avg. 8 values)	
		8,913	3.95	Carter & Suffet (1983)	humic materials (DOC)	
		14,125	4.15	Szabo et al. (1990a)	RP-HPLC on CIHAC (humic acids)	
		16,218	4.21	Szabo et al. (1990a)	RP-HPLC on PIHAC (humic acids)	
	Average	8,906	3.95			
	Geometric Mean	7,707	3.89			
	Heptachlor	76-44-8	6,810	3.83	Jury et al. (1990)	selected
			13,330	4.12	Gustafson (1989)	average value from collected measured values
Average		10,070	4.00			
Geometric Mean	9,528	3.98				
Heptachlor epoxide	1024-57-3					
Hexachlorobenzene	118-74-1	80,000	4.90	Karickhoff & Morris (1985a)	GA sediments; 0.5-1.5% OC	
	Average	80,000	4.90			
	Geometric Mean	80,000	4.90			
Hexachloro-1,3-butadiene	87-68-3					
α -Hexachlorocyclohexane (alpha-BHC)	319-84-6	1,022	3.01	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.62% OM	
		1,253	3.10	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.27% OM	
		1,330	3.12	Wahid & Sethunathan (1979)	single measurement; Kari soil; 24.6% OM	
	1,386	3.14	Wahid & Sethunathan (1979)	single measurement; sandy soil; 12.6% OM		
	1,532	3.19	Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.75% OM		

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
α -Hexachlorocyclohexane (continued)	319-84-6	2,004	3.30	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 2.88% OM	
		2,024	3.31	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.00% OM	
		2,090	3.32	Wahid & Sethunathan (1979)	single measurement; Pokkali soil; 5.52% OM	
		2,123	3.33	Wahid & Sethunathan (1979)	single measurement; Kari soil; 8.21% OM	
		2,168	3.34	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.60% OM	
		2,200	3.34	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.92% OM	
		2,891	3.46	Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.70% OM	
		Average	1,835	3.26		
		Geometric Mean	1,762	3.25		
		β -Hexachlorocyclohexane (beta-BHC)	319-85-7	1,156	3.06	Wahid & Sethunathan (1979)
1,470	3.17			Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.62% OM	
1,681	3.23			Wahid & Sethunathan (1979)	single measurement; Kari soil; 24.6% OM	
1,794	3.25			Mills & Biggar (1969b)	Venado clay; 3.5% OC; 50% montmorillonite; 20° C; 1/n=0.861	
1,821	3.26			Wahid & Sethunathan (1979)	single measurement; sandy soil; 12.6% OM	
1,868	3.27			Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.00% OM	
1,958	3.29			Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.75% OM	
2,098	3.32			Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.70% OM	
2,415	3.38			Wahid & Sethunathan (1979)	single measurement; Kari soil; 8.21% OM	
2,548	3.41			Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.60% OM	
2,697	3.43			Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.92% OM	
3,143	3.50			Wahid & Sethunathan (1979)	single measurement; lateritic soil; 2.88% OM	
3,158	3.50			Wahid & Sethunathan (1979)	single measurement; Pokkali soil; 5.52% OM	
3,563	3.55			Mills & Biggar (1969b)	Staten peaty muck, 12.8% OC; 20° C; 1/n = 0.950	
Average	2,241			3.35		
Geometric Mean	2,139			3.33		
γ -Hexachlorocyclohexane (Lindane)	58-89-9			731	2.86	Adams & Li (1971)
		735	2.87	McCall et al. (1980)	average for three soils, 0.68-2.01% OC	
		757	2.88	Huggenberger et al. (1972)	Gila silt loam; foc = 0.0038; coulmm study	
		760	2.88	Kishi et al. (1990)	clay loam (allophane); soil pH = 4.89; foc = 0.104	
		760	2.88	Wahid & Sethunathan (1980)	lateritic soil; 2.88% OM; 1:1	
		764	2.88	Adams & Li (1971)	Hegne sic, A horizon ; foc = 0.043	
		764	2.88	Adams & Li (1971)	Hegne sic, B horizon ; foc = 0.006	
		769	2.89	Adams & Li (1971)	Fargo sic, A horizon ; foc = 0.052	
		812	2.91	Adams & Li (1971)	Hubbard ls, A horizon ; foc = 0.012	
		814	2.91	Adams & Li (1971)	Ontonagon c, A horizon ; foc = 0.035	
		826	2.92	Adams & Li (1971)	Milaca sl, A horizon ; foc = 0.017	
		852	2.93	Mills & Biggar (1969a)	1.1% OC; Ca Columbia silt loam	

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
γ -Hexachlorocyclohexane (continued)	58-89-9	855	2.93	Adams & Li (1971)	Kranzburg sil, B horizon ; foc = 0.01	
		878	2.94	Adams & Li (1971)	Svea sil, B horizon ; foc = 0.008	
		960	2.98	Kishi et al. (1990)	sandy loam (allophane); soil pH = 5.41; foc = 0.0791	
		968	2.99	Kay & Elrick (1967)	Muck (38% OC)	
		985	2.99	Adams & Li (1971)	Fayette sil, A horizon ; foc = 0.023	
		986	2.99	Kay & Elrick (1967)	Honeywood loam (2.1% OC)	
		1,005	3.00	Adams & Li (1971)	Canisteo cl, B horizon ; foc = 0.006	
		1,010	3.00	Rippen et al. (1982)	Alfisol, Udalf, Para brown earth; 0.76% OC; soil pH = 7.45	
		1,030	3.01	Kay & Elrick (1967)	Fox loamy sand (1.7% OC)	
		1,079	3.03	Adams & Li (1971)	Lester fsi, A horizon ; foc = 0.023	
		1,103	3.04	Huggenberger et al. (1972)	Pachappa sandy loam; foc = 0.005	
		1,103	3.04	Sharom et al. (1980)	Beverly sand loam; 2.5% OM	
		1,109	3.04	Wahid & Sethunathan (1979)	single measurement; sandy soil; 12.6% OC	
		1,125	3.05	Adams & Li (1971)	Zimmerman s, A horizon ; foc = 0.007	
		1,130	3.05	Huggenberger et al. (1972)	Kentwood sandy loam; foc = 0.0093	
		1,200	3.08	Kishi et al. (1990)	light clay (montmorillonite - illite); pH = 5.26; foc = 0.0323	
		1,204	3.08	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.27% OM	
		1,227	3.09	Kay & Elrick (1967)	Brookstone sandy loam (1.9% OC)	
		1,263	3.10	Adams & Li (1971)	Brainerd fsi, A horizon ; foc = 0.026	
		1,274	3.11	Adams & Li (1971)	Bearden sil, B horizon ; foc = 0.002	
		1,300	3.11	Kishi et al. (1990)	light clay (montmorillonite); soil pH = 5.18; foc = 0.0151	
		1,300	3.11	McCaill et al. (1983)	Not stated if these are original data	
		1,318	3.12	Miller & Weber (1986)	Ann Arbor soil; 1.14% OC	
		1,322	3.12	Moreale & van Bladel (1978)	Lubbeek II soil; 0.53% OC; 10% clay	
		1,335	3.13	Moreale & van Bladel (1978)	Lubbeek I soil; 0.07% OC; 2% clay	
		1,452	3.16	Mills & Biggar (1969a)	3.1% OC; Ca Venado clay	
		1,455	3.16	Adams & Li (1971)	Brainerd sil, B horizon ; foc = 0.001	
		1,458	3.16	Miller & Weber (1986)	Delta soil; 0.12% TOC	
		1,478	3.17	Sharom et al. (1980)	Big Creek sediment; 2.8% OM	
		1,525	3.18	Wahid & Sethunathan (1978)	Pokkali soil; 5.52% OM; 1:10; 5 min eq.	
		1,580	3.20	Wahid & Sethunathan (1980)	Pokkali soil; 5.52% OM; 1:1	
		1,681	3.23	Wahid & Sethunathan (1979)	single measurement; Kari soil; 24.6% OM	
		1,724	3.24	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.00% OM	
1,830	3.26	Adams & Li (1971)	Blue Earth sil, A horizon ; foc = 0.11			
1,859	3.27	Caron et al. (1985)	Powerville sediment (NJ); 2.4% OC			
1,896	3.28	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 2.88% OM			
1,935	3.29	Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.70% OM			
1,970	3.29	Sharom et al. (1980)	Plainfield sand; 0.7% OM			
1,976	3.30	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 1.62% OM			
2,058	3.31	Sharom et al. (1980)	organic soil; 75.3% OM			
2,090	3.32	Wahid & Sethunathan (1979)	single measurement; Pokkali soil; 5.52% OM			
2,122	3.33	Wahid & Sethunathan (1979)	single measurement; alluvial soil; 0.75% OM			

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments
γ-Hexachlorocyclohexane (continued)	58-89-9	2,123	3.33	Wahid & Sethunathan (1979)	single measurement; Kari soil; 8.21% OM
		2,260	3.35	Spencer & Clith (1970)	Gila silt loam; 0.35% OC; from vapor phase desorp.; 30° C
		2,268	3.36	Adams & Li (1971)	Blue Earth sil, B horizon ; foc = 0.083
		2,290	3.36	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.92% OM
		2,448	3.39	Wahid & Sethunathan (1979)	single measurement; lateritic soil; 0.60% OM
		2,584	3.41	Mills & Biggar (1969a)	11.9% OC; Staten peaty muck
		2,646	3.42	Miller & Weber (1986)	Michaywe soil; 0.13% TOC
		2,710	3.43	Moreale & van Bladel (1978)	Zolder soil; 0.19% OC; 1% clay
		2,926	3.47	Wahid & Sethunathan (1978)	alluvial soil; 0.75% OM; 1;20; 5 min equilibration
		2,983	3.47	Chiou et al. (1979)	Willamette silt loam; 1.6% OM; 26% clay
	3,249	3.51	Adams & Li (1971)	Ulen si, B horizon ; foc = 0.003	
	Average	1,477	3.17		
	Geometric Mean	1,352	3.13		
Hexachlorocyclopentadiene	77-47-4				
Hexachloroethane	67-72-1				
Indeno(1,2,3-cd)pyrene	193-39-5				
Isophorone (Isoclophenone)	78-59-1				
Methoxychlor	72-43-5	80,000	4.90	Karickhoff et al. (1979)	avg. Doe Run and Hickory Hill coarse silt sed. fractions
	Average	80,000	4.90		
	Geometric Mean	80,000	4.90		
Methyl bromide (Bromomethane)	74-83-9	9	0.95	Briggs (1981)	presented as a value for several chemicals
	Average	9	0.95		
	Geometric Mean	9	0.95		
Methyl chloride (Chloromethane)	75-09-2	6	0.78	Jury et al. (1990)	soil; selected
	Average	6	0.78		
	Geometric Mean	6	0.78		
Methylene chloride (Dichloromethane)	75-09-2	10	1.00	Daniels et al. (1985)	selected
	Average	10	1.00		
	Geometric Mean	10	1.00		

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
Naphthalene	91-20-3	830	2.92	Kishi et al. (1990)	light clay; 1.51% OC	
		843	2.93	Vowles & Mantoura (1987)	Tamar estuary sediment; 4.02% OC; 0.2% synth. sea salt	
		871	2.94	Karickhoff (1981)		soils/sediments average; shake flask UV
		907	2.96	Staufeer & MacIntyre (1986)		Appalachian soil; 1.4% OC; pH = 3.1
		912	2.96	Hodson & Williams (1988)		unpublished experimental results by same authors
		960	2.98	Southworth & Keller (1986)		Fullerton soil; 0.06% OC
		1,000	3.00	Southworth & Keller (1986)		Apison soil; 0.11% OC
		1,000	3.00	Kan & Tomson (1990)		DOM
		1,096	3.04	McCarthy & Jimenez (1985)		humic acid polymers
		1,161	3.06	Lokke (1984)		avg. 10 values
		1,290	3.11	Rippen et al. (1982)		Alfisol; 0.76% OC
		1,300	3.11	Karickhoff et al. (1979)		average of Doe Run & Hickory Hill sediments
		1,333	3.12	Karickhoff (1982)		Mississippi River sediment; foc = 0.015
		1,400	3.15	Podoll et al. (1988)		Menlo Park soil; 1.6% OC
		1,413	3.15	Szabo et al. (1990a)		RP-HPLC on CHAC (humic acids)
		1,440	3.16	Rippen et al. (1982)		Entisol; 1.11% OC
		1,445	3.16	Szabo et al. (1990a)		RP-HPLC on PIHAC (humic acids)
		1,610	3.21	Rippen et al. (1982)		Speyer soil, 0.15-0.5 mm; 1.12% OC
		1,861	3.27	Barrett et al. (1994)		soil; 0.13% OC
		1,950	3.29	Wood et al. (1990)		Eustis sand; 0.74% OC; batch & column data
Average	1,231	3.09				
Geometric Mean	1,191	3.08				
Nitrobenzene	98-95-3	30.6	1.49	Seip et al. (1986)	forest soil with 0.2% OC; column study	
		76	1.88	Wilson et al. (1981)	Lincoln sand; 0.087% OC	
		86	1.93	Briggs (1981)	average for four soils; 0.6-2.5% OC	
		88.8	1.95	Seip et al. (1986)	agricultural soil with 2.2% OC; column study	
		103	2.01	Seip et al. (1986)	forest soil with 3.7% OC; column study	
		142	2.15	Miller & Weber (1986)	Delta soil with foc = 0.0012	
		190	2.28	Lokke (1984)	Griboskov B horizon soil; 2.58%OC; avg. 2 values	
		191	2.28	Wilson et al. (1981)	Lincoln sand; 0.087% OC	
		229	2.36	Hodson & Williams (1988)	unpublished experimental results by same authors	
		270	2.43	Lokke (1984)	Griboskov C horizon soil; 1.82%OC; avg. 2 values	
Average	141	2.15				
Geometric Mean	119	2.08				
Pentachlorobenzene	608-93-5	11,381	4.06	Wu & Gschwend (1986)	Iowa soil; 2.1% OC	
		35,455	4.55	Wu & Gschwend (1986)	North River sediments; approx. 4.4% OC	
		38,560	4.59	Barber et al. (1992)	sand/gravel aquifer; avg. 2 measurements; 0.054, 0.062% OC	
		40,000	4.60	Karickhoff & Morris (1985a)	GA sediments; 0.5-1.5% OC	

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments
Pentachlorobenzene (continued)	608-93-5	55,176	4.74	Wu & Gschwend (1986)	Charles River sediments; approx. 8.5% OC
	Average	36,114	4.56		
	Geometric Mean	32,148	4.51		
Pyrene	129-00-0	43,807	4.64	Means et al. (1980)	IL sediment with 2.38% OC (EPA-23)
		45,709	4.66	Abdull et al. (1987)	aquifer material, 1.05% OC
		48,236	4.68	Means et al. (1980)	IL sediment with 1.67% OC (EPA-22)
		50,650	4.70	Means et al. (1980)	ND sediment with 2.28% OC (EPA-5)
		51,469	4.71	Means et al. (1980)	ND sediment with 2.07% OC (EPA-4)
		54,767	4.74	Woodburn et al. (1989)	Webster soil; 2.23% OC; 14 C; 30:70 methanol:water
		57,763	4.76	Means et al. (1980)	WV soil with 0.48% OC (EPA-14)
		58,884	4.77	Szabo et al. (1990a)	RP-HPLC on PIHAC (humic acids)
		59,515	4.77	Means et al. (1980)	IL sediment with 1.88% OC (EPA-21)
		59,646	4.78	Means et al. (1980)	IL soil with 1.30% OC (EPA-20)
		61,936	4.79	Abdul & Gibson (1986)	Flint aquifer sampler; 87% sand; f _{oc} = 0.0187
		62,860	4.80	Means et al. (1980)	GA sediment with 1.21% OC (EPA-B2)
		63,400	4.80	Hassett et al. (1980)	from regression of 14 sediments/soil samples
		64,706	4.81	Means et al. (1980)	IA leess with 0.11% OC (EPA-9)
		66,069	4.82	Szabo et al. (1990a)	RP-HPLC on CHAC (humic acids)
		67,189	4.83	Means et al. (1980)	IL sediment with 1.48% OC (EPA-26)
		67,467	4.83	Means et al. (1980)	IA sediment with 0.15% OC (EPA-8)
		67,608	4.83	Karickhoff (1981)	soils/sediments average
		76,316	4.88	Means et al. (1980)	KY sediment with 0.66% OC (EPA-18)
		82,421	4.92	Means et al. (1980)	IN sediment with 0.95% OC (EPA-15)
		84,000	4.92	Karickhoff et al. (1979)	avg. Doe Run, Hickory Hill coarse silt sediment fractions
		84,000	4.92	Karickhoff (1982)	Mississippi R. sediment, 1.5% OC
		85,256	4.93	Means et al. (1980)	SD sediment with 0.72% OC (EPA-6)
	87,833	4.94	Karickhoff & Morris (1985b)	Mississippi R. sediment, 1.48% OC (description)	
	95,395	4.98	Karickhoff & Morris (1985b)	Ohio R. sediment; 3.04% OC (description)	
	131,325	5.12	Gauthier et al. (1986)	fluoresc. quench. tech.; 13 soil humic & fulvic acids (avg.)	
	133,590	5.13	Vowles & Mantoura (1987)	Tamar estuary sediment; 4.02% OC; 0.2% synth. sea salt	
Average	70,808	4.85			
Geometric Mean	67,992	4.83			
Stryene	100-42-5	912	2.96	Bedient et al. (1983) as cited in Meylan et al. (1992)	experimental measurement
	Average	912	2.96		
	Geometric Mean	912	2.96		

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K _{oc} (L/kg)	Log K _{oc}	Source	Comments
1,1,2,2-Tetrachloroethane	79-34-5	79	1.90	Chiou et al. (1979)	Willamette silt loam; 0.928% OC; 20 degrees Celsius
	Average	79	1.90		
	Geometric Mean	79	1.90		
Tetrachloroethylene	127-18-4	177	2.25	Seip et al. (1986)	forest soil with 0.2% OC; column study
		205	2.31	Seip et al. (1986)	agricultural soil with 2.2% OC; column study
		224	2.35	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	specific system information not provided
		224	2.35	Piwoni & Banerjee (1989)	n-core sediment; foc = 0.0133
		225	2.35	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		235	2.37	Piwoni & Banerjee (1989)	avg. 8 values; J-core sed.; foc = 0.0015 - 0.0089; avg. 1/n>0.94
		237	2.38	Friesel et al. (1984)	reported as Ksom; foc reported as a range; 32 soils
		263	2.42	Abdull et al. (1987)	equilibrium batch experiments; aquifer material; foc = 0.0105
		268	2.43	Pignatello (1990)	Agawam fine sandy loam soil; 2.57% OC; avg. 2 values
		269	2.43	Brusseau & Rao (1991)	Tampa sandy aquifer material; 0.13% OC; < 2mm
		311	2.49	Loch et al. (1986)	top 20 cm of Podzol soil; 0.87% OC
		348	2.54	Seip et al. (1986)	forest soil with 3.7% OC; column study
		356	2.55	Pavlostathis & Malthavan (1992)	coarse sand with 0.09% OC
		362	2.56	Chiou et al. (1979)	Willamette silt loam; 0.93% OC; 20 degrees Celsius
		373	2.57	Schwarzenbach & Westall (1981)	avg. of 6 meas. w/ different Co & sorbents; 0.15% OC
	Average	272	2.43		
	Geometric Mean	265	2.42		
	Toluene	108-88-3	94.4	1.97	Seip et al. (1986)
		99	2.00	Vowles & Mantoura (1987)	Tamar estuary sediment; 4.02% OC; 0.2% synth. sea salt
		115	2.06	Abdull et al. (1987)	equilibrium batch experiments, aquifer material; foc = 0.0105
		123	2.09	Garbarini & Lion (1986)	zein; 57% OC
		126	2.10	Szabo et al. (1990a)	RP-HPLC on PIHAC (avg., humic acids)
		134	2.13	Seip et al. (1986)	forest soil with 3.7% OC; column study
		150	2.18	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		151	2.18	Garbarini & Lion (1986)	Sapsucker Woods soil with 7.51% C
		151	2.18	Garbarini & Lion (1986)	lignin; 65% OC
		164	2.21	Garbarini & Lion (1986)	Sapsucker Woods ether extracted soil with 7.05% C
		182	2.26	Szabo et al. (1990a)	RP-HPLC on CHAC (avg., humic acids)
		247	2.39	Schwarzenbach & Westall (1981)	avg. of 6 meas. w/ different Co & sorbents; 0.15% OC
Average	145	2.16			
Geometric Mean	140	2.15			

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
Toxaphene	8001-35-2	95,816	4.98	Gustafson (1989)	average value from collected measured values	
	Average	95,816	4.98			
	Geometric Mean	95,816	4.98			
1,2,4-Trichlorobenzene	120-82-1	864	2.94	Chiou et al. (1983)	Woodburn silt loam; fom = 0.019; 21% clay	
		885	2.95	Southworth & Keller (1986)	Dormont soil; 1.2% OC	
		1,033	3.01	Scheunert et al. (1994)	soil; 2.06% OC	
		1,300	3.11	Southworth & Keller (1986)	Fullerton soil; 0.06% OC	
		1,303	3.11	Banerjee et al. (1985)	average of 21 values; subsurface alluvial soil	
		1,389	3.14	Wilson et al. (1981)	average of two values	
		1,435	3.16	Friesel et al. (1984)	peaty soil; 0.29% OM	
		1,441	3.16	Friesel et al. (1984)	reported as Ksom; foc reported as a range	
		1,554	3.19	Lee et al. (1989)	untreated Marlette soil, A horizon; 2.59% OC	
		1,867	3.27	Lee et al. (1989)	untreated Marlette soil, Bt horizon; 0.3% OC	
		1,986	3.30	Schwarzenbach & Westall (1981)	KS1 field material; foc = 0.0073	
		1,995	3.30	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not provided	
		2,100	3.32	Southworth & Keller (1986)	Apison soil with 0.11% OC	
		2,347	3.37	Schwarzenbach & Westall (1981)	avg. of 6 meas. w/ different Co & sorbents; 0.15% OC	
		2,570	3.41	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not provided	
		3,118	3.49	Wu & Gschwend (1986)	Charles River sediment with approximately 8.8% OC	
		3,125	3.49	Schwarzenbach & Westall (1981)	field sample; 0.8% OC	
Average	1,783	3.25				
Geometric Mean	1,659	3.22				
1,1,1-Trichloroethane	71-55-6	105.9	2.02	Loch et al. (1986)	top 20 cm of Eerd soil; 4% OC	
		107	2.03	Friesel et al. (1984)	reported as Ksom; foc reported as a range	
		129	2.11	Hodson & Williams (1988)	cyanopropyl column, HPLC	
		172	2.24	Loch et al. (1986)	top 20 cm of Podzol soil; 0.87% OC	
		179	2.25	Chiou et al. (1979)	Williamette silt loam; 0.93% OC; 3.5 degrees Celsius	
	Average	139	2.14			
	Geometric Mean	135	2.13			
	1,1,2-Trichloroethane	79-00-5	60.0	1.78	Seip et al. (1986)	forest soil with 0.2% OC; column study
			63.7	1.80	Seip et al. (1986)	agricultural soil with 2.2% OC; column study
			76	1.88	Wilson et al. (1981)	Lincoln sand; 0.087% OC
		108	2.03	Seip et al. (1986)	forest soil with 3.7% OC; column study	
Average		77	1.89			
Geometric Mean		75	1.87			

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments	
Trichloroethylene	79-01-6	57	1.76	Rutherford & Chiou (1992)	peat; 57% OC	
		63	1.80	Smith et al. (1990)	soil; 4.02% OC (from vapor phase experiments)	
		65	1.81	Abdul et al. (1987)	equilibrium batch experiments; aquifer material; foc = 0.0105	
		69	1.84	Brusseau & Rao (1991)	Tampa sandy aquifer material; 0.13% OC; < 2mm	
		72.5	1.86	Seip et al. (1986)	forest soil with 0.2% OC; column study	
		84	1.92	Staufner & Macintyre (1986)	Appalachian soil; 1.4% OC; pH = 3.2	
		84	1.93	Piwoni & Banerjee (1989)	aquifer solid; 0.19% OC	
		87	1.94	Rogers & McFarlane (1981)	Overton silty clay loam; foc=0.018; 1/n=0.93	
		92	1.96	Wilson et al. (1981)	Lincoln sand; 0.087% OC	
		95.8	1.98	Seip et al. (1986)	agricultural soil with 2.2% OC; column study	
		99	2.00	Pignatello (1990a)	Agawam soil; 2.57% OC (2 values)	
		100	2.00	Doust & Huang (1992) as cited in Mackay et al. (1993)	organic carbon soil	
		101	2.00	Friesel et al. (1984)	reported as K _{om} ; foc reported as a range; 32 soils	
		103	2.01	Loch et al. (1986)	top 20 cm of Eerd soil; 4% OC	
		106	2.03	Garbarini & Lion (1986)	Sapsucker Woods soil with 7.51% C	
111	2.05	Garbarini & Lion (1986)	zein; 57% OC			
120	2.08	Garbarini & Lion (1986)	lignin; 65% OC			
122	2.09	Garbarini & Lion (1986)	sapsucker woods ether extracted soil; 7.05% OC			
123	2.09	Hutzler et al. (1986)	column; Keweenaw 7 soil; 0.85% OC (avg. 3 values)			
142	2.15	Seip et al. (1986)	forest soil with 3.7% OC; column study			
150	2.17	Rogers & McFarlane (1981)	Hastings silty clay loam; foc = 0.026; Freundlich; 1/n = 0.82			
		Average	1.99			
		Geometric Mean	1.97			
Vinyl chloride	75-01-4					
o -Xylene	95-47-6	222	2.35	Vowles & Mantoura (1987)	Tamar estuary sediment; 4.02% OC; 0.2% synth. sea salt	
		234	2.37	Szabo et al. (1990a)	RP-HPLC, CHAC (humic acids)	
		251	2.40	Szabo et al. (1990a)	RP-HPLC, PIHAC (humic acids)	
		258	2.41	Roy et al. (1987)	Catlin sorbent at 23 degrees Celsius; 4.04% OC	
		Average	2.38			
Geometric Mean	2.38					
m -Xylene	108-38-3	158	2.20	Seip et al. (1986)	agricultural soil with 2.2% OC; column study	
		166	2.22	Abdul et al. (1987)	equilibrium batch experiments; aquifer material; foc = 0.0105	
		289	2.46	Seip et al. (1986)	forest soil; 3.7% OC; column study	
		Average	2.31			
		Geometric Mean	2.29			

Table K-2. Collected K_{oc} Values (Hydrophobic Organics)

Chemical	CAS No.	K_{oc} (L/kg)	Log K_{oc}	Source	Comments
<i>p</i> -Xylene	106-42-3	260	2.41	Vowles & Mantoura (1987)	Tamar estuary sed.; 4.02% OC; 0.2% synthetic sea salt
		333	2.52	Schwarzenbach & Westall (1984)	soil; 0.15% OC; avg. 6 values
		347	2.54	Schwarzenbach & Giger (1982) as cited in Gerstl (1990)	system specific information not provided
		313	2.50		
Geometric Mean		311	2.49		

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