Kd Values for Sediment Metal Partitioning by Land Use

			All Sites			Heavy Industrial			Light Industrial			Major Transportation			Multiple Land Uses		
			Composite			WO			WO			WO			WO		
Analyte	**Primary Log K_d (L/kg)**	**Primary source of K_d**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**
Arsenic	2.4	USEPA 2005[1]	2.72	5.58	4.26	2.72	5.58	4.25	4.20	5.29	4.62	3.07	4.33	3.89	3.50	4.35	3.69
Chromium (III)	4.5	USEPA 2005[2]	3.51	5.97	4.83	3.67	5.97	4.79	4.92	5.73	5.25	3.51	5.05	4.58	4.82	5.00	4.88
Copper	3.5	USEPA 2005[1]	2.75	5.50	4.50	2.75	5.50	4.54	4.24	5.48	4.54	3.48	4.73	4.39	4.19	4.63	4.37
Lead	4.6	USEPA 2005[1]	3.71	7.12	5.69	4.41	6.61	5.72	5.10	7.12	5.96	3.71	6.13	5.42	4.87	5.59	5.31
Mercury	4.9	USEPA 2005[1]	3.57	5.16	4.00	3.58	5.16	4.09	3.57	3.57	3.57						
Nickel	4.0	USEPA 2005[2]	3.06	5.64	4.30	3.06	5.64	4.31	3.96	5.36	4.36	3.44	4.55	4.25	3.89	4.47	4.13
Zinc	3.9	USEPA 2005[2]	2.89	6.05	4.36	2.89	6.05	4.40	4.07	5.08	4.45	3.54	4.65	4.37	3.94	4.28	4.09

Includes data from all Stormwater sites in SCRA database

Blank cells have no associated measurements or the value was unable to be calculated due to non-detects.

[1] Partition Coefficients for Metals in Surface Water, Soil, and Waste. USEPA, 2005. Table 4

[2] Partition Coefficients for Metals in Surface Water, Soil, and Waste. USEPA, 2005. Table 1

Kd Values for Sediment Metal Partitioning by Land Use

			Parks/Open Space			Residential		
			WO			WO		
Analyte	**Primary Log K_d (L/kg)**	**Primary source of K_d**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**
Arsenic	2.4	USEPA 2005[1]	4.02	4.62	4.32	4.00	4.54	4.14
Chromium (III)	4.5	USEPA 2005[2]	4.57	4.79	4.68	4.65	5.37	4.90
Copper	3.5	USEPA 2005[1]	4.27	4.56	4.41	4.20	4.80	4.49
Lead	4.6	USEPA 2005[1]	5.04	5.53	5.29	5.48	5.96	5.79
Mercury	4.9	USEPA 2005[1]				3.99	3.99	3.99
Nickel	4.0	USEPA 2005[2]	3.93	4.23	4.08	3.91	4.59	4.30
Zinc	3.9	USEPA 2005[2]	4.16	4.16	4.16	4.35	4.88	4.55

Includes data from all Stormwater sites in SCRA database

Blank cells have no associated measurements or the value was unable to be calculated due to non-c

[1] Partition Coefficients for Metals in Surface Water, Soil, and Waste. USEPA, 2005. Table 4

[2] Partition Coefficients for Metals in Surface Water, Soil, and Waste. USEPA, 2005. Table 1

Log K_{oc} Values for Sediment Organics Partitioning by Land Use

				All Sites								
				Grab			Composite			Combined Grab/Composite data		
Analyte	**Primary Log K_{ow}**	**Log K_{oc} [a]**	**Primary Source**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**
Total PAHs[f]	5.31	5.22	EPA ESB[b]				4.28	7.63	6.33			
Total Carcinogenic PAHs[g]	6.20	6.09	EPA ESB[b]				4.87	8.55	6.47			
Naphthalene	3.36	3.30	EPA ESB[b]				4.51	6.96	5.66			
Benzo(a)pyrene	6.11	6.01	EPA ESB[b]				4.68	7.46	6.37			
PCB Congener (077)	6.50	6.39	Mackay-Shiu[d]	5.98	7.52	6.45	6.70	7.42	6.96	5.98	7.52	6.77
PCB Congener (081)	6.30	6.18	Mackay-Shiu[d]									
PCB Congener (105)	6.00	5.90	Mackay-Shiu[d]	6.48	7.74	6.52	6.86	7.67	7.32	6.48	7.74	7.10
PCB Congener (118)	6.84	6.69	Mackay-Shiu[d]				6.90	6.97	6.93			
PCB Congener (126)	6.68	6.57	Mackay-Shiu[d]				6.78	6.78	6.78			
PCB Congener (156 & 157)[h]	7.20	7.08	Mackay-Shiu[d]				6.98	7.48	7.20			
PCB Congener (169)	7.31	7.18	Mackay-Shiu[d]									
Total PCBs (congeners)[i]	6.01	5.91	Mackay-Shiu[d]				7.00	7.56	7.34			
Total PCBs (TEQ) - mammalian 2005 TEFs[j]	6.80	6.69	Mackay-Shiu[d]				6.78	9.53	8.59			
4,4'-DDD	6.05	5.95	SPARC[c]									
4,4'-DDT	6.72	6.61	SPARC[c]				5.92	5.92	5.92			
Sum DDD	5.99	5.89	SPARC[c]				5.12	5.12	5.12			
Sum DDE	6.87	6.75	SPARC[c]									
Sum DDT	6.64	6.53	SPARC[c]				4.73	5.59	5.16			
Total DDX[k]	6.49	6.38	SPARC[c]				4.42	7.51	6.09			
Chlordanes (Total)[l]	6.37	6.42	SPARC[c]				4.55	6.72	6.01			
Gamma - Hexachlorocyclohexane	3.73	3.67	EPA ESB[b]				4.62	4.62	4.62			
Aldrin	6.39	6.28	SPARC[c]									
Dieldrin	5.37	5.28	EPA ESB[b]									
Bis(2-ethylhexyl)phthalate	7.55	7.42	SPARC[c]	6.11	6.11	6.11	5.44	7.21	6.71	5.44	7.21	6.57
Hexachlorobenzene	5.89	5.79	SPARC[c]									

Includes data from all Stormwater sites in SCRA database and grab sample data from OF18, OF22, OF22B, SJB, WR107, WR123, WR142/145, WR161, WR22, and WR96
Blank cells have no associated measurements or the value was unable to be calculated due to non-detects.

[a] Calculated from Log Kow as log10 Koc = 0.00028 + log10Kow×0.983 (DiTorro 1991)

[b] EPA ESB: Procedures for the derivation of ESBs for the protection of benthic organisms: PAH mixtures. USEPA, 2003. Table 3-4.

[c] SPARC available online at: http://ibmlc2.chem.uga.edu/sparc/.

The SPARC model numerically predicts Kow values, in addition, the model has a database of experimentally measured values; both values were compiled where available. The numerically predicted SPARC value was used to determine the primary Kow, which both the predicted and database values were used to determine the minimum and maximum Kow.

[d] Mackay D., Shiu W.Y., Ma K.C., Lee S.C. Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals. 2nd edition. CRC Press. 2006.
Mackay and Shui (2006) provide a range of Kow values for many chemicals, as well as a selected value from this range. In loading calculations, the range of Kow value was used to determine the minimum and maximum Kow. The selected value was used as the primary Kow when available. When a selected Kow value was not provided, the geometric mean of the minimum and maximum Kow values was used as the primary Kow.

[e] The use of Mackay and Shiu (2006) as the preferred source for PCB congener Kow values was based on comments from US EPA on the Round 2 Report.

[f] Koc for Total PAHs calculated as geometric mean of Koc values for PAHs presented in EPA ESB Table 3-4.

[g] Koc for total Carcinogenic PAHs calculated as geometric mean of log Koc for cPAHs listed by EPA 2001 (Benzo(a)anthracene, Dibenzo(a,h)anthracene, Benzo(a)pyrene, Chrysene, Benzo(k)fluoranthene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene)
US Environmental Protection Agency, Integrated Risk Information System, Benzo[a]pyrene, http://www.epa.gov/iris/ (Accessed: January 2001).

[h] Koc value for PCB Congener (156 & 157) calculated using the geometric mean of Kow values for PCB congeners 156 & 157

[i] Koc for Total PCBs calculated using the geometric mean of Kow values for individual congeners found in Table 7.2.2 of Mackay & Shiu 2006.

[j] Koc for Total PCBs (TEQ) - mammalian 2006 TEFs calculated using the geometric mean of Kow values for individual congeners listed by Van den Berg et al. 2006 (congener 77, 81, 105, 114, 118, 123, 126, 156, 156 & 157, 157, 167, 169, and 189)
Van den Berg et al. 2006. The 2005 Compositerld Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93(2):223-241.

[k] Koc value for Total DDX calculated using the geometric mean of Kow values for all compounds used in the calculation of Sum DDD, Sum DDE, and Sum DDT
Koc value for Sum DDD calculated using the geometric mean of Kow values for 2,4'-DDD and 4,4'-DDD
Koc value for Sum DDE calculated using the geometric mean of Kow values for 2,4'-DDE and 4,4'-DDE

Koc value for Sum DDT calculated using the geometric mean of Kow values for 2,4'-DDT and 4,4'-DDT

[1] Koc value for Total Chlordanes calculated using the geometric mean of Kow values for cis-Chlordane, trans-Chlordane, and Oxychlordane

Log K_{oc} Values for Sediment Organics Partitioning by Land Use

				Heavy Industrial						Light Industrial						Major Transportation				
				Grab			WO			Grab			WO			Grab			WO	
Analyte	**Primary Log K_{ow}**	**Log K_{oc}[a]**	**Primary Source**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**
Total PAHs[f]	5.31	5.22	EPA ESB[b]				4.28	7.23	6.28				6.44	7.63	7.20					
Total Carcinogenic PAHs[g]	6.20	6.09	EPA ESB[b]				4.87	7.42	6.50				6.66	8.55	7.61					
Naphthalene	3.36	3.30	EPA ESB[b]				4.51	6.96	5.23				5.53	6.45	5.90					
Benzo(a)pyrene	6.11	6.01	EPA ESB[b]				4.68	7.46	6.42				6.52	6.52	6.52					
PCB Congener (077)	6.50	6.39	Mackay-Shiu[d]	5.98	7.52	6.75	6.70	7.42	7.08				7.15	7.15	7.15	6.45	6.45	6.45		
PCB Congener (081)	6.30	6.18	Mackay-Shiu[d]																	
PCB Congener (105)	6.00	5.90	Mackay-Shiu[d]	6.48	7.74	7.11	6.86	7.53	7.19				7.67	7.67	7.67	6.52	6.52	6.52		
PCB Congener (118)	6.84	6.69	Mackay-Shiu[d]				6.90	6.97	6.93											
PCB Congener (126)	6.68	6.57	Mackay-Shiu[d]				6.78	6.78	6.78											
PCB Congener (156 & 157)[h]	7.20	7.08	Mackay-Shiu[d]				6.98	7.48	7.29											
PCB Congener (169)	7.31	7.18	Mackay-Shiu[d]																	
Total PCBs (congeners)[i]	6.01	5.91	Mackay-Shiu[d]				7.00	7.34	7.18				7.56	7.56	7.56					
Total PCBs (TEQ) - mammalian 2005 TEFs[j]	6.80	6.69	Mackay-Shiu[d]				6.78	9.11	8.55				7.55	7.55	7.55					
4,4'-DDD	6.05	5.95	SPARC[c]																	
4,4'-DDT	6.72	6.61	SPARC[c]				5.92	5.92	5.92											
Sum DDD	5.99	5.89	SPARC[c]				5.12	5.12	5.12											
Sum DDE	6.87	6.75	SPARC[c]																	
Sum DDT	6.64	6.53	SPARC[c]				4.73	5.59	5.16											
Total DDX[k]	6.49	6.38	SPARC[c]				4.42	7.51	6.36											
Chlordanes (Total)[l]	6.37	6.42	SPARC[c]				4.55	6.12	5.37				6.72	6.72	6.72					
Gamma - Hexachlorocyclohexane	3.73	3.67	EPA ESB[b]				4.62	4.62	4.62											
Aldrin	6.39	6.28	SPARC[c]																	
Dieldrin	5.37	5.28	EPA ESB[b]																	
Bis(2-ethylhexyl)phthalate	7.55	7.42	SPARC[c]				5.44	6.57	6.01				6.85	6.85	6.85	6.11	6.11	6.11		
Hexachlorobenzene	5.89	5.79	SPARC[c]																	

Includes data from all Stormwater sites in SCRA database and grab sample data from (
Blank cells have no associated measurements or the value was unable to be calculated

[a] Calculated from Log Kow as log10 Koc = 0.00028 + log10Kow×0.983 (DiTorro 1991)

[b] EPA ESB: Procedures for the derivation of ESBs for the protection of benthic organisr

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Mackay and Shui (2006) provide a range of Kow values for many chemicals, as well a
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[f] Koc for Total PAHs calculated as geometric mean of Koc values for PAHs presented i

[g] Koc for total Carcinogenic PAHs calculated as geometric mean of log Koc for cPAHs
Benzo(k)fluoranthene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene)
US Environmental Protection Agency, Integrated Risk Information System, Benzo[a]p

[h] Koc value for PCB Congener (156 & 157) calculated using the geometric mean of Kov

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Koc value for Sum DDD calculated using the geometric mean of Kow values for 2,4'-I
Koc value for Sum DDE calculated using the geometric mean of Kow values for 2,4'-I

Koc value for Sum DDT calculated using the geometric mean of Kow values for 2,4'-D

[1] Koc value for Total Chlordanes calculated using the geometric mean of Kow values fo

Log K_{oc} Values for Sediment Organics Partitioning by Land Use

				Multiple Land Uses									Parks/Open Space						Residential	
				Grab			WO			Grab			WO			Grab				
Analyte	**Primary Log K_{ow}**	**Log K_{oc}[a]**	**Primary Source**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**	**Maximum**	**Median**	**Minimum**
Total PAHs[f]	5.31	5.22	EPA ESB[b]																	5.87
Total Carcinogenic PAHs[g]	6.20	6.09	EPA ESB[b]																	6.09
Naphthalene	3.36	3.30	EPA ESB[b]																	5.38
Benzo(a)pyrene	6.11	6.01	EPA ESB[b]																	6.15
PCB Congener (077)	6.50	6.39	Mackay-Shiu[d]																	
PCB Congener (081)	6.30	6.18	Mackay-Shiu[d]																	
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4,4'-DDD	6.05	5.95	SPARC[c]																	
4,4'-DDT	6.72	6.61	SPARC[c]																	
Sum DDD	5.99	5.89	SPARC[c]																	
Sum DDE	6.87	6.75	SPARC[c]																	
Sum DDT	6.64	6.53	SPARC[c]																	
Total DDX[k]	6.49	6.38	SPARC[c]																	
Chlordanes (Total)[l]	6.37	6.42	SPARC[c]																	
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Aldrin	6.39	6.28	SPARC[c]																	
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Bis(2-ethylhexyl)phthalate	7.55	7.42	SPARC[c]																	7.21
Hexachlorobenzene	5.89	5.79	SPARC[c]																	

Includes data from all Stormwater sites in SCRA database and grab sample data from (
Blank cells have no associated measurements or the value was unable to be calculated

[a] Calculated from Log Kow as log10 Koc = 0.00028 + log10Kow×0.983 (DiTorro 1991)

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Benzo(k)fluoranthene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene)
US Environmental Protection Agency, Integrated Risk Information System, Benzo[a]p

[h] Koc value for PCB Congener (156 & 157) calculated using the geometric mean of Kov

[i] Koc for Total PCBs calculated using the geometric mean of Kow values for individual

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[1] Koc value for Total Chlordanes calculated using the geometric mean of Kow values fo

Log K_{oc} Values for Sediment Organics Partitioning by Land Use

				WO	
Analyte	**Primary Log K_{ow}**	**Log K_{oc}[a]**	**Primary Source**	**Maximum**	**Median**
Total PAHs[f]	5.31	5.22	EPA ESB[b]	6.22	6.02
Total Carcinogenic PAHs[g]	6.20	6.09	EPA ESB[b]	6.47	6.17
Naphthalene	3.36	3.30	EPA ESB[b]	5.81	5.48
Benzo(a)pyrene	6.11	6.01	EPA ESB[b]	6.37	6.17
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PCB Congener (118)	6.84	6.69	Mackay-Shiu[d]		
PCB Congener (126)	6.68	6.57	Mackay-Shiu[d]		
PCB Congener (156 & 157)[h]	7.20	7.08	Mackay-Shiu[d]		
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Total PCBs (congeners)[i]	6.01	5.91	Mackay-Shiu[d]	7.40	7.40
Total PCBs (TEQ) - mammalian 2005 TEFs[j]	6.80	6.69	Mackay-Shiu[d]	9.53	9.53
4,4'-DDD	6.05	5.95	SPARC[c]		
4,4'-DDT	6.72	6.61	SPARC[c]		
Sum DDD	5.99	5.89	SPARC[c]		
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Aldrin	6.39	6.28	SPARC[c]		
Dieldrin	5.37	5.28	EPA ESB[b]		
Bis(2-ethylhexyl)phthalate	7.55	7.42	SPARC[c]	7.21	7.21
Hexachlorobenzene	5.89	5.79	SPARC[c]		

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