Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34418	chloromethane	20	816	e	NS	Glew and Moelwyn-Hughes (1953)
		20	739	e	NS	McConnell and others (1975)
		20	665	i	EPICS	Gossett (1987)
			20°C av = 740			
		25	957	e	NS	Glew and Moelwyn-Hughes (1953)
		25	845	i	EPICS	Gossett (1987)
			25°C av = 901			
34423	dichloromethane	20	301	e	NS	McConnell and others (1975)
		20	263	i	EC	Leighton and Calo (1981)
		20	229	i	EPICS	Lincoff and Gossett (1984)
		20	201	i	BS	Lincoff and Gossett (1984)
		20	173	i	EPICS	Gossett (1987)
		20	188	e	EPICS	Yurteri and others (1987)
		20	247	e	EPICS	Ashworth and others (1988)
			20°C av = 229			
		25	324	i	EC	Leighton and Calo (1981)
		25	291	i	EPICS	Lincoff and Gossett (1984)
		25	260	i	BS	Lincoff and Gossett (1984)
		25	215	i	EPICS	Gossett (1987)
		25	323	e	BS	Warner and others (1987)
		25	300	e	EPICS	Ashworth and others (1988)
			25°C av = 286			
32106	trichloromethane	20	283	e	NS	McConnell and others (1975)
		20	317	i	EC	Leighton and Calo (1981)
		20	337	i	EPICS	Lincoff and Gossett (1984)
		20	313	i	BS	Lincoff and Gossett (1984)
		20	332	e	BS	Lalezary and others (1984)
		20	312	e	BS	Nicholson and others (1984)
		20	305	e	ME	Munz and Roberts (1986)
		20	279	i	EPICS	Gossett (1987)
		20	301	i	ME	Munz and Roberts (1987)
		20	336	e	EPICS	Ashworth and others (1988)
		20	294	i	EPICS	Dewulf and others (1995)
			20°C av = 310			
		25	398	i	EC	Leighton and Calo (1981)
		25	428	i	EPICS	Lincoff and Gossett (1984)
		25	401	i	BS	Lincoff and Gossett (1984)
		25	399	i	BS	Nicholson and others (1984)
		25	363	i	EPICS	Gossett (1987)
		25	384	i	ME	Munz and Roberts (1987)

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
32106	trichloromethane (Continued)	25	343	e	BS	Warner and others (1987)
		25	427	e	EPICS	Ashworth and others (1988)
		25	378	i	EPICS	Dewulf and others (1995)
			25°C av = 391			
32102	tetrachloromethane	20	2,220	e	NS	McConnell and others (1975)
		20	2,140	i	EC	Leighton and Calo (1981)
		20	2,450	e	BS	Munz and Roberts (1982)
		20	2,030	i	ME	Hunter-Smith and others (1983)
		20	2,380	e	ME	Munz and Roberts (1986)
		20	2,390	i	ME	Munz and Roberts (1987)
		20	2,350	i	EPICS	Gossett (1987)
		20	2,280	e	EPICS	Yurteri and others (1987)
		20	2,350	e	EPICS	Ashworth and others (1988)
		20	2,000	i	EPICS	Dewulf and others (1995)
			20°C av = 2,260			
		25	2,750	i	EC	Leighton and Calo (1981)
		25	2,440	i	ME	Hunter-Smith and others (1983)
		25	3,050	i	ME	Munz and Roberts (1987)
		25	3,020	i	EPICS	Gossett (1987)
		25	3,060	e	BS	Warner and others (1987)
		25	2,990	e	EPICS	Ashworth and others (1988)
		25	2,980	e	BS	Ashworth and others (1988)
		25	2,880	e	EC	Tancrede and Yanagisawa (1990)
		25	2,560	i	EPICS	Dewulf and others (1995)
			25°C av = 2,860			
34413	bromomethane	20	532	e	NS	Glew and Moelwyn-Hughes (1953)
		25	631	e	NS	Glew and Moelwyn-Hughes (1953)
32104	tribromomethane	20	44.2	e	BS	Nicholson and others (1984)
		20	43.9	i	ME	Munz and Roberts (1987)
			20°C av = 44.0			
		25	61.1	i	BS	Nicholson and others (1984)
		25	54.1	i	ME	Munz and Roberts (1987)
		25	53.9	e	BS	Warner and others (1987)
			25°C av = 56.4			
32101	bromodichloromethane	20	157	e	BS	Nicholson and others (1984)
		25	212	i	BS	Nicholson and others (1984)
		25	215	e	BS	Warner and others (1987)
			25°C av = 214			
32105	chlorodibromomethane	20	83.4	e	BS	Nicholson and others (1984)
		20	104	e	EPICS	Ashworth and others (1988)
			20°C av = 93.7			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
32105	chlorodibromomethane (Continued)	25	116	i	BS	Nicholson and others (1984)
		25	79.3	e	BS	Warner and others (1987)
		25	120	e	EPICS	Ashworth and others (1988)
			25°C av = 105			
34311	chloroethane	20	946	i	EPICS	Gossett (1987)
		20	1,110	e	EPICS	Ashworth and others (1988)
			20°C av = 1,030			
		25	1,130	i	EPICS	Gossett (1987)
		25	1,230	e	EPICS	Ashworth and others (1988)
			25°C av = 1,180			
34496	1,1-dichloroethane	20	435	i	EPICS	Gossett (1987)
		20	570	e	EPICS	Ashworth and others (1988)
		20	390	i	EPICS	Dewulf and others 1995)
			20°C av = 465			
		25	551	i	EPICS	Gossett (1987)
		25	552	e	BS	Warner and others (1987)
		25	633	e	EPICS	Ashworth and others (1988)
		25	502	i	EPICS	Dewulf and others (1995)
			25°C av = 560			
32103	1,2-dichloroethane	20	92.3	e	NS	McConnell and others (1975)
		20	127	i	EC	Leighton and Calo (1981)
		20	149	e	EPICS	Ashworth and others (1988)
		20	78.3	i	EPICS	Dewulf and others (1995)
			20°C av = 112			
		25	155	i	EC	Leighton and Calo (1981)
		25	111	e	BS	Warner and others (1987)
		25	143	e	EPICS	Ashworth and others (1988)
		25	63.6	e	BS	Ashworth and others (1988)
		25	99.2	i	EPICS	Dewulf and others (1995)
			25°C av = 114			
34506	1,1,1-trichloroethane	20	1,540	i	EC	Leighton and Calo (1981)
		20	1,510	e	BS	Munz and Roberts (1982)
		20	1,100	i	ME	Hunter-Smith and others (1983)
		20	1,340	i	EPICS	Lincoff and Gossett (1984)
		20	1,370	i	BS	Lincoff and Gossett (1984)
		20	1,360	i	ME	Munz and Roberts (1987)
		20	1,340	i	EPICS	Gossett (1987)
		20	1,570	e	EPICS	Yurteri and others (1987)
		20	1,480	e	EPICS	Ashworth and others (1988)
		20	1,190	i	EPICS	Dewulf and others (1995)
			20°C av = 1,380			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34506	1,1,1-trichloroethane	25	1,970	i	EC	Leighton and Calo (1981)
		25	1,320	i	ME	Hunter-Smith and others (1983)
		25	1,710	i	EPICS	Lincoff and Gossett (1984)
		25	1,740	i	BS	Lincoff and Gossett (1984)
		25	1,690	i	EPICS	Gossett (1987)
		25	1,720	i	ME	Munz and Roberts (1987)
		25	1,760	e	EPICS	Ashworth and others (1988)
		25	1,780	e	BS	Ashworth and others (1988)
		25	1,780	e	SH	Robbins and others (1993)
		25	1,520	i	EPICS	Dewulf and others (1995)
			25°C av = 1,700			
34511	1,1,2-trichloroethane	20	67.0	i	EC	Leighton and Calo (1981)
		20	75.0	e	EPICS	Ashworth and others (1988)
			20°C av = 71.0			
		25	82.5	i	EC	Leighton and Calo (1981)
		25	92.2	e	EPICS	Ashworth and others (1988)
		25	113	e	BS	Ashworth and others (1988)
			25°C av = 95.9			
34396	hexachloroethane	20	290	e	ME	Munz and Roberts (1986)
		20	285	i	ME	Munz and Roberts (1987)
		20	599	e	EPICS	Ashworth and others (1988)
			20°C av = 391			
		25	393	i	ME	Munz and Roberts (1987)
		25	998	e	BS	Warner and others (1987)
		25	846	e	EPICS	Ashworth and others (1988)
			25°C av = 746			
77651	1,2-dibromoethane	20	61.8	e	EPICS	Ashworth and others (1988)
		25	65.9	e	EPICS	Ashworth and others (1988)
34541	1,2-dichloropropane	20	224	i	EC	Leighton and Calo (1981)
		20	193	e	EPICS	Ashworth and others (1988)
			20°C av = 208			
		25	286	i	EC	Leighton and Calo (1981)
		25	286	e	BS	Warner and others (1987)
		25	362	e	EPICS	Ashworth and others (1988)
			25°C av = 311			
77443	1,2,3-trichloropropane	20	28.2	i	EC	Leighton and Calo (1981)
		25	34.3	i	EC	Leighton and Calo (1981)
34488	trichlorofluoromethane	20	7,770	i	ME	Hunter-Smith and others (1983)
		20	7,400	i	EC	Warner and Weiss (1985)
		20	8,150	e	EPICS	Ashworth and others (1988)
			20°C av = 7,770			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34488	trichlorofluoromethane (Continued)	25	9,790	e	EC	Park and others (1982)
		25	9,040	i	ME	Hunter-Smith and others (1983)
		25	9,230	i	EC	Warner and Weiss (1985)
		25	5,910	e	BS	Warner and others (1987)
		25	10,200	e	EPICS	Ashworth and others (1988)
			25°C av = 8,830			
34668	dichlorodifluoromethane	20	40,600	e	NS	McConnell and others (1975)
		20	27,000	i	EC	Warner and Weiss (1985)
		20	26,600	i	ME	Munz and Roberts (1987)
			20°C av = 31,400			
		25	37,200	e	EC	Park and others (1982)
		25	32,900	i	EC	Warner and Weiss (1985)
		25	32,500	i	ME	Munz and Roberts (1987)
			25°C av = 34,200			
77652	1,1,2-trichloro-1,2,2-trifluoroethane	20	24,800	e	EPICS	Ashworth and others (1988)
		20	25,300	i	EC	Bu and Warner (1995)
			20°C av = 25,000			
		25	32,300	e	EPICS	Ashworth and others (1988)
		25	32,500	i	EC	Bu and Warner (1995)
			25°C av = 32,400			
39175	chloroethene	20	2,200	i	EPICS	Gossett (1987)
		20	2,200	e	EPICS	Ashworth and others (1988)
			20°C av = 2,200			
		25	2,660	i	EPICS	Gossett (1987)
		25	2,690	e	EPICS	Ashworth and others (1988)
			25°C av = 2,680			
34501	1,1-dichloroethene	20	2,850	i	EC	Leighton and Calo (1981)
		20	2,090	i	EPICS	Gossett (1987)
		20	2,210	e	EPICS	Ashworth and others (1988)
			20°C av = 2,380			
		25	3,700	i	EC	Leighton and Calo (1981)
		25	2,590	i	EPICS	Gossett (1987)
		25	1,520	e	BS	Warner and others (1987)
		25	2,620	e	EPICS	Ashworth and others (1988)
		25	2,840	e	BS	Ashworth and others (1988)
			25°C av = 2,650			
77093	*cis*-1,2-dichloroethene	20	299	i	EPICS	Gossett (1987)
		20	441	e	EPICS	Yurteri and others (1987)
		20	365	e	EPICS	Ashworth and others (1988)
			20°C av = 368			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
77093	*cis*-1,2-dichloroethene (Continued)	25	380	i	EPICS	Gossett (1987)
		25	460	e	EPICS	Ashworth and others (1988)
			25°C av = 420			
34546	*trans*-1,2-dichloroethene	20	731	i	EPICS	Gossett (1987)
		20	914	e	EPICS	Yurteri and others (1987)
		20	868	e	EPICS	Ashworth and others (1988)
			20°C av = 838			
		25	929	i	EPICS	Gossett (1987)
		25	539	e	BS	Warner and others (1987)
		25	958	e	EPICS	Ashworth and others (1988)
			25°C av = 809			
39180	trichloroethene	20	890	e	NS	McConnell and others (1975)
		20	757	i	EC	Leighton and Calo (1981)
		20	999	e	BS	Munz and Roberts (1982)
		20	688	i	EPICS	Lincoff and Gossett (1984)
		20	777	i	BS	Lincoff and Gossett (1984)
		20	793	i	ME	Munz and Roberts (1987)
		20	716	i	EPICS	Gossett (1987)
		20	1,050	e	EPICS	Yurteri and others (1987)
		20	853	e	EPICS	Ashworth and others (1988)
		20	654	i	EPICS	Dewulf and others (1995)
			20°C av = 818			
		25	984	i	EC	Leighton and Calo (1981)
		25	1,030	i	EPICS	Lincoff and Gossett (1984)
		25	881	i	BS	Lincoff and Gossett (1984)
		25	984	e	EPICS	Garbarini and Lion (1985)
		25	1,190	e	BS	Warner and others (1987)
		25	1,040	i	ME	Munz and Roberts (1987)
		25	944	i	EPICS	Gossett (1987)
		25	1,030	e	EPICS	Ashworth and others (1988)
		25	768	e	EC	Tancrede and Yanagisawa (1990)
		25	1,050	e	SH	Robbins and others (1993)
		25	864	i	EPICS	Dewulf and others (1995)
			25°C av = 979			
34475	tetrachloroethene	20	2,000	e	NS	McConnell and others (1975)
		20	1,230	i	EC	Leighton and Calo (1981)
		20	1,530	e	BS	Munz and Roberts (1982)
		20	1,320	i	EPICS	Lincoff and Gossett (1984)
		20	1,190	i	BS	Lincoff and Gossett (1984)

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34475	tetrachloroethene (Continued)	20	1,440	i	ME	Munz and Roberts (1987)
		20	1,330	i	EPICS	Gossett (1987)
		20	1,300	e	EPICS	Yurteri and others (1987)
		20	1,430	e	EPICS	Ashworth and others (1988)
		20	1,120	i	EPICS	Dewulf and others (1995)
			20°C av = 1,390			
		25	1,610	i	EC	Leighton and Calo (1981)
		25	1,770	i	EPICS	Lincoff and Gossett (1984)
		25	1,550	i	BS	Lincoff and Gossett (1984)
		25	1,860	i	ME	Munz and Roberts (1987)
		25	1,760	i	EPICS	Gossett (1987)
		25	2,910	e	BS	Warner and others (1987)
		25	1,730	e	EPICS	Ashworth and others (1988)
		25	1,880	e	BS	Ashworth and others (1988)
		25	1,360	e	EC	Tancrede and Yanagisawa (1990)
		25	1,790	e	SH	Robbins and others (1993)
		25	1,480	i	EPICS	Dewulf and others (1995)
			25°C av = 1,790			
39702	hexachlorobutadiene	20	2,510	e	NS	McConnell and others (1975)
		20	429	e	BS	Oliver (1985)
		25	1,040	e	BS	Warner and others (1987)
34030	benzene	20	441	i	EC	Leighton and Calo (1981)
		20	501	i	ME	Ioffe and Vitenberg (1982)
		20	746	e	EPICS	Yurteri and others (1987)
		20	458	e	EPICS	Ashworth and others (1988)
		20	387	i	EPICS	Dewulf and others (1995)
			20°C av = 507			
		25	562	e	BS	Mackay and others (1979)
		25	552	i	EC	Leighton and Calo (1981)
		25	612	i	ME	Ioffe and Vitenberg (1982)
		25	562	e	BS	Warner and others (1987)
		25	585	e	MIIF	Keeley and others (1988)
		25	535	e	EPICS	Ashworth and others (1988)
		25	588	e	BS	Ashworth and others (1988)
		25	535	e	SH	Robbins and others (1993)
		25	483	i	EPICS	Dewulf and others (1995)
			25°C av = 557			
34696	naphthalene	20	36.6	e	EPICS	Yurteri and others (1987)
		25	48.9	e	BS	Mackay and others (1979)

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34696	naphthalene (Continued)	25	56.0	e	BS	Southworth (1979)
		25	44.6	e	BS	Mackay and others (1982)
		25	74.4	e	WWC	Fendinger and Glotfelty (1990)
			25°C av = 56.0			
34010	methylbenzene	20	519	i	EC	Leighton and Calo (1981)
		20	530	i	ME	Ioffe and Vitenberg (1982)
		20	595	e	EPICS	Yurteri and others (1987)
		20	562	e	EPICS	Ashworth and others (1988)
		20	440	i	EPICS	Dewulf and others (1995)
			20°C av = 529			
		25	673	e	BS	Mackay and others (1979)
		25	642	i	EC	Leighton and Calo (1981)
		25	682	i	ME	Ioffe and Vitenberg (1982)
		25	647	e	EPICS	Garbarini and Lion (1985)
		25	601	e	BS	Warner and others (1987)
		25	605	e	MIIF	Keeley and others (1988)
		25	651	e	EPICS	Ashworth and others (1988)
		25	674	e	SH	Robbins and others (1993)
		25	563	i	EPICS	Dewulf and others (1995)
			25°C av = 638			
34371	ethylbenzene	20	609	e	EPICS	Ashworth and others (1988)
		20	509	i	EPICS	Dewulf and others (1995)
			20°C av = 559			
		25	854	e	BS	Mackay and others (1979)
		25	653	e	BS	Warner and others (1987)
		25	798	e	EPICS	Ashworth and others (1988)
		25	793	e	SH	Robbins and others (1993)
		25	681	i	EPICS	Dewulf and others (1995)
			25°C av = 756			
77224	n-propylbenzene	20	893	e	EPICS	Ashworth and others (1988)
		25	1,090	e	EPICS	Ashworth and others (1988)
77135	1,2-dimethylbenzene	20	426	e	EPICS	Yurteri and others (1987)
		20	480	e	EPICS	Ashworth and others (1988)
		20	322	i	EPICS	Dewulf and others (1995)
			20°C av = 409			
		25	493	e	EPICS	Ashworth and others (1988)
		25	534	e	SH	Robbins and others (1993)
		25	426	i	EPICS	Dewulf and others (1995)
			25°C av = 484			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
85795	1,3-dimethylbenzene	20	430	i	ME	Ioffe and Vitenberg (1982)
		20	606	e	EPICS	Ashworth and others (1988)
		20	481	i	EPICS	Dewulf and others (1995)
			20°C av = 506			
		25	547	i	ME	Ioffe and Vitenberg (1982)
		25	754	e	EPICS	Ashworth and others (1988)
		25	615	i	EPICS	Dewulf and others (1995)
			25°C av = 639			
85795	1,4-dimethylbenzene	20	654	e	EPICS	Ashworth and others (1988)
		20	456	i	EPICS	Dewulf and others (1995)
			20°C av = 555			
		25	754	e	EPICS	Ashworth and others (1988)
		25	762	e	BS	Ashworth and others (1988)
		25	605	i	EPICS	Dewulf and others (1995)
			25°C av = 707			
77222	1,2,4-trimethylbenzene	20	475	e	EPICS	Yurteri and others (1987)
34301	chlorobenzene	20	269	i	EC	Leighton and Calo (1981)
		20	319	e	EPICS	Yurteri and others (1987)
		20	346	e	EPICS	Ashworth and others (1988)
			20°C av = 311			
		25	328	i	EC	Leighton and Calo (1981)
		25	382	e	BS	Mackay and others (1979)
		25	315	e	BS	Mackay and Shiu (1981)
		25	398	e	BS	Warner and others (1987)
		25	365	e	EPICS	Ashworth and others (1988)
			25°C av = 358			
34536	1,2-dichlorobenzene	20	119	e	BS	Oliver (1985)
		20	170	e	EPICS	Ashworth and others (1988)
			20°C av = 144			
		25	193	e	BS	Mackay and Shiu (1981)
		25	197	e	BS	Warner and others (1987)
		25	159	e	EPICS	Ashworth and others (1988)
			25°C av = 183			
34566	1,3-dichlorobenzene	20	179	e	BS	Oliver (1985)
		20	298	e	EPICS	Ashworth and others (1988)
			20°C av = 238			
		25	266	e	BS	Warner and others (1987)
		25	289	e	EPICS	Ashworth and others (1988)
			25°C av = 278			

Table 2. Experimental and interpolated values of Henry's law constants at 20° Celsius and 25° Celsius for 43 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; e, experimental value; i, interpolated value calculated from the Henry's law constant-temperature relationship; NS, not specified; EPICS, equilibrium partitioning in closed systems; EC, equilibrium cell; BS, batch stripping; ME, multiple equilibration; MIIF, multiple injection interrupted flow; SH, static headspace; WWC, wetted-wall column; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H	e, i	Experimental technique	Reference
34571	1,4-dichlorobenzene	20	149	e	BS	Oliver (1985)
		20	190	e	EPICS	Yurteri and others (1987)
		20	262	e	EPICS	Ashworth and others (1988)
			20°C av = 200			
		25	240	e	BS	Mackay and Shiu (1981)
		25	276	e	BS	Warner and others (1987)
		25	321	e	EPICS	Ashworth and others (1988)
			25°C av = 279			
77613	1,2,3-trichlorobenzene	20	88.7	e	BS	Oliver (1985)
		25	127	e	BS	Mackay and Shiu (1981)
34551	1,2,4-trichlorobenzene	20	119	e	BS	Oliver (1985)
		20	185	e	EPICS	Ashworth and others (1988)
			20°C av = 152			
		25	144	e	BS	Warner and others (1987)
		25	195	e	EPICS	Ashworth and others (1988)
			25°C av = 170			
78032	methyl tertiary-butyl ether	25	64.3	e	SH	Robbins and others (1993)

Table 3. Henry's law constants excluded from the results presented in table 2 because they differed substantially from the average constants

[USGS, U.S. Geological Survey; °C, degrees Celsius; H, Henry's law constant, in pascals cubic meter per gram mole; av, arithmetic mean]

USGS parameter code	Compound	Temperature (°C)	H		Reference
			Table 2 av	Excluded value	
32106	trichloromethane	20	310	546	Munz and Roberts (1982)
34506	1,1,1-trichloroethane	20	1,380	3,430	McConnell and others (1975)
34506	1,1,1-trichloroethane	25	1,700	499	Warner and others (1987)
34488	trichlorofluoromethane	20	7,770	81,200	McConnell and others (1975)
34501	1,1-dichloroethene	20	2,380	15,200	McConnell and others (1975)
34501	1,1-dichloroethene	20	2,380	7,530	Yurteri and others (1987)

Table 4. Constants in the equation for the temperature dependence of the Henry's law constants of 39 target analytes

[USGS, U.S. Geological Survey; A, B, constants in the temperature dependence equation; °C, degrees Celsius; R, correlation coefficient; EPICS, equilibrium partitioning in closed systems; BS, batch stripping; nd, not determined]

USGS parameter code	Compound	A	B	Temperature range (°C)	R	Reference
34418	chloromethane	16.68	2,931	4.1–39.9	0.999	Glew and Moelwyn-Hughes (1953)
		20.79	4,190	10.3–34.6	.995	Gossett (1987)
34423	dichloromethane	17.86	3,602	1.9–24.9	.984	Leighton and Calo (1981)
		19.73	4,191	10–30	.994	Lincoff and Gossett (1984) (EPICS)
		20.56	4,472	10–30	.994	Lincoff and Gossett (1984) (BS)
		18.24	3,836	9.6–34.6	.971	Gossett (1987)
		20.01	4,268	10–30	.994	Ashworth and others (1988)
32106	trichloromethane	19.40	3,998	1.9–24.9	.996	Leighton and Calo (1981)
		20.08	4,180	10–30	.994	Lincoff and Gossett (1984) (EPICS)
		20.49	4,322	10–30	.997	Lincoff and Gossett (1984) (BS)
		23.43	5,200	10–30	.999	Nicholson and others (1984)
		20.28	4,274	10–30	.997	Munz and Roberts (1987)
		21.35	4,608	9.6–34.6	.998	Gossett (1987)
		22.94	5,030	10–30	.998	Ashworth and others (1988)
		20.63	4,382	2.0–25.0	.997	Dewulf and others (1995)
32102	tetrachloromethane	22.63	4,385	1.0–27.2	.997	Leighton and Calo (1981)
		18.57	3,211	5–33	nd	Hunter-Smith and others (1983)
		22.28	4,250	10–30	.998	Munz and Roberts (1987)
		22.78	4,404	10.0–34.6	.998	Gossett (1987)
		21.27	3,951	10–30	.998	Ashworth and others (1988)
		22.57	4,363	25–47.2	.952	Tancrede and Yanagisawa (1990)
		22.41	4,341	2.0–25.0	.986	Dewulf and others (1995)
34413	bromomethane	17.32	3,248	5.0–40.1	.998	Glew and Moelwyn-Hughes (1953)
32104	tribromomethane	23.13	5,670	10–30	1.000	Nicholson and others (1984)
		19.68	4,679	10–30	.999	Munz and Roberts (1987)
32101	bromodichloromethane	22.83	5,210	10–30	.999	Nicholson and others (1984)
32105	chlorodibromomethane	22.23	5,210	10–30	1.000	Nicholson and others (1984)
		26.15	6,373	10–30	.956	Ashworth and others (1988)
34311	chloroethane	17.51	3,124	10.3–34.6	1.000	Gossett (1987)
		15.80	2,580	10–30	.992	Ashworth and others (1988)
34496	1,1-dichloroethane	20.17	4,131	9.6–34.6	.997	Gossett (1987)
		17.01	3,137	10–30	.996	Ashworth and others (1988)
		20.99	4,404	2.0–25.0	.983	Dewulf and others (1995)
32103	1,2-dichloroethane	16.83	3,513	1.0–27.2	.998	Leighton and Calo (1981)
		10.16	1,522	10–30	.937	Ashworth and others (1988)
		18.49	4,141	2.0–25.0	.975	Dewulf and others (1995)
34506	1,1,1-trichloroethane	22.09	4,324	1.0–26.1	.998	Leighton and Calo (1981)
		17.95	3,207	5–33	nd	Hunter-Smith and others (1983)
		21.74	4,262	10–30	.999	Lincoff and Gossett (1984) (EPICS)
		21.50	4,186	10–30	.999	Lincoff and Gossett (1984) (BS)
		21.07	4,061	10–30	1.000	Munz and Roberts (1987)
		21.29	4,130	9.6–34.6	.997	Gossett (1987)
		18.88	3,399	10–30	.999	Ashworth and others (1988)
		18.12	3,169	25–50	.985	Robbins and others (1993)
		21.74	4,299	2.0–25.0	.996	Dewulf and others (1995)

Table 4. Constants in the equation for the temperature dependence of the Henry's law constants of 39 target analytes—Continued

[USGS, U.S. Geological Survey; A, B, constants in the temperature dependence equation; °C, degrees Celsius; R, correlation coefficient; EPICS,

USGS parameter code	Compound	A	B	Temperature range (°C)	R	Reference
34511	1,1,2-trichloroethane	16.65	3,647	2.5–26.1	0.996	Leighton and Calo (1981)
		20.85	4,843	10–30	.984	Ashworth and others (1988)
34396	hexachloroethane	24.88	5,637	10–30	.987	Munz and Roberts (1987)
		15.27	2,550	10–30	.876	Ashworth and others (1988)
77651	1,2-dibromoethane	17.23	3,876	10–30	.963	Ashworth and others (1988)
34541	1,2-dichloropropane	20.02	4,282	1.9–24.9	.998	Leighton and Calo (1981)
		21.37	4,708	10–30	.906	Ashworth and others (1988)
77443	1,2,3-trichloropropane	15.07	3,438	13.6–24.9	.944	Leighton and Calo (1981)
		16.77	4,070	26.5–45.0	.989	Tancrede and Yanagisawa (1990)
34488	trichlorofluoromethane	18.05	2,665	5–33	nd	Hunter-Smith and others (1983)
		22.13	3,875	0.85–40.8	.997	Warner and Weiss (1985)
		21.01	3,513	10–30	.999	Ashworth and others (1988)
34668	dichlorodifluoromethane	22.18	3,515	10–30	.999	Munz and Roberts (1987)
		21.91	3,432	0.85–40.8	.997	Warner and Weiss (1985)
77652	1,1,2-trichloro-1,2,2-trifluoroethane	21.18	3,243	10–30	.965	Ashworth and others (1988)
		24.97	4,348	0.04–39.6	.997	Bu and Warner (1995)
39175	chloroethene	18.89	3,281	10.3–34.6	.994	Gossett (1987)
		17.67	2,931	10–30	.985	Ashworth and others (1988)
34501	1,1-dichloroethene	23.52	4,564	2.5–26.1	.981	Leighton and Calo (1981)
		20.38	3,734	10.0–34.6	.997	Gossett (1987)
		17.65	2,907	10–30	.987	Ashworth and others (1988)
77093	*cis*-1,2-dichloroethene	20.01	4,196	10.3–34.6	.990	Gossett (1987)
		16.69	3,143	10–30	.987	Ashworth and others (1988)
34546	*trans*-1,2-dichloroethene	20.92	4,198	10.0–34.6	.997	Gossett (1987)
		16.86	2,964	10–30	.992	Ashworth and others (1988)
39180	trichloroethene	22.29	4,592	1.0–26.1	.998	Leighton and Calo (1981)
		23.47	4,929	10–30	.996	Lincoff and Gossett (1984)(EPICS)
		21.23	4,308	10–30	.990	Lincoff and Gossett (1984)(BS)
		22.67	4,690	10–30	.998	Munz and Roberts (1987)
		23.02	4,821	9.6–34.6	.998	Gossett (1987)
		19.38	3,702	10–30	.999	Ashworth and others (1988)
		18.73	3,510	25–50	.989	Robbins and others (1993)
		22.92	4,856	25–47.2	.942	Tancrede and Yanagisawa (1990)
		23.05	4,857	2.0–25.0	.994	Dewulf and others (1995)
34475	tetrachloroethene	23.08	4,679	1.0–26.1	.997	Leighton and Calo (1981)
		24.65	5,119	10–30	.997	Lincoff and Gossett (1984) (EPICS)
		22.85	4,622	10–30	1.000	Lincoff and Gossett (1984) (BS)
		22.43	4,443	10–30	.998	Munz and Roberts (1987)
		24.01	4,931	9.6–34.6	.998	Gossett (1987)
		22.18	4,368	10–30	.993	Ashworth and others (1988)
		26.10	5,566	25–47.2	.926	Tancrede and Yanagisawa (1990)
		19.50	3,580	25–45	.987	Robbins and others (1993)
		24.05	4,993	2.0–25.0	.999	Dewulf and others (1995)

Table 4. Constants in the equation for the temperature dependence of the Henry's law constants of 39 target analytes—Continued

[USGS, U.S. Geological Survey; A, B, constants in the temperature dependence equation; °C, degrees Celsius; R, correlation coefficient; EPICS,

USGS parameter code	Compound	A	B	Temperature range (°C)	R	Reference
34030	benzene	19.45	3,918	1.0–27.2	0.998	Leighton and Calo (1981)
		18.22	3,518	10–30	.998	Ioffe and Vitenberg (1982)
		17.06	3,194	10–30	.984	Ashworth and others (1988)
		18.92	3,768	25–50	.990	Robbins and others (1993)
		19.22	3,887	2.0–25.0	.996	Dewulf and others (1995)
34010	methylbenzene	18.90	3,707	1.0–23.0	.996	Leighton and Calo (1981)
		21.31	4,408	10–30	.999	Ioffe and Vitenberg (1982)
		16.66	3,024	10–30	.991	Ashworth and others (1988)
		17.86	3,382	25–50	.994	Robbins and others (1993)
		20.81	4,317	2.0–25.0	.996	Dewulf and others (1995)
34371	ethylbenzene	23.45	4,994	10–30	1.000	Ashworth and others (1988)
		22.19	4,624	25–40	1.000	Robbins and others (1993)
		23.60	5,092	2.0–25.0	.989	Dewulf and others (1995)
77224	n-propylbenzene	19.36	3,681	10–30	.998	Ashworth and others (1988)
77135	1,2-dimethylbenzene	17.07	3,220	10–30	.983	Ashworth and others (1988)
		17.68	3,398	25–50	.961	Robbins and others (1993)
		22.40	4,872	2.0–25.0	.960	Dewulf and others (1995)
85795	1,3-dimethylbenzene	20.37	4,193	10–30	.981	Ioffe and Vitenberg (1982)
		17.81	3,337	10–30	.999	Ashworth and others (1988)
		20.89	4,315	2.0–25.0	.978	Dewulf and others (1995)
85795	1,4-dimethylbenzene	18.46	3,520	10–30	.994	Ashworth and others (1988)
		22.88	4,912	2.0–25.0	.966	Dewulf and others (1995)
34301	chlorobenzene	17.28	3,424	1.0–23.0	.986	Leighton and Calo (1981)
		15.00	2,689	10–30	.982	Ashworth and others (1988)
34536	1,2-dichlorobenzene	10.01	1,422	10–30	.681	Ashworth and others (1988)
34566	1,3-dichlorobenzene	14.41	2,564	10–30	.922	Ashworth and others (1988)
34571	1,4-dichlorobenzene	14.90	2,720	10–30	.970	Ashworth and others (1988)
34551	1,2,4-trichlorobenzene	18.89	4,028	10–30	.904	Ashworth and others (1988)
78032	methyl tertiary-butyl ether	30.06	7,721	25–50	.981	Robbins and others (1993)

Table 6. Water-film and air-film reference-substance parameters for the target analytes

[USGS, U.S. Geological Survey; Φ, water-film reference-substance parameter; Ψ, air-film reference-substance parameter]

USGS parameter code	Compound	Φ	Ψ
34418	chloromethane	0.774	0.722
34423	dichloromethane	.697	.568
32106	trichloromethane	.645	.485
32102	tetrachloromethane	.607	.432
34413	bromomethane	.763	.539
32104	tribromomethane	.631	.343
32101	bromodichloromethane	.640	.419
32105	chlorodibromomethane	.636	.375
34311	chloroethane	.694	.645
34496	1,1-dichloroethane	.643	.529
32103	1,2-dichloroethane	.643	.529
34506	1,1,1-trichloroethane	.605	.461
34511	1,1,2-trichloroethane	.605	.461
34396	hexachloroethane	.530	.354
77651	1,2-dibromoethane	.633	.393
34541	1,2-dichloropropane	.603	.498
77443	1,2,3-trichloropropane	.574	.440
82625	1,2-dibromo-3-chloropropane	.568	.354
34488	trichlorofluoromethane	.635	.455
34668	dichlorodifluoromethane	.670	.482
77652	1,1,2-trichloro-1,2,2-trifluoroethane	.583	.394
39175	chloroethene	.716	.654
34501	1,1-dichloroethene	.659	.534
77093	*cis*-1,2-dichloroethene	.659	.534
34546	*trans*-1,2-dichloroethene	.659	.534
39180	trichloroethene	.617	.464
34475	tetrachloroethene	.585	.417
50002	bromoethene	.709	.510
34704	*cis*-1,3-dichloropropene	.615	.502
34699	*trans*-1,3-dichloropropene	.615	.502
39702	hexachlorobutadiene	.506	.338
34030	benzene	.638	.590
77128	styrene	.578	.517
34696	naphthalene	.560	.470
34010	methylbenzene	.599	.547
34371	ethylbenzene	.569	.512
77224	n-propylbenzene	.544	.484
77223	iso-propylbenzene	.544	.484
77342	n-butylbenzene	.524	.460

Table 6. Water-film and air-film reference-substance parameters for the target analytes—Continued

[USGS, U.S. Geological Survey; Φ, water-film reference-substance parameter; Ψ, air-film reference-substance parameter]

USGS parameter code	Compound	Φ	Ψ
77135	1,2-dimethylbenzene	0.569	0.512
85795	1,3-dimethylbenzene	.569	.512
85795	1,4-dimethylbenzene	.569	.512
77222	1,2,4-trimethylbenzene	.544	.484
34301	chlorobenzene	.601	.499
34536	1,2-dichlorobenzene	.572	.441
34566	1,3-dichlorobenzene	.572	.441
34571	1,4-dichlorobenzene	.572	.441
77613	1,2,3-trichlorobenzene	.548	.400
34551	1,2,4-trichlorobenzene	.548	.400
78032	methyl tertiary-butyl ether	.583	.558
50004	ethyl tertiary-butyl ether	.556	.521
50005	tertiary-amyl methyl ether	.556	.521
81577	diisopropyl ether	.556	.521
34210	2-propenal	.712	.688
34215	2-propenenitrile	.698	.706

Table 8. Experimental values of gas scavenging ratios for 11 target analytes

[USGS, U.S. Geological Survey; °C, degrees Celsius; W_g, mean value of the gas scavenging ratio; ±, one standard deviation; nd, not determined]

USGS parameter code	Compound	Temperature (°C)	W_g	Reference
39180	trichloroethene	8	3.7 ± 1.3	Ligocki and others (1985)
34475	tetrachloroethene	8	3.6 ± 1.1	Ligocki and others (1985)
34696	naphthalene	11	230 ± nd	Pankow and others (1984)
		8	250 ± 73	Ligocki and others (1985)
34010	methylbenzene	8	22 ± 5	Ligocki and others (1985)
		7	31 ± 9	Hart and others (1993)
		–1	42 ± 16	Hart and others (1993)
34371	ethylbenzene	8	27 ± 11	Ligocki and others (1985)
		7	32 ± 48	Hart and others (1993)
		–1	36 ± 34	Hart and others (1993)
77135	1,2-dimethylbenzene	8	35 ± 15	Ligocki and others (1985)
		7	69 ± 53	Hart and others (1993)
		–1	94 ± 66	Hart and others (1993)
85795	1,3-,1,4-dimethylbenzene	8	33 ± 17	Ligocki and others (1985)
		7	70 ± 70	Hart and others (1993)
		–1	67 ± 50	Hart and others (1993)
77222	1,2,4-trimethylbenzene	8	27 ± 9	Ligocki and others (1985)
		7	54 ± 44	Hart and others (1993)
		–1	52 ± 40	Hart and others (1993)
34536	1,2-dichlorobenzene	8	46 ± 13	Ligocki and others (1985)
34571	1,4-dichlorobenzene	11	44 ± nd	Pankow and others (1984)
		8	39 ± 10	Ligocki and others (1985)
34551	1,2,4-trichlorobenzene	8	66 ± 51	Ligocki and others (1985)

Table 9. Estimated rate coefficients for anaerobic microbial degradation of six target analytes with estimated half-lives for aerobic microbial degradation between 6 months (K'_d = 0.0038 day^{-1}) and 1 year (K'_d = 0.0019 day^{-1})

[K'_d, pseudo first-order rate coefficient for microbial degradation; USGS, U.S. Geological Survey]

USGS parameter code	Compound	Anaerobic rate coefficient (day^{-1})	
		High	Low
32102	tetrachloromethane	0.099	0.025
34511	1,1,2-trichloroethane	.00096	.00048
34488	trichlorofluoromethane	.0010	.00048
77652	1,1,2-trichloro-1,2,2-trifluoroethane	.00096	.00048
39180	trichloroethene	.0071	.00042
34475	tetrachloroethene	.0071	.00042

Table 10. Estimated and experimental rate coefficients for anaerobic microbial degradation of 15 target analytes with estimated half-lives for aerobic microbial degradation between 4 weeks (K'_d = 0.025 day^{-1}) and 6 months (K'_d = 0.0038 day^{-1})

[K'_d, pseudo first-order rate coefficient for microbial degradation; USGS, U.S. Geological Survey; *, indicates experimental value]

USGS parameter code	Compound	Anaerobic rate coefficient (day^{-1})	
		High	Low
32106	trichloromethane	0.099	0.025
32104	tribromomethane	.0062	.00096
32105	chlorodibromomethane	.025	.0038
34396	hexachloroethane	.0062	.00096
77651	1,2-dibromoethane	.35*	.046*
82625	1,2-dibromo-3-chloropropane	.0058	.00096
34668	dichlorodifluoromethane	.0062	.0010
39175	chloroethene	.0062	.00096
34501	1,1-dichloroethene	.0086	.0040
50002	bromoethene	.0058	.00096
34536	1,2-dichlorobenzene	.0058	.00096
34566	1,3-dichlorobenzene	.0058	.00096
34571	1,4-dichlorobenzene	.0062	.00096
34551	1,2,4-trichlorobenzene	.0062	.00096
78032	methyl tertiary-butyl ether	.0062	.00096

Table 11. Estimated rate coefficients for anaerobic microbial degradation of eight target analytes with estimated half-lives for aerobic microbial degradation between 7 days (K'_d = 0.099 day^{-1}) and 4 weeks (K'_d = 0.025 day^{-1})

[K'_d, pseudo first-order rate coefficient for microbial degradation; USGS, U.S. Geological Survey]

USGS parameter code	Compound	Anaerobic rate coefficient (day^{-1})	
		High	Low
34418	chloromethane	0.025	0.0062
34423	dichloromethane	.025	.0062
34413	bromomethane	.025	.0062
34311	chloroethane	.025	.0062
77135	1,2-dimethylbenzene	.0038	.0019
85795	1,3-dimethylbenzene	.025	.0013
85795	1,4-dimethylbenzene	.025	.0062
77222	1,2,4-trimethylbenzene	.025	.0062

Table 12. Estimated and experimental rate coefficients for aerobic and anaerobic microbial degradation of 13 target analytes

[USGS, U.S. Geological Survey; *, indicates experimental value]

USGS parameter code	Compound	Aerobic rate coefficient (day^{-1})		Anaerobic rate coefficient (day^{-1})	
		High	Low	High	Low
34496	1,1-dichloroethane	0.022	0.0045	0.0054	0.0011
32103	1,2-dichloroethane	.0069	.0038	.0017	.00096
34506	1,1,1-trichloroethane	.0050	.0025	.0012	.00063
34541	1,2-dichloropropane	.0042	.00054	.0010	.00013
34030	benzene	.14*	.043*	.0062	.00096
77128	styrene	.050	.025	.012	.0062
34696	naphthalene	1.39*	.035*	.028*	.0027*
34010	methylbenzene	.17	.032	.012	.0033
34371	ethylbenzene	.23	.069	.0039	.0030
77223	iso-propylbenzene	.35*	.087*	.087	.022
34301	chlorobenzene	.010	.0046	.0025	.0012
34210	2-propenal	.099	.025	.025	.0058
34215	2-propenenitrile	.55	.030	.14	.0075

Table 13. Classification of sediments according to grain size (from Chow, 1964)

[mm, millimeter; μm, micrometer (10^{-6} meter); >, greater than; <, less than]

Class	Grain size
Gravel, boulders	>2 mm
Sand	<2 mm, >64 μm
Silt	<64 μm, >5 μm
Clay	<5 μm, >0.5 μm
Colloid	<0.5 μm

Table 14. Threshold values of the ratio of the mineral fraction to the organic-carbon fraction at which mineral adsorption becomes important for three types of organic compounds (from Karickhoff, 1984)

[K_{oc}, sorption coefficient normalized with the organic-carbon fraction by weight; K_m, mineral sorption coefficient; cm, fraction by weight of mineral in the sediment; oc, fraction by weight of organic carbon in the sediment; <, less than; >, greater than; C_{10} denotes molecule with 10 carbon atoms]

Type of compound	$\frac{K_{oc}}{K_m}$	Threshold $\frac{cm}{oc}$
Neutral organics with polar functional groups	10–50	25–60
Small nonpolar organics ($<C_{10}$)	50–100	>60
Large nonpolar organics ($>C_{10}$)	>100	insignificant at any value

Table 15. Experimental sorption coefficients for 27 target analytes

[USGS, U.S. Geological Survey; f_{oc}, fraction of organic carbon by weight; K_{oc}, sorption coefficient normalized with the fraction by weight of organic carbon; L/kg oc, liter per kilogram of organic carbon; ns, not specified; mg/L, milligram per liter; <, less than; >, greater than]

USGS parameter code	Compound	Sorbent	f_{oc}	K_{oc} (L/kg oc)	Reference
34423	dichloromethane	3 sewage solids	0.38–0.49	198	Dobbs and others (1989)
32106	trichloromethane	3 sewage solids	0.38–0.49	243	Dobbs and others (1989)
32102	tetrachloromethane	3 sewage solids	0.38–0.49	771	Dobbs and others (1989)
		Extracted peat	0.640	115	Rutherford and others (1992)
		Peat	0.571	78	Rutherford and others (1992)
		Muck	0.531	52	Rutherford and others (1992)
		Cellulose	0.444	4	Rutherford and others (1992)
		32 soils	0.0016–0.0609	60	Kile and others (1995)
		36 sediments	0.0011–0.0473	102	Kile and others (1995)
32103	1,2-dichloroethane	Soil	0.0093	33	Chiou and others (1979)
34506	1,1,1-trichloroethane	Soil	0.0093	179	Chiou and others (1979)
		32 soils	0.0012–0.31	107	Friesel and others (1984)
34511	1,1,2-trichloroethane	3 soils	0.002	60	Seip and others (1986)
			0.022	64	Seip and others (1986)
			0.037	108	Seip and others (1986)
77651	1,2-dibromoethane	Soils	<0.087	32	Hamaker and Thompson (1972)
		Soils	>0.087	14	Hamaker and Thompson (1972)
		Soil	0.0093	62	Chiou and others (1979)
		Soils	ns	44	Kenaga and Goring (1980)
		Soils	0.00290–0.126	36–160	Mingelgrin and Gerstl (1983)
		3 soils	0.011	135	Steinberg and others (1987)
			0.0161	129	Steinberg and others (1987)
			0.0165	103	Steinberg and others (1987)
34541	1,2-dichloropropane	Soil	0.0093	47	Chiou and others (1979)
82625	1,2-dibromo-3-chloropropane	Soil	0.0093	129	Chiou and others (1979)
		Soils	ns	129	Kenaga and Goring (1980)
34501	1,1-dichloroethene	3 sewage solids	0.38–0.49	293	Dobbs and others (1989)
39180	trichloroethene	32 soils	0.0012–0.31	101	Friesel and others (1984)
		3 soils	0.002	72	Seip and others (1986)
			0.022	96	Seip and others (1986)
			0.037	142	Seip and others (1986)
		7 organic compounds	0.12–0.65	2.0–120	Garbarini and Lion (1986)
		5 soil fractions	0.0014–0.833	106–460	Garbarini and Lion (1986)
		Peat	0.571	58	Rutherford and Chiou (1992)
34475	tetrachloroethene	Soil	0.0093	362	Chiou and others (1979)
		Aquifer material	0.0015	373	Schwarzenbach and Westall (1981)
		32 soils	0.0012–0.31	237	Friesel and others (1984)
		3 soils	0.002	177	Seip and others (1986)
			0.022	205	Seip and others (1986)
			0.037	348	Seip and others (1986)
		3 sewage solids	0.38–0.49	1,720	Dobbs and others (1989)
34704	*cis*-1,3-dichloropropene	Soils	<0.087	26	Hamaker and Thompson (1972)
			>0.087	27	Hamaker and Thompson (1972)
34699	*trans*-1,3-dichloropropene	Soils	<0.087	28	Hamaker and Thompson (1972)
			>0.087	27	Hamaker and Thompson (1972)

Table 15. Experimental sorption coefficients for 27 target analytes—Continued

[USGS, U.S. Geological Survey; f_{oc}, fraction of organic carbon by weight; K_{oc}, sorption coefficient normalized with the fraction by weight of organic carbon; L/kg oc, liter per kilogram of organic carbon; ns, not specified; mg/L, milligram per liter; <, less than; >, greater than]

USGS parameter code	Compound	Sorbent	f_{oc}	K_{oc} (L/kg oc)	Reference
34030	benzene	3 sediments	0.00086–0.0329	83	Karickhoff and others (1979)
		2 soils	0.026	100	Rogers and others (1980)
			0.018	92	Rogers and others (1980)
		17 sediments and soils	0.0011–0.0238	60	Karickhoff (1981)
		Soil	0.0093	31	Chiou and others (1983)
		3 soils	0.002	38	Seip and others (1986)
			0.022	44	Seip and others (1986)
			0.037	54	Seip and others (1986)
		2 soils	0.0094	31	Boyd and others (1990)
			0.0184	38	Boyd and others (1990)
		Corn residues	0.427	40	Boyd and others (1990)
		Plant cuticle	0.99	155	Boyd and others (1990)
		Extracted peat	0.640	32	Rutherford and others (1992)
		Peat	0.571	22	Rutherford and others (1992)
		Muck	0.531	14	Rutherford and others (1992)
		Cellulose	0.444	1	Rutherford and others (1992)
34696	naphthalene	3 sediments	0.00086–0.0329	1,300	Karickhoff and others (1979)
		17 sediments and soils	0.0011–0.0238	870	Karickhoff (1981)
		2 sediments	0.029		Voice and others (1983)
		(10 mg/L)	0.038	14,400	Voice and others (1983)
		(100 mg/L)		3,860	
		(300 mg/L)		2,070	
		(10 mg/L)		12,900	
		(100 mg/L)		4,260	
		(300 mg/L)		2,530	
		Soil	0.051	804	Whitman and others (1995)
34010	methylbenzene	Aquifer material	0.0015	247	Schwarzenbach and Westall (1981)
		2 soils	0.0023	77	Garbarini and Lion (1985)
			0.0041	191	Garbarini and Lion (1985)
		7 organic compounds	0.12–0.65	0.05–151	Garbarini and Lion (1986)
		4 soil fractions	0.0014–0.0751	151–348	Garbarini and Lion (1986)
		3 soils	0.002	56	Seip and others (1986)
			0.022	94	Seip and others (1986)
			0.037	134	Seip and others (1986)
34371	ethylbenzene	Soil	0.0093	165	Chiou and others (1983)
		2 soils	0.0094	112	Boyd and others (1990)
			0.0184	187	Boyd and others (1990)
		Corn residues	0.427	132	Boyd and others (1990)
		Plant cuticle	0.99	1,630	Boyd and others (1990)
77342	n-butylbenzene	Aquifer material	0.0015	2,460	Schwarzenbach and Westall (1981)
85795	1,3-dimethylbenzene	3 soils	0.002	129	Seip and others (1986)
			0.022	158	Seip and others (1986)
			0.037	289	Seip and others (1986)
85795	1,4-dimethylbenzene	Aquifer material	0.0015	333	Schwarzenbach and Westall (1981)

Table 15. Experimental sorption coefficients for 27 target analytes—Continued

[USGS, U.S. Geological Survey; f_{oc}, fraction of organic carbon by weight; K_{oc}, sorption coefficient normalized with the fraction by weight of organic carbon; L/kg oc, liter per kilogram of organic carbon; ns, not specified; mg/L, milligram per liter; <, less than; >, greater than]

USGS parameter code	Compound	Sorbent	f_{oc}	K_{oc} (L/kg oc)	Reference
34301	chlorobenzene	Aquifer material	0.0015	260	Schwarzenbach and Westall (1981)
		Soil	0.0093	83	Chiou and others (1983)
		2 sediments	0.029		Voice and others (1983)
		(10 mg/L)		5,000	
		(100 mg/L)		690	
		(300 mg/L)		269	
			0.038		Voice and others (1983)
		(10 mg/L)		6,200	
		(100 mg/L)		1,240	
		(300 mg/L)		579	
		3 sewage solids	0.38–0.49	753	Dobbs and others (1989)
34536	1,2-dichlorobenzene	Soil	0.0093	310	Chiou and others (1979)
		Soil	0.0093	321	Chiou and others (1983)
		Peaty soil	0.17	529	Friesel and others (1984)
		32 soils	0.0016–0.0609	290	Kile and others (1995)
		36 sediments	0.0011–0.0473	502	Kile and others (1995)
34556	1,3-dichlorobenzene	Soil	0.0093	293	Chiou and others (1983)
		Peaty soil	0.17	478	Friesel and others (1984)
34571	1,4-dichlorobenzene	Aquifer material	0.0015	733	Schwarzenbach and Westall (1981)
		Soil	0.0093	273	Chiou and others (1983)
		Peaty soil	0.17	429	Friesel and others (1984)
		Sediment	0.0816	1,070	Wu and Gschwend (1986)
77613	1,2,3-trichlorobenzene	Aquifer material	0.0015	2,650	Schwarzenbach and Westall (1981)
		2 soils	0.0094	1,380	Boyd and others (1990)
			0.0184	1,630	Boyd and others (1990)
		Corn residues	0.427	1,050	Boyd and others (1990)
		Plant cuticle	0.99	14,800	Boyd and others (1990)
34551	1,2,4-trichlorobenzene	Aquifer material	0.0015	2,350	Schwarzenbach and Westall (1981)
		Soil	0.0093	864	Chiou and others (1983)
		Peaty soil	0.17	1,440	Friesel and others (1984)
		Sediment	0.0816	3,250	Wu and Gschwend (1986)

Table 17. Predicted sorption coefficients for 28 target analytes

[USGS, U.S. Geological Survey; K_{oc}, sorption coefficient normalized with the fraction by weight of organic carbon; eq., equation]

USGS parameter code	Compound	K_{oc} (liter per kilogram of organic carbon)							
	Halogenated alkanes	**eq. 78**	**eq. 79**				**eq. 86**	**eq. 87**	**eq. 89**
34418	chloromethane	30.0	47.6				38.8	74.5	16.6
34413	bromomethane	23.6	41.2				21.7	106	16.6
32104	tribromomethane	99.4	98.3				52.2	447	39.9
32101	bromodichloromethane	80.4	86.5				53.7	331	39.9
32105	chlorodibromomethane	101	99.2				59.0	394	39.9
34311	chloroethane	33.1	50.6				37.4	143	27.2
34496	1,1-dichloroethane	43.9	60.0				39.0	224	39.9
34396	hexachloroethane	1,350	476				710	3,270	245
77443	1,2,3-trichloropropane	97.2	97.0				68.7	430	145
34488	trichlorofluoromethane	109	104				80.3	567	55.0
34668	dichlorodifluoromethane	223	160				174	356	55.0
77652	1,1,2-trichloro-1,2,2-trifluoroethane	220	159				135	1,250	245
	Halogenated alkenes	**eq. 78**	**eq. 79**				**eq. 86**	**eq. 87**	**eq. 89**
39175	chloroethene	49.5	64.5				56.6	134	27.2
77093	*cis*-1,2-dichloroethene	54.8	68.6				49.1	245	49.6
34546	*trans*-1,2-dichloroethene	39.5	56.2				35.5	315	49.6
50002	bromoethene	30.7	48.3				26.3	160	27.2
39702	hexachlorobutadiene	4,660	1,010				2,290	9,490	1050
	Aromatic hydrocarbon	**eq. 80**	**eq. 81**	**eq. 82**	**eq. 84**	**eq. 85**	**eq. 86**	**eq. 87**	**eq. 89**
77128	styrene	605	537	364	135	131	203	947	555
	Alkyl benzenes				**eq. 83**	**eq. 84**	**eq. 85**	**eq. 86**	**eq. 87**	**eq. 89**
77224	n-propylbenzene				1,360	497	597	502	2,360	1,010
77223	iso-propylbenzene				1,170	440	495	459	2,110	1,300
77135	1,2-dimethylbenzene				502	156	171	224	1,110	477
77222	1,2,4-trimethylbenzene				1,630	464	750	477	2,710	764
	Ethers and other compounds							**eq. 86**	**eq. 87**	**eq. 89**
78032	methyl tertiary-butyl ether							13.6	77.3	108
50004	ethyl tertiary-butyl ether							24.9	160	196
50005	tertiary-amyl methyl ether							27.8	160	210
81577	diisopropyl ether							34.2	160	212
34210	2-propenal							5.2	21.3	38.7
34215	2-propenenitrile							8.8	7.5	49.6

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
34418	chloromethane	7	25	1.14×10^{0}	Radding and others (1977)
		7	25	9.3×10^{-1}	Mabey and Mill (1978)
		7	25	1.16×10^{0}	Mabey and others (1982)
		7	25	3.58×10^{4}	Washington (1995)
		7	10	3.16×10^{5}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	9.00×10^{5}	Washington (1995)
		5.6	10	7.93×10^{5}	Washington (1995)
		B	NS	HPHI	Mabey and others (1982)
		NS	20	2.5×10^{0}	Callahan and others (1979)
34423	dichloromethane	7	25	7.04×10^{2}	Radding and others (1977)
		7	25	6.87×10^{2}	Mabey and Mill (1978)
		7	25	6.93×10^{2}	Kollig (1993)
		7	25	1.05×10^{7}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	2.65×10^{8}	Washington (1995)
		5.6	10	2.77×10^{9}	Washington (1995)
		B	NS	HPHI	Mabey and others (1982)
		NS	20	$\cong1.5\times10^{0}$	Dilling and others (1975)
32106	trichloromethane	7	25	3.5×10^{3}	Radding and others (1977)
		7	25	3.16×10^{4}	Mabey and others (1982)
		7	25	1.85×10^{3}	Jeffers and others (1989)
		7	25	6.93×10^{3}	Kollig (1993)
		7	25	1.76×10^{3}	Washington (1995)
		7	10	1.80×10^{4}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	5.93×10^{3}	Washington (1995)
		5.6	10	7.85×10^{4}	Washington (1995)
		NS	25	$\cong1.25\times10^{0}$	Dilling and others (1975)
32102	tetrachloromethane	7	25	7.0×10^{3} (1 mg/L)	Radding and others (1977)
		7	25	7.0×10^{0} (10^{3} mg/L)	Radding and others (1977)
		7	25	4.05×10^{1}	Jeffers and others (1989)
		7	25	4.08×10^{1}	Kollig (1993)
		7	25	3.81×10^{1}	Washington (1995)
		7	25	4.0×10^{1}	Jeffers and others (1996)
		7	10	4.41×10^{2}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	3.81×10^{1}	Washington (1995)
		5.6	10	4.41×10^{2}	Washington (1995)
		B	NS	HPHI	Mabey and others (1982)

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
34413	bromomethane	7	25	5.5×10^{-2}	Radding and others (1977)
		7	25	5.4×10^{-2}	Howard and others (1991)
		7	20	1.04×10^{-1}	Howard and others (1991)
		A	NS	NACM	Mabey and others (1982)
		B	NS	HPHI	Mabey and others (1982)
		NS	25	7.3×10^{-2}	Mackay and others (1993)
32104	tribromomethane	7	25	6.86×10^{2}	Radding and others (1977)
		7	25	6.90×10^{2}	Washington (1995)
		7	10	6.85×10^{3}	Washington (1995)
		A	NS	HNES	Mabey and others (1982)
		5.6	25	1.73×10^{4}	Washington (1995)
		5.6	10	1.72×10^{5}	Washington (1995)
32101	bromodichloromethane	7	25	1.37×10^{2}	Mabey and Mill (1978)
		7	25	1.28×10^{2}	Washington (1995)
		7	10	1.26×10^{3}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	3.23×10^{3}	Washington (1995)
		5.6	10	3.18×10^{4}	Washington (1995)
32105	chlorodibromomethane	7	25	2.74×10^{2}	Mabey and Mill (1978)
		7	25	2.77×10^{2}	Washington (1995)
		7	10	2.97×10^{3}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	6.96×10^{3}	Washington (1995)
		5.6	10	7.46×10^{4}	Washington (1995)
34311	chloroethane	7	25	1.10×10^{-1}	Radding and others (1977)
		7	25	1.04×10^{-1}	Mabey and Mill (1978)
		7	25	2.54×10^{0}	Washington (1995)
		7	25	2.6×10^{0}	Jeffers and Wolfe (1996)
		7	10	2.72×10^{1}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	2.54×10^{0}	Washington (1995)
		5.6	10	2.72×10^{1}	Washington (1995)
		B	NS	HPHI	Mabey and others (1982)
34496	1,1-dichloroethane	7	25	6.88×10^{2}	Mabey and others (1982)
		7	25	6.13×10^{1}	Jeffers and others (1989)
		7	25	5.82×10^{1}	Washington (1995)
		7	10	6.06×10^{2}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	5.82×10^{1}	Washington (1995)
		5.6	10	6.06×10^{2}	Washington (1995)

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
32103	1,2-dichloroethane	7	25	5.0×10^{4}	Radding and others (1977)
		7	25	4.4×10^{4}	Mabey and others (1982)
		7	25	7.2×10^{1}	Jeffers and others (1989)
		7	25	7.00×10^{1}	Washington (1995)
		7	25	7.15×10^{1}	Jeffers and Wolfe (1996)
		7	10	6.44×10^{2}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	7.01×10^{1}	Washington (1995)
		5.6	10	6.44×10^{2}	Washington (1995)
34506	1,1,1-trichloroethane	7	25	1.1×10^{0}	Jeffers and others (1989)
		7	25	7.3×10^{-1}	Mackay and others (1993)
		7	25	1.08×10^{0}	Kollig (1993)
		7	25	8.26×10^{-1}	Washington (1995)
		7	10	1.03×10^{1}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	8.26×10^{-1}	Washington (1995)
		5.6	10	1.03×10^{1}	Washington (1995)
		NS	25	5.0×10^{-1}	Dilling and others (1975)
		NS	25	9.6×10^{-1}	Haag and Mill (1988)
34511	1,1,2-trichloroethane	7	25	1.39×10^{2}	Jeffers and others (1989)
		7	25	2.54×10^{4}	Kollig (1993)
		7	25	3.7×10^{1}	Mackay and others (1993)
		7	25	1.37×10^{2}	Washington (1995)
		7	10	9.04×10^{2}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	3.02×10^{3}	Washington (1995)
		5.6	10	2.13×10^{4}	Washington (1995)
		9	25	8.94×10^{0}	Mackay and others (1993)
34396	hexachloroethane	7	NS	HNES	Mabey and others (1982)
		7	25	RC	Jeffers and Wolfe (1996)
		A	NS	NACM	Mabey and others (1982)
		B	NS	HNES	Mabey and others (1982)
77651	1,2-dibromoethane	7	25	5.0×10^{3}	Radding and others (1977)
		7	25	1.1×10^{0}	Kollig (1993)
		7	25	1.4 to 2.7×10^{-2}	Mackay and others (1993)
		7	25	8.0×10^{0}	Mackay and others (1993)
		7	25	6.4×10^{0}	Jeffers and Wolfe (1996)
		7	25	2.2×10^{0}	Mackay and others (1993)
		7.5	25	2.5×10^{0}	Vogel and Reinhard (1986)
		NS	25	4.1×10^{0}	Haag and Mill (1988)

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
34541	1,2-dichloropropane	7	25	1.51×10^{1}	Kollig (1993)
		7	25	1.66×10^{1}	Washington (1995)
		7-9	25	1.58×10^{1}	Mackay and others (1993)
		7	10	1.75×10^{2}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	1.66×10^{1}	Washington (1995)
		5.6	10	1.75×10^{2}	Washington (1995)
77443	1,2,3-trichloropropane	7	25	4.1×10^{1}	Kollig (1993)
		7–9	25	4.4×10^{1}	Mackay and others (1993)
82625	1,2-dibromo-3-chloropropane	7	25	3.8×10^{1}	Burlinson and others (1982)
		7	25	3.84×10^{1}	Howard and others (1991)
		7	25	1.73×10^{2}	Kollig (1993)
		7	15	1.41×10^{2}	Burlinson and others (1982)
		9	25	3.8×10^{-1}	Howard and others (1991)
34488	trichlorofluoromethane	7	25, 10	RC	Washington (1995)
		5.6	25, 10	RC	Washington (1995)
34668	dichlorodifluoromethane	NS	NS	PNS	Callahan and others (1979)
77652	1,1,2-trichloro-1,2,2-trifluoroethane	N, A, B	25	NLFG	Kollig (1993)
39175	chloroethene	7	25	$>9.91\times10^{0}$	Washington (1995)
		7	10	$>1.07\times10^{2}$	Washington (1995)
		N, A, B	NS	HNES	Mabey and others (1982)
		NS	25	$<1.0\times10^{1}$	Hill and others (1976)
		5.6	25	$>9.91\times10^{0}$	Washington (1995)
		5.6	10	$>1.07\times10^{2}$	Washington (1995)
		4.3–9.4	NS	PNS	Callahan and others (1979)
34501	1,1-dichloroethene	7	25	1.2×10^{8}	Jeffers and others (1989)
		7	25	1.19×10^{8}	Washington (1995)
		7	10	1.93×10^{9}	Washington (1995)
		N, A, B	NS	HNES	Mabey and others (1982)
		5.6	25	2.99×10^{9}	Washington (1995)
		5.6	10	4.85×10^{10}	Washington (1995)
77093	*cis*-1,2-dichloroethene	7	25	2.1×10^{10}	Jeffers and others (1989)
		7	25	2.06×10^{10}	Washington (1995)
		7	10	3.34×10^{11}	Washington (1995)
		5.6	25	2.06×10^{12}	Washington (1995)
		5.6	10	8.40×10^{12}	Washington (1995)
		N, A, B	25	NLFG	Kollig (1993)
34546	*trans*-1,2-dichloroethene	7	25	2.06×10^{10}	Washington (1995)
		7	10	3.34×10^{11}	Washington (1995)
		N, A, B	NS	HNES	Mabey and others (1982)
		5.6	25	5.18×10^{11}	Washington (1995)
		5.6	10	8.40×10^{12}	Washington (1995)
		N, A, B	25	NLFG	Kollig (1993)

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
39180	trichloroethene	7	25	1.3×10^{6}	Jeffers and others (1989)
		7	25	1.66×10^{5}	Washington (1995)
		7	25	$\cong1\times10^{5}$	Jeffers and Wolfe (1996)
		7	10	2.08×10^{6}	Washington (1995)
		N, A, B	NS	HNES	Mabey and others (1982)
		5.6	25	2.78×10^{5}	Washington (1995)
		5.6	10	3.61×10^{6}	Washington (1995)
		NS	25	8.9×10^{-1}	Dilling and others (1975)
		N, A, B	25	NLFG	Kollig (1993)
34475	tetrachloroethene	7	25	9.9×10^{8}	Jeffers and others (1989)
		7	25	9.56×10^{8}	Washington (1995)
		7	10	1.33×10^{10}	Washington (1995)
		N, A, B	NS	HNES	Mabey and others (1982)
		5.6	25	2.40×10^{10}	Washington (1995)
		5.6	10	3.34×10^{11}	Washington (1995)
		NS	25	7.3×10^{-1}	Dilling and others (1975)
		N, A, B	25	NLFG	Kollig (1993)
50002	bromoethene	NS	NS	NHFG	Howard and others (1991)
iNS	1,3-dichloropropene	7	25	1.88×10^{-1}	Mabey and others (1982)
		7	25	1.5 to 3.1×10^{-1}	Mackay and others (1993)
		7	25	1.62×10^{-2}	Washington (1995)
		7	10	1.38×10^{-1}	Washington (1995)
		A	NS	NACM	Mabey and others (1982)
		5.6	25	1.62×10^{-2}	Washington (1995)
		5.6	10	1.38×10^{-1}	Washington (1995)
		B	NS	HPHI	Mabey and others (1982)
34704	*cis*-1,3-dichloropropene	7	25	1.73×10^{-2}	Kollig (1993)
34699	*trans*-1,3-dichloropropene	7	25	1.73×10^{-2}	Kollig (1993)
39702	hexachlorobutadiene	N, A, B	NS	HNES	Mabey and others (1982)
		N, A, B	25	NLFG	Kollig (1993)
34030	benzene	7	25, 10	RC	Washington (1995)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)
77128	styrene	N, A, B	25	NHFG	Kollig (1993)
34696	naphthalene	N, A, B	NS	NHFG	Mabey and others (1982)
		N, A, B	25	NHFG	Kollig (1993)
34010	methylbenzene	7	25, 10	RC	Washington (1995)
		N, A, B	NS	NHFG	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)

Table 18. Literature values of half-lives for hydrolysis of 30 target analytes and estimates of the potential for hydrolysis of 19 target analytes—Continued

[USGS, U.S. Geological Survey; °C, degrees Celsius; $t_{0.5h}$, half-life for hydrolysis, in years; A, acidic conditions, pH not specified; NS, not specified; NACM, no acid catalyzed mechanism known; B, basic conditions, pH not specified; HPHI, hydrolysis pH independent; HNES, hydrolysis not environmentally significant; RC, recalcitrant toward hydrolysis; PNS, probably not significant; N, neutral pH condition; NLFG, no labile functional group; iNS, isomer not specified; NHFG, no hydrolyzable functional group]

USGS parameter code	Compound	pH	Temperature (°C)	$t_{0.5h}$ (years)	Reference
34371	ethylbenzene	7	25, 10	RC	Washington (1995)
		N, A, B	NS	NHFG	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)
77224	n-propylbenzene	NS	25	NHFG	Kollig (1995)
77342	n-butylbenzene	NS	25	NHFG	Kollig (1995)
77135	1,2-dimethylbenzene	7	25, 10	RC	Washington (1995)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)
85795	1,3-dimethylbenzene	7	25, 10	RC	Washington (1995)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)
85795	1,4-dimethylbenzene	7	25, 10	RC	Washington (1995)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NHFG	Kollig (1993)
34301	chlorobenzene	7	25, 10	RC	Washington (1995)
		N, A, B	25	HNES	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NLFG	Kollig (1993)
34536	1,2-dichlorobenzene	7	25, 10	RC	Washington (1995)
		N, A, B	25	HNES	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NLFG	Kollig (1993)
34566	1,3-dichlorobenzene	7	25	$>8.79\times10^{2}$	Mackay and others (1992a)
		7	25, 10	RC	Washington (1995)
		N, A, B	25	HNES	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
34571	1,4-dichlorobenzene	7	25	$>8.79\times10^{2}$	Mackay and others (1992a)
		7	25, 10	RC	Washington (1995)
		N, A, B	25	HNES	Mabey and others (1982)
		5.6	25, 10	RC	Washington (1995)
		N, A, B	25	NLFG	Kollig (1993)
34551	1,2,4-trichlorobenzene	7	25	3.4×10^{0}	Mackay and others (1992a)
		N, A, B	NS	HNES	Mabey and others (1982)
		N, A, B	25	NLFG	Kollig (1993)
34210	2-propenal	NS	NS	NHFG	Callahan and others (1979)
		N, A, B	NS	NHFG	Mabey and others (1982)
34215	2-propenenitrile	7	NS	1.21×10^{3}	Howard and others (1991)
		5	NS	1.88×10^{2}	Howard and others (1991)
		9	NS	1.3×10^{1}	Howard and others (1991)
		N, A, B	NS	HNES	Mabey and others (1982)

Table 19. Fractions removed by volatilization and hydrolysis and total fraction removed for nine target analytes with hydrolysis half-lives of 548 days or less

[USGS, U.S. Geological Survey; Hyd, hydrolysis; V fract, fraction of the concentration removed by volatilization; H fract, fraction of the concentration removed by hydrolysis; T fract, total fraction of the concentration removed by both processes; U, water velocity; m/s, meters per second; Y, flow depth; m, meters; L, distance downstream; iNS, isomer not specified]

USGS parameter code	Compound	Hyd half-life (days)	V fract	H fract	T fract
O'Connor-Dobbins (1958); U = 0.070 m/s; Y = 10 m; L = 100,000 m					
34418	chloromethane	339	0.377	0.0332	0.398
34423	dichloromethane	548	.346	.0207	.360
34413	bromomethane	20	.373	.436	.646
34311	chloroethane	38	.346	.260	.516
34506	1,1,1-trichloroethane	182	.310	.0610	.352
77651	1,2-dibromoethane	5.1	.314	.894	.928
34501	1,1-dichloroethene	182	.332	.0610	.373
34475	tetrachloroethene	266	.301	.0422	.330
iNS	1,3-dichloropropene	5.5	.311	.876	.914
Churchill and others (1962); U = 1.52 m/s; Y = 1.5 m; L = 20,000 m					
34418	chloromethane	339	.390	.0003	.391
34423	dichloromethane	548	.343	.0002	.343
34413	bromomethane	20	.380	.0053	.383
34311	chloroethane	38	.360	.0028	.362
34506	1,1,1-trichloroethane	182	.323	.0006	.323
77651	1,2-dibromoethane	5.1	.243	.0205	.259
34501	1,1-dichloroethene	182	.348	.0006	.348
34475	tetrachloroethene	266	.314	.0004	.314
iNS	1,3-dichloropropene	5.5	.282	.0190	.296
Owens and others (1964); U = 0.56 m/s; Y = 0.12 m; L = 170 m					
34418	chloromethane	339	.405	.0000	.405
34423	dichloromethane	548	.318	.0000	.318
34413	bromomethane	20	.379	.0001	.379
34311	chloroethane	38	.378	.0001	.378
34506	1,1,1-trichloroethane	182	.342	.0000	.342
77651	1,2-dibromoethane	5.1	.148	.0005	.148
34501	1,1-dichloroethene	182	.373	.0000	.373
34475	tetrachloroethene	266	.332	.0000	.332
iNS	1,3-dichloropropene	5.5	.219	.0004	.219

Table 20. Photolysis half-lives for nine target analytes; all values for the surface layer of water except the 5-meter value for naphthalene

[USGS, U.S. Geological Survey; $t_{0.5ph}$, half-life for photolysis; ∞, infinite half-life; >, greater than; m, meters]

USGS parameter code	Compound	$t_{0.5ph}$ (days)	Reference
34423	dichloromethane	>365	Dilling and others (1975)
32106	trichloromethane	>365	Dilling and others (1975)
34506	1,1,1-trichloroethane	>365	Dilling and others (1975)
77652	1,1,2-trichloro-1,2,2-trifluoroethane	∞	Howard and others (1991)
39175	chloroethene	>3.8	Hill and others (1976)
34030	benzene	117–673	Mackay and others (1992a)
34696	naphthalene	3* (surface) 550* (5 m)	Mackay and others (1992a)
34301	chlorobenzene	6.2×10^{4}**	Dullin and others (1986)
34551	1,2,4-trichlorobenzene	1.6×10^{5}**	Dullin and others (1986)

*Midday summer values at 40 degrees north latitude.
**Twenty-four-hour summer values at 40 degrees north latitude.

Table 21. Thirty-three target analytes for which aquatic photolysis was not considered significant

[USGS, U.S. Geological Survey; iNS, isomer not specified]

USGS parameter code	Compound	Reference
34418	chloromethane	Mabey and others (1982)
34423	dichloromethane	Callahan and others (1979) Mabey and others (1982)
32106	trichloromethane	Callahan and others (1979) Mabey and others (1982)
32102	tetrachloromethane	Mabey and others (1982) Howard and others (1991)
34413	bromomethane	Mabey and others (1982)
32104	tribromomethane	Mabey and others (1982)
32101	bromodichloromethane	Mabey and others (1982)
32105	chlorodibromomethane	Mabey and others (1982)
34311	chloroethane	Mabey and others (1982)
34496	1,1-dichloroethane	Mabey and others (1982)
32103	1,2-dichloroethane	Mabey and others (1982)
34506	1,1,1-trichloroethane	Callahan and others (1979) Mabey and others (1982)
34511	1,1,2-trichloroethane	Callahan and others (1979) Mabey and others (1982)
34396	hexachloroethane	Mabey and others (1982)
34541	1,2-dichloropropane	Callahan and others (1979) Mabey and others (1982)
34488	trichlorofluoromethane	Mabey and others (1982)
34668	dichlorofluoromethane	Mabey and others (1982)
39175	chloroethene	Callahan and others (1979)
34501	1,1-dichloroethene	Callahan and others (1979) Mabey and others (1982)
34546	*trans*-1,2-dichloroethene	Callahan and others (1979) Mabey and others (1982)
39180	trichloroethene	Callahan and others (1979) Mabey and others (1982)
34475	tetrachloroethene	Callahan and others (1979) Mabey and others (1982)
iNS	1,3-dichloropropene	Mabey and others (1982)
39702	hexachlorobutadiene	Callahan and others (1979) Mabey and others (1982)
34030	benzene	Mabey and others (1982)
34010	methylbenzene	Mabey and others (1982)
34371	ethylbenzene	Mabey and others (1982)
34301	chlorobenzene	Mabey and others (1982)
34536	1,2-dichlorobenzene	Mabey and others (1982)
34566	1,3-dichlorobenzene	Mabey and others (1982)
34571	1,4-dichlorobenzene	Mabey and others (1982)
34210	2-propenal	Mabey and others (1982)
34215	2-propenenitrile	Mabey and others (1982)

Table 22. Eighteen target analytes for which no information was available on aquatic photolysis

[USGS, U.S. Geological Survey]

USGS parameter code	Compound	Reference
77651	1,2-dibromoethane	Howard and others (1991)
77443	1,2,3-trichloropropane	Howard and others (1991)
82625	1,2-dibromo-3-chloropropane	Howard and others (1991)
77093	*cis*-1,2-dichloroethene	Howard and others (1991)
50002	bromoethene	Howard and others (1991)
34704	*cis*-1,3-dichloropropene	Callahan and others (1979)
34699	*trans*-1,3-dichloropropene	Callahan and others (1979)
77128	styrene	Howard and others (1991)
77224	n-propylbenzene	Mackay and others (1992a)
77223	iso-propylbenzene	Howard and others (1991)
77342	n-butylbenzene	Mackay and others (1992a)
77135	1,2-dimethylbenzene	Howard and others (1991)
85795	1,3-dimethylbenzene	Howard and others (1991)
85795	1,4-dimethylbenzene	Howard and others (1991)
77222	1,2,4-trimethylbenzene	Howard and others (1991)
77613	1,2,3-trichlorobenzene	Mackay and others (1992a)
78032	methyl tertiary-butyl ether	Howard and others (1991)
81577	diisopropyl ether	Mackay and others (1993)

Table 23. Experimental values of the half-lives for oxidation of 12 target analytes in water by the hydroxy radical

[USGS, U.S. Geological Survey; $t_{0.5ox}$, half-life for the oxidation process]

USGS parameter code	Compound	Oxidant concentration (moles per liter)	$t_{0.5ox}$ (years)	Reference
34423	dichloromethane	2×10^{-17}	5.0×10^{1}	Haag and Yao (1992)
		5×10^{-19}	2.0×10^{3}	
		2×10^{-17}	1.9×10^{1}	Haag and Yao (1992)
		5×10^{-19}	7.6×10^{2}	
		2×10^{-17}	1.2×10^{1}	Haag and Yao (1992)
		5×10^{-19}	4.9×10^{2}	
32106	trichloromethane	2×10^{-17}	7.8×10^{1}	Howard and others (1991)
		5×10^{-19}	3.1×10^{3}	
		2×10^{-17}	1.0×10^{2}	Haag and Yao (1992)
		5×10^{-19}	4.0×10^{3}	
		2×10^{-17}	2.0×10^{1}	Haag and Yao (1992)
		5×10^{-19}	8.1×10^{2}	
32104	tribromomethane	2×10^{-17}	8.4×10^{0}	Haag and Yao (1992)
		5×10^{-19}	3.4×10^{2}	
34511	1,1,2-trichloroethane	2×10^{-17}	1.0×10^{1}	Haag and Yao (1992)
		5×10^{-19}	4.0×10^{2}	
		2×10^{-17}	8.4×10^{0}	Haag and Yao (1992)
		5×10^{-19}	3.4×10^{2}	
34541	1,2-dichloropropane	2×10^{-17}	2.9×10^{0}	Haag and Yao (1992)
		5×10^{-19}	1.2×10^{2}	
82625	1,2-dibromo-3-chloropropane	2×10^{-17}	3.4×10^{0}	Haag and Yao (1992)
		5×10^{-19}	1.4×10^{2}	
		2×10^{-17}	2.6×10^{0}	Haag and Yao (1992)
		5×10^{-19}	1.0×10^{2}	
34030	benzene	2×10^{-17}	9.2×10^{-1}	Howard and others (1991)
		5×10^{-19}	3.7×10^{1}	
34010	methylbenzene	2×10^{-17}	3.6×10^{-2}	Howard and others (1991)
		5×10^{-19}	1.5×10^{-1}	
77223	iso-propylbenzene	2×10^{-17}	3.7×10^{-1}	Howard and others (1991)
		5×10^{-19}	1.5×10^{1}	
77222	1,2,4-trimethylbenzene	2×10^{-17}	1.2×10^{-1}	Howard and others (1991)
		5×10^{-19}	4.9×10^{0}	
34301	chlorobenzene	2×10^{-17}	1.8×10^{-1}	Howard and others (1991)
		5×10^{-19}	7.1×10^{0}	
34566	1,3-dichlorobenzene	2×10^{-17}	2.2×10^{-1}	Haag and Yao (1992)
		5×10^{-19}	8.8×10^{0}	

Table 24. Calculated values of the half-lives for oxidation of 39 target analytes in water

[USGS, U.S. Geological Survey; $t_{0.5ox}$, half-life for the oxidation process; $^1O_2$, singlet oxygen at a concentration of 10^{-12} moles per liter; RO_2•, peroxy radical at a concentration of 10^{-9} moles per liter, except for the data of Howard and others (1991), which used high and low concentrations of 5×10^{-10} and 10^{-11} moles per liter; OH•, hydroxy radical at concentrations of 2×10^{-17} and 5×10^{-19} moles per liter; >, greater than; ∞, infinite half-life; ≅, approximately equal to]

USGS parameter code	Compound	Oxidant	$t_{0.5ox}$ (years)	Reference
34418	chloromethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	1.6×10^6	
34423	dichloromethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	4.0×10^5	
		OH•	9.2×10^0	Haag and Yao (1992)
		OH•	3.7×10^2	
32106	trichloromethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	1.1×10^5	
32102	tetrachloromethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	$>7.9\times10^4$	
		OH•	$>5.5\times10^2$	Haag and Yao (1992)
		OH•	$>2.2\times10^4$	
34413	bromomethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	7.9×10^5	
32104	tribromomethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	1.6×10^5	
32101	bromodichloromethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	4.0×10^5	
32105	chlorodibromomethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	1.6×10^5	
34311	chloroethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	$>7.9\times10^4$	
34496	1,1-dichloroethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	7.9×10^4	
32103	1,2-dichloroethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	$>7.9\times10^4$	
34506	1,1,1-trichloroethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	7.9×10^4	
34511	1,1,2-trichloroethane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	2.6×10^4	
		OH•	5.5×10^0	Haag and Yao (1992)
		OH•	2.2×10^2	
34396	hexachloroethane	$^1O_2$	∞	Mabey and others (1982)
		RO_2•	∞	
34541	1,2-dichloropropane	$^1O_2$	$>2.2\times10^5$	Mabey and others (1982)
		RO_2•	$\cong7.9\times10^4$	
82625	1,2-dibromo-3-chloropropane	OH•	3.8×10^0	Haag and Yao (1992)
		OH•	1.5×10^2	
34488	trichlorofluoromethane	$^1O_2$	∞	Mabey and others (1982)
		RO_2•	∞	

Table 24. Calculated values of the half-lives for oxidation of 39 target analytes in water—Continued

[USGS, U.S. Geological Survey; $t_{0.5ox}$, half-life for the oxidation process; $^1O_2$, singlet oxygen at a concentration of 10^{-12} moles per liter; $RO_2\bullet$, peroxy radical at a concentration of 10^{-9} moles per liter, except for the data of Howard and others (1991), which used high and low concentrations of 5×10^{-10} and 10^{-11} moles per liter; OH•, hydroxy radical at concentrations of 2×10^{-17} and 5×10^{-19} moles per liter; >, greater than; ∞, infinite half-life; ≅, approximately equal to]

USGS parameter code	Compound	Oxidant	$t_{0.5ox}$ (years)	Reference
34668	dichlorodifluoromethane	$^1O_2$	∞	Mabey and others (1982)
		$RO_2\bullet$	∞	
39175	chloroethene	$^1O_2$	$>7.9\times10^{-1}$	Mabey and others (1982)
		$RO_2\bullet$	2.6×10^{4}	
34501	1,1-dichloroethene	$^1O_2$	$>7.9\times10^{-1}$	Mabey and others (1982)
		$RO_2\bullet$	2.6×10^{4}	
34546	*trans*-1,2-dichloroethene	$^1O_2$	$>7.9\times10^{2}$	Mabey and others (1982)
		$RO_2\bullet$	1.3×10^{4}	
39180	trichloroethene	$^1O_2$	$>7.9\times10^{4}$	Mabey and others (1982)
		$RO_2\bullet$	1.3×10^{4}	
34475	tetrachloroethene	$^1O_2$	$>7.9\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	1.3×10^{4}	
iNS	1,3-dichloropropene	$^1O_2$	$>7.9\times10^{-1}$	Mabey and others (1982)
		$RO_2\bullet$	1.8×10^{3}	
34030	benzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
34696	naphthalene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
34010	methylbenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	5.5×10^{2}	
34371	ethylbenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	1.1×10^{2}	
77135	1,2-dimethylbenzene	$RO_2\bullet$	4.3×10^{1}	Howard and others (1991)
		$RO_2\bullet$	3.1×10^{4}	
85795	1,3-dimethylbenzene	$RO_2\bullet$	5.5×10^{2}	Howard and others (1991)
		$RO_2\bullet$	2.7×10^{4}	
85795	1,4-dimethylbenzene	$RO_2\bullet$	3.1×10^{2}	Howard and others (1991)
		$RO_2\bullet$	1.6×10^{4}	
34301	chlorobenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
34536	1,2-dichlorobenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
		OH•	2.8×10^{-1}	Haag and Yao (1992)
		OH•	1.1×10^{1}	
34566	1,3-dichlorobenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
34571	1,4-dichlorobenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1982)
		$RO_2\bullet$	$>7.9\times10^{4}$	
		OH•	2.8×10^{-1}	Haag and Yao (1992)
		OH•	1.1×10^{1}	

Table 24. Calculated values of the half-lives for oxidation of 39 target analytes in water—Continued

[USGS, U.S. Geological Survey; $t_{0.5ox}$, half-life for the oxidation process; $^1O_2$, singlet oxygen at a concentration of 10^{-12} moles per liter; RO_2•, peroxy radical at a concentration of 10^{-9} moles per liter, except for the data of Howard and others (1991), which used high and low concentrations of 5×10^{-10} and 10^{-11} moles per liter; OH•, hydroxy radical at concentrations of 2×10^{-17} and 5×10^{-19} moles per liter; >, greater than; ∞, infinite half-life; ≅, approximately equal to]

USGS parameter code	Compound	Oxidant	$t_{0.5ox}$ (years)	Reference
77613	1,2,3-trichlorobenzene	OH•	2.8×10^{-1}	Haag and Yao (1992)
		OH•	1.1×10^{1}	
34551	1,2,4-trichlorobenzene	$^1O_2$	$>2.2\times10^{5}$	Mabey and others (1992)
		RO_2•	$>7.9\times10^{4}$	
		OH•	2.8×10^{-1}	Haag and Yao (1992)
		OH•	1.1×10^{1}	
34210	2-propenal	$^1O_2$	7.9×10^{0}	Mabey and others (1982)
		RO_2•	2.3×10^{1}	
34215	2-propenenitrile	$^1O_2$	$>7.9\times10^{-1}$	Mabey and others (1982)
		RO_2•	2.2×10^{3}	

Table 25. Experimental values of the octanol-water partition coefficient for 40 target analytes (from Mackay and others, 1992a; 1992b; 1993)

[USGS, U.S. Geological Survey; log K_{ow}, logarithm base 10 of the octanol-water partition coefficient]

USGS parameter code	Compound	log K_{ow}
34418	chloromethane	0.91
34423	dichloromethane	1.25
32106	trichloromethane	2.00
32102	tetrachloromethane	2.71
34413	bromomethane	1.19
32101	bromodichloromethane	2.10
32105	chlorodibromomethane	2.24
34311	chloroethane	1.45
34496	1,1-dichloroethane	1.86
32103	1,2-dichloroethane	1.47
34506	1,1,1-trichloroethane	2.48
34511	1,1,2-trichloroethane	2.38
34396	hexachloroethane	3.93
34541	1,2-dichloropropane	2.00
34488	trichlorofluoromethane	2.53
34668	dichlorodifluoromethane	2.16
77652	1,1,2-trichloro-1,2,2-trifluoroethane	3.16
39180	trichloroethene	2.43
34475	tetrachloroethene	2.64
39702	hexachlorobutadiene	4.78
34030	benzene	2.17
77128	styrene	2.94
34696	naphthalene	3.35
34010	methylbenzene	2.71
34371	ethylbenzene	3.14
77224	n-propylbenzene	3.66
77223	iso-propylbenzene	3.58
77342	n-butylbenzene	4.29
77135	1,2-dimethylbenzene	3.15
85795	1,3-dimethylbenzene	3.23
85795	1,4-dimethylbenzene	3.20
77222	1,2,4-trimethylbenzene	3.78
34301	chlorobenzene	2.84
34536	1,2-dichlorobenzene	3.46
34566	1,3-dichlorobenzene	3.55
34571	1,4-dichlorobenzene	3.46
77613	1,2,3-trichlorobenzene	4.07
34551	1,2,4-trichlorobenzene	4.04
78032	methyl tertiary-butyl ether	.94
81577	diisopropyl ether	1.52

Table 26. Calculated values of the octanol-water partition coefficient for 15 target analytes

[USGS, U.S. Geological Survey; log K_{ow}, logarithm base 10 of the octanol-water partition coefficient]

USGS parameter code	Compound	log K_{ow}	Reference
32104	tribromomethane	2.34	Mackay and others (1993)
77651	1,2-dibromoethane	1.60	Radding and others (1977)
77443	1,2,3-trichloropropane	2.36	Mackay and others (1993)
82625	1,2-dibromo-3-chloropropane	2.26	Howard (1991)
39175	chloroethene	1.33	Mackay and others (1993)
34501	1,1-dichloroethene	2.00	Mackay and others (1993)
77093	*cis*-1,2-dichloroethene	1.68	Mackay and others (1993)
34546	*trans*-1,2-dichloroethene	1.84	Mackay and others (1993)
50002	bromoethene	1.52	This study
34704	*cis*-1,3-dichloropropene	2.20	Kollig (1993)
34699	*trans*-1,3-dichloropropene	2.20	Kollig (1993)
50004	ethyl tertiary-butyl ether	1.52	This study
50005	tertiary-amyl methyl ether	1.52	This study
34210	2-propenal	–0.09	Callahan and others (1979)
34215	2-propenenitrile	–0.92	Verschueren (1983)

Table 27. Experimental values of the bioconcentration factor based on the whole body weight for various organisms for 26 target analytes

[USGS, U.S. Geological Survey; log BCF, logarithm base 10 of the bioconcentration factor]

USGS parameter code	Compound	Common name of organism	log BCF	Reference
32106	trichloromethane	bluegill sunfish	0.78	Veith and others (1980)
		bluegill sunfish	0.20–0.40	Howard (1990)
		rainbow trout	0.52–1.01	Howard (1990)
		largemouth bass	0.46–0.49	Howard (1990)
		catfish	0.52–0.57	Howard (1990)
		bluegill sunfish	0.78	Mackay and others (1993)
		green alga	2.84	Mackay and others (1993)
32102	tetrachloromethane	bluegill sunfish	1.48	Veith and others (1980)
		rainbow trout	1.24	Howard (1990)
		bluegill sunfish	1.48	Mackay and others (1993)
		rainbow trout	1.72	Mackay and others (1993)
		green algae	2.48	Mackay and others (1993)
		fish	1.24	Mackay and others (1993)
32103	1,2-dichloroethane	bluegill sunfish	0.30	Veith and others (1980)
		bluegill sunfish	0.30	Howard (1990)
34506	1,1,1-trichloroethane	bluegill sunfish	0.95	Veith and others (1980)
		bluegill sunfish	0.95	Howard (1990)
34396	hexachloroethane	bluegill sunfish	2.14	Veith and others (1980)
		rainbow trout	2.71, 3.08	Oliver and Niimi (1983)
		bluegill sunfish	2.14	Mackay and others (1993)
		fathead minnow	2.85	Mackay and others (1993)
39175	chloroethene	green alga	1.6	Mackay and others (1993)
39180	trichloroethene	bluegill sunfish	1.23	Veith and others (1980)
		rainbow trout	1.59	Mackay and others (1993)
		green alga	3.06	Mackay and others (1993)
34475	tetrachloroethene	bluegill sunfish	1.69	Veith and others (1980)
		rainbow trout	1.59	Mackay and others (1993)
		rainbow trout	2.06	Mackay and others (1993)
		rainbow trout	1.79	Mackay and others (1993)
39702	hexachlorobutadiene	rainbow trout	3.76, 4.23	Oliver and Niimi (1983)
		Atlantic croaker	2.84	Pereira and others (1988)
		blue crab	1.66	Pereira and others (1988)
		spotted sea trout	2.42	Pereira and others (1988)
		blue catfish	3.07	Pereira and others (1988)
34030	benzene	Pacific herring	0.64	Mackay and others (1992a)
		eels	0.54	Mackay and others (1992a)
		green algae	1.48	Mackay and others (1992a)
		goldfish	0.63	Mackay and others (1992a)
		green alga	1.63	Mackay and others (1992a)
77128	styrene	goldfish	1.13	Mackay and others (1993)
34696	naphthalene	mussel	1.64	Mackay and others (1992b)
		mussel	1.49	Mackay and others (1992b)
		water flea	2.12	Mackay and others (1992b)
		green alga	2.11	Mackay and others (1992b)
		bluegill sunfish	2.50	Mackay and others (1992b)

Table 27. Experimental values of the bioconcentration factor based on the whole body weight for various organisms for 26 target analytes—Continued

[USGS, U.S. Geological Survey; log BCF, logarithm base 10 of the bioconcentration factor]

USGS parameter code	Compound	Common name of organism	log BCF	Reference
34010	methylbenzene	eels	1.12	Mackay and others (1992a)
		Manila clam	0.22	Mackay and others (1992a)
		mussel	0.62	Mackay and others (1992a)
		goldfish	0.92	Mackay and others (1992a)
		green alga	1.99	Mackay and others (1992a)
34371	ethylbenzene	clams	0.67	Mackay and others (1992a)
		goldfish	1.19	Mackay and others (1992a)
		green alga	2.31	Mackay and others (1992a)
77223	iso-propylbenzene	goldfish	1.55	Mackay and others (1992a)
77135	1,2-dimethylbenzene	eels	1.33	Mackay and others (1992a)
		clams	0.79	Mackay and others (1992a)
		goldfish	1.15	Mackay and others (1992a)
		green alga	2.34	Mackay and others (1992a)
85795	1,3-dimethylbenzene	eels	1.37	Mackay and others (1992a)
		clams	0.78	Mackay and others (1992a)
		goldfish	1.17	Mackay and others (1992a)
		green alga	2.40	Mackay and others (1992a)
85795	1,4-dimethylbenzene	eels	1.37	Mackay and others (1992a)
		goldfish	1.17	Mackay and others (1992a)
		green alga	2.41	Mackay and others (1992a)
34301	chlorobenzene	Atlantic croaker	2.09	Pereira and others (1988)
		blue crab	2.06	Pereira and others (1988)
		spotted sea trout	2.36	Pereira and others (1988)
		blue catfish	1.96	Pereira and others (1988)
		fathead minnow	2.65	Mackay and others (1992a)
		green algae	1.70	Mackay and others (1992a)
		fish	1.88	Mackay and others (1992a)
34536	1,2-dichlorobenzene	bluegill sunfish	1.95	Veith and others (1980)
		rainbow trout	2.43, 2.75	Oliver and Niimi (1983)
34536		Atlantic croaker	2.29	Pereira and others (1988)
		blue crab	2.16	Pereira and others (1988)
		spotted sea trout	2.19	Pereira and others (1988)
		blue catfish	2.34	Pereira and others (1988)
34566	1,3-dichlorobenzene	bluegill sunfish	1.82	Veith and others (1980)
		rainbow trout	2.62, 2.87	Oliver and Niimi (1983)
		Atlantic croaker	1.94	Pereira and others (1988)
		blue crab	1.56	Pereira and others (1988)
		spotted sea trout	1.63	Pereira and others (1988)
		blue catfish	1.92	Pereira and others (1988)
		fathead minnow	1.99	Mackay and others (1992a)
34571	1,4-dichlorobenzene	bluegill sunfish	1.78	Veith and others (1980)
		rainbow trout	2.57, 2.86	Oliver and Niimi (1983)
		rainbow trout	2.71, 2.95	Oliver and Niimi (1985)
		Atlantic croaker	2.25	Pereira and others (1988)

Table 27. Experimental values of the bioconcentration factor based on the whole body weight for various organisms for 26 target analytes—Continued

[USGS, U.S. Geological Survey; log BCF, logarithm base 10 of the bioconcentration factor]

USGS parameter code	Compound	Common name of organism	log BCF	Reference
34571	1,4-dichlorobenzene (Continued)	blue crab	2.23	Pereira and others (1988)
		spotted sea trout	2.45	Pereira and others (1988)
		blue catfish	2.03	Pereira and others (1988)
		green algae	2.00	Mackay and others (1992a)
		rainbow trout	2.33	Mackay and others (1992a)
		fathead minnow	2.04	Mackay and others (1992a)
		flagfish	2.47	Mackay and others (1992a)
77613	1,2,3-trichlorobenzene	rainbow trout	3.08, 3.42	Oliver and Niimi (1983)
		Atlantic croaker	2.89	Pereira and others (1988)
		blue crab	2.47	Pereira and others (1988)
		spotted sea trout	1.58	Pereira and others (1988)
		blue catfish	3.01	Pereira and others (1988)
		guppy	3.28	Mackay and others (1992a)
		fathead minnow	3.00–3.75	Sijm and van der Linde (1995)
34551	1,2,4-trichlorobenzene	rainbow trout	3.11, 3.51	Oliver and Niimi (1983)
		rainbow trout	3.36, 3.57	Oliver and Niimi (1985)
		Atlantic croaker	3.10	Pereira and others (1988)
		blue crab	2.60	Pereira and others (1988)
		spotted sea trout	1.91	Pereira and others (1988)
		blue catfish	3.19	Pereira and others (1988)
		fathead minnow	3.32, 3.45	Mackay and others (1992a)
		green sunfish	3.37	Mackay and others (1992a)
		rainbow trout	2.95	Mackay and others (1992a)
		bluegill sunfish	2.26	Mackay and others (1992a)
		green algae	2.40	Mackay and others (1992a)
		fish	2.69	Mackay and others (1992a)
		fathead minnow	2.61	Mackay and others (1992a)
		flagfish	3.31	Mackay and others (1992a)
34210	2-propenal	bluegill sunfish	2.54	Veith and others (1980)
34215	2-propenenitrile	bluegill sunfish	1.68	Veith and others (1980)

Table 28. Experimental values of the bioconcentration factor based on the lipid weight for various organisms for seven target analytes

[USGS, U.S. Geological Survey; log BCF, logarithm base 10 of the bioconcentration factor]

USGS parameter code	Compound	Common name of organism	log BCF	Reference
34396	hexachloroethane	rainbow trout	3.77, 4.09	Oliver and Niimi (1983)
39702	hexachlorobutadiene	rainbow trout	4.84, 5.30	Oliver and Niimi (1983)
34536	1,2-dichlorobenzene	rainbow trout	3.50, 3.81	Oliver and Niimi (1983)
		Atlantic croaker	3.74	Pereira and others (1988)
		blue crab	4.36	Pereira and others (1988)
		spotted sea trout	4.00	Pereira and others (1988)
		blue catfish	3.44	Pereira and others (1988)
34566	1,3-dichlorobenzene	rainbow trout	3.70, 3.93	Oliver and Niimi (1983)
		Atlantic croaker	3.60	Pereira and others (1988)
		blue crab	3.86	Pereira and others (1988)
		spotted sea trout	3.27	Pereira and others (1988)
		blue catfish	3.40	Pereira and others (1988)
34571	1,4-dichlorobenzene	rainbow trout	3.65, 3.92	Oliver and Niimi (1983)
		rainbow trout	3.88, 4.11	Oliver and Niimi (1985)
		Atlantic croaker	3.91	Pereira and others (1988)
		blue crab	4.53	Pereira and others (1988)
		spotted sea trout	4.08	Pereira and others (1988)
		blue catfish	3.51	Pereira and others (1988)
		guppy	3.26	Mackay and others (1992a)
		flagfish	3.56	Mackay and others (1992a)
77613	1,2,3-trichlorobenzene	rainbow trout	4.17, 4.48	Oliver and Niimi (1983)
		Atlantic croaker	4.54	Pereira and others (1988)
		blue crab	4.77	Pereira and others (1988)
		spotted sea trout	3.22	Pereira and others (1988)
		blue catfish	4.49	Pereira and others (1988)
		guppy	4.11	Mackay and others (1992a)
		fathead minnow	3.94–5.39	Sijm and van der Linde (1995)
34551	1,2,4-trichlorobenzene	rainbow trout	4.20, 4.57	Oliver and Niimi (1983)
		rainbow trout	4.54, 4.71	Oliver and Niimi (1985)
		Atlantic croaker	4.76	Pereira and others (1988)
		blue crab	4.90	Pereira and others (1988)
		spotted sea trout	3.54	Pereira and others (1988)
		blue catfish	4.68	Pereira and others (1988)
		flagfish	4.25	Mackay and others (1992a)

Table 30. Minimum concentrations of 40 target analytes resulting in 50-percent mortality of various aquatic organisms (from Rowe and others, 1997); when two or more concentrations were available for an organism category, maximum and minimum values are presented; when two concentrations for an organism category were approximately the same, the minimum concentration is presented

[USGS, U.S. Geological Survey; LC_{50}, lethal concentration at 50-percent mortality; µg/L, microgram per liter; >, greater than]

USGS parameter code	Compound	Category of organism	Common name of organism	LC50 (µg/L)
34418	chloromethane	fish	bluegill	5.5×10^{5}
34423	dichloromethane	fish	medaka	8.4×10^{5}
			fathead minnow	1.9×10^{5}
		insect	water flea	3.1×10^{5}
			water flea	2.2×10^{5}
32106	trichloromethane	fish	medaka	5.0×10^{5}
			rainbow trout	1.2×10^{3}
		insect	water flea	2.9×10^{5}
			water flea	2.9×10^{4}
		invertebrate	rotifer	2.0×10^{3}
32102	tetrachloromethane	fish	medaka	6.7×10^{5}
			medaka	2.0×10^{3}
		insect	water flea	3.5×10^{4}
			water flea	2.3×10^{3}
		invertebrate	flatworm	2.0×10^{2}
34413	bromomethane	fish	carp	1.4×10^{4}
			guppy	8.0×10^{-1}
		insect	water flea	2.2×10^{3}
32104	tribromomethane	fish	carp	8.0×10^{4}
			bluegill	2.9×10^{4}
		insect	water flea	5.6×10^{4}
			water flea	4.4×10^{4}
32105	chlorodibromomethane	fish	carp	5.2×10^{4}
			carp	3.4×10^{4}
32103	1,2-dichloroethane	amphibian	salamander	6.5×10^{3}
			salamander	2.5×10^{3}
		crustacean	scud	$>1.0\times10^{5}$
		fish	medaka	1.1×10^{6}
			rainbow trout	3.4×10^{1}
		insect	water flea	2.5×10^{5}
			stonefly	$>1.0\times10^{5}$
34506	1,1,1-trichloroethane	fish	medaka	$>1.0\times10^{6}$
			bluegill	4.0×10^{4}
		insect	water flea	$>5.3\times10^{5}$
			water flea	5.4×10^{3}
34511	1,1,2-trichloroethane	fish	fathead minnow	8.2×10^{4}
			guppy	4.0×10^{4}
		insect	midge	1.5×10^{5}
			water flea	1.8×10^{4}
		invertebrate	zebra mussel	1.9×10^{5}
			snail	5.8×10^{4}
34396	hexachloroethane	amphibian	bullfrog	2.8×10^{3}
			bullfrog	2.4×10^{3}
		crustacean	crayfish	2.7×10^{3}

Table 30. Minimum concentrations of 40 target analytes resulting in 50-percent mortality of various aquatic organisms (from Rowe and others, 1997); when two or more concentrations were available for an organism category, maximum and minimum values are presented; when two concentrations for an organism category were approximately the same, the minimum concentration is presented—Continued

[USGS, U.S. Geological Survey; LC_{50}, lethal concentration at 50-percent mortality; µg/L, microgram per liter; >, greater than]

USGS parameter code	Compound	Category of organism	Common name of organism	LC50 (µg/L)
34396	hexachloroethane (Continued)		crayfish	$>2.1\times10^{3}$
		fish	catfish	1.6×10^{3}
			rainbow trout	7.7×10^{2}
		insect	water flea	$>1.0\times10^{4}$
			midge	1.2×10^{3}
		invertebrate	snail	$>2.1\times10^{3}$
77651	1,2-dibromoethane	fish	bluegill	1.8×10^{4}
			bass	1.5×10^{4}
34541	1,2-dichloropropane	fish	bluegill	3.2×10^{5}
			fathead minnow	1.3×10^{5}
		insect	water flea	9.9×10^{4}
			water flea	5.2×10^{4}
77443	1,2,3-trichloropropane	fish	fathead minnow	6.6×10^{4}
82625	1,2-dibromo-3-chloropropane	fish	bluegill	5.0×10^{4}
			bass	2.0×10^{4}
		invertebrate	snail	5.7×10^{4}
			bladder snail	2.4×10^{4}
34501	1,1-dichoroethene	fish	bluegill	7.4×10^{4}
			fathead minnow	2.9×10^{4}
		insect	water flea	1.2×10^{4}
34546	*trans*-1,2-dichloroethene	insect	water flea	2.3×10^{5}
			water flea	2.2×10^{5}
39180	trichloroethene	amphibian	axolotl	4.8×10^{4}
			toad	4.5×10^{4}
		crustacean	scud	2.4×10^{4}
		fish	medaka	2.7×10^{5}
			medaka	1.9×10^{3}
		insect	water boatman	1.1×10^{5}
			water flea	2.3×10^{3}
		invertebrate	tubificidae family	1.3×10^{5}
			flatworm	1.7×10^{3}
34475	tetrachloroethene	fish	bluegill	4.6×10^{4}
			rainbow trout	1.4×10^{3}
		insect	midge	5.5×10^{4}
			water flea	1.8×10^{3}
		invertebrate	flatworm	1.4×10^{3}
39702	hexachlorobutadiene	fish	bluegill	3.2×10^{2}
			fathead minnow	9.0×10^{1}
		insect	sowbug	1.6×10^{2}
			sowbug	1.3×10^{2}
		invertebrate	snail	2.1×10^{2}

Table 30. Minimum concentrations of 40 target analytes resulting in 50-percent mortality of various aquatic organisms (from Rowe and others, 1997); when two or more concentrations were available for an organism category, maximum and minimum values are presented; when two concentrations for an organism category were approximately the same, the minimum concentration is presented—Continued

[USGS, U.S. Geological Survey; LC_{50}, lethal concentration at 50-percent mortality; µg/L, microgram per liter; >, greater than]

USGS parameter code	Compound	Category of organism	Common name of organism	LC50 (µg/L)
34030	benzene	amphibian	axolotl	3.7×10^{5}
			toad	1.9×10^{5}
		crustacean	copepod	7.1×10^{5}
			scud	4.2×10^{4}
		fish	channel catfish	4.2×10^{5}
			pink salmon	4.6×10^{3}
		insect	water flea	3.9×10^{5}
			dragonfly	1.0×10^{4}
		invertebrate	rotifer	$>1.0\times10^{6}$
			rotifer	$>1.0\times10^{3}$
77128	styrene	crustacean	scud	6.2×10^{4}
		fish	guppy	7.5×10^{4}
			rainbow trout	2.5×10^{3}
		insect	sowbug	6.5×10^{4}
			water flea	2.3×10^{4}
		invertebrate	snail	5.6×10^{5}
			snail	1.1×10^{5}
34696	naphthalene	crustacean	copepod	6.8×10^{4}
			scud	3.9×10^{3}
		fish	mosquito fish	1.6×10^{5}
			rainbow trout	1.1×10^{2}
		insect	midge	1.3×10^{4}
			water flea	1.0×10^{3}
		invertebrate	snail	5.0×10^{3}
34010	methylbenzene	crustacean	copepod	4.5×10^{5}
		fish	mosquito fish	1.3×10^{6}
			coho and silver salmon	5.5×10^{3}
		insect	water flea	3.1×10^{5}
			midge	4.7×10^{4}
		invertebrate	rotifer	1.1×10^{5}
34371	ethylbenzene	fish	catfish	2.1×10^{5}
			rainbow trout	4.2×10^{3}
		insect	water flea	7.5×10^{4}
77224	n-propylbenzene	fish	rainbow trout	1.6×10^{3}
77223	iso-propylbenzene	fish	fathead minnow	6.3×10^{3}
			rainbow trout	2.7×10^{3}
		insect	water flea	9.5×10^{4}
77135	1,2-dimethylbenzene	amphibian	toad	7.3×10^{4}
		fish	fathead minnow	1.6×10^{4}
			rainbow trout	7.6×10^{3}
		invertebrate	snail	$>2.2\times10^{4}$

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[USGS, U.S. Geological Survey; LC_{50}, lethal concentration at 50-percent mortality; µg/L, microgram per liter; >, greater than]

USGS parameter code	Compound	Category of organism	Common name of organism	LC50 (µg/L)
85795	1,3-dimethylbenzene	fish	goldfish	1.6×10^{4}
			rainbow trout	8.4×10^{3}
85795	1,4-dimethylbenzene	fish	goldfish	1.8×10^{4}
			rainbow trout	2.6×10^{3}
77222	1,2,4-trimethylbenzene	fish	fathead minnow	7.7×10^{3}
34301	chlorobenzene	fish	guppy	4.6×10^{4}
			bass	5.0×10^{1}
		insect	water flea	1.1×10^{4}
			water flea	7.9×10^{3}
34536	1,2-dichlorobenzene	fish	fathead minnow	9.5×10^{3}
			rainbow trout	1.5×10^{3}
		insect	midge	2.0×10^{4}
			water flea	2.4×10^{3}
34566	1,3-dichlorobenzene	fish	bluegill	2.2×10^{4}
			bluegill	5.0×10^{3}
		insect	water flea	7.2×10^{3}
			water flea	1.7×10^{3}
34571	1,4-dichlorobenzene	fish	bluegill	4.5×10^{3}
			rainbow trout	8.0×10^{2}
		insect	water flea	4.2×10^{4}
			water flea	1.1×10^{4}
77613	1,2,3-trichlorobenzene	fish	zebrafish	3.1×10^{3}
			guppy	3.5×10^{2}
		insect	midge	1.7×10^{3}
34551	1,2,4-trichlorobenzene	crustacean	crayfish	3.0×10^{3}
		fish	zebrafish	6.3×10^{3}
			medaka	1.1×10^{3}
		insect	water flea	2.1×10^{3}
			midge	9.3×10^{2}
		invertebrate	snail	3.2×10^{3}
			flatworm	1.1×10^{3}
78032	methyl tertiary-butyl ether	fish	fathead minnow	6.7×10^{5}
34210	2-propenal	amphibian	toad	7.0×10^{0}
		fish	brown trout	1.5×10^{3}
			fathead minnow	1.4×10^{1}
		insect	midge	$>1.5\times10^{2}$
			water flea	5.7×10^{1}
		invertebrate	snail	$>1.5\times10^{2}$
34215	2-propenenitrile	fish	medaka	5.0×10^{4}
			fathead minnow	2.6×10^{3}
		insect	water flea	1.3×10^{4}
			water flea	7.6×10^{3}

Table 31. Minimum concentrations of 31 target analytes that affected at the 50-percent level various functions of aquatic organisms (from Rowe and others, 1997); when two or more concentrations were available for an organism category, maximum and minimum values are presented; when two concentrations for an organism category were approximately the same, the minimum concentration is presented

[USGS, U.S. Geological Survey; EC_{50}, effective concentration at 50 percent affected; µg/L, microgram per liter; >, greater than; ter, quantifiable occurrence of birth defects; imm, immobilization; gro, measurable change in growth characteristics; clr, chlorophyll; rep, change in the reproductive ability; bms, biomass productivity affected; rgn, change in ability to regenerate a body part; beh, quantifiable change in behavior; hat, change in hatchability; equ, equilibrium, change in ability to maintain balance; pgr, population growth; loc, locomotor behavior; avo, avoidance or attraction to a chemical; enz, change in enzyme activity; ptr, photoactic response, attraction to or avoidance of light; pse, photosynthesis; mor, mortality; cyt, change in the genetic processes of the cell]

USGS parameter code	Compound	Category of organism	Common name of organism	End point	EC50 (µg/L)
34423	dichloromethane	amphibian	toad	ter	$>3.2\times10^{4}$
			bullfrog	ter	1.8×10^{4}
		fish	fathead minnow	imm	9.9×10^{4}
		insect	water flea	imm	1.7×10^{6}
			water flea	imm	1.4×10^{5}
		plant	duckweed	gro	2.0×10^{6}
			green algae	clr	$>5.0\times10^{5}$
32106	trichloromethane	amphibian	toad	ter	$>4.0\times10^{4}$
			peeper	ter	2.7×10^{2}
		insect	water flea	rep	3.4×10^{5}
			water flea	imm	5.2×10^{4}
		plant	green algae	gro	9.5×10^{5}
			green algae	bms	5.6×10^{5}
32102	tetrachloromethane	amphibian	toad	ter	$>9.2\times10^{4}$
			frog	ter	9.0×10^{2}
		insect	water flea	imm	9.7×10^{4}
		invertebrate	flatworm	rgn	1.5×10^{3}
34413	bromomethane	fish	medaka	beh	5.0×10^{2}
			guppy	imm	6.0×10^{-1}
		insect	water flea	imm	2.0×10^{3}
			water flea	beh	1.7×10^{3}
		plant	green algae	gro	6.7×10^{3}
			green algae	gro	2.1×10^{3}
32104	tribromomethane	plant	green algae	pgr	4.0×10^{4}
			green algae	clr	3.9×10^{4}
32103	1,2-dichloroethane	insect	water flea	imm	1.8×10^{5}
			water flea	imm	1.6×10^{5}
34506	1,1,1-trichloroethane	fish	fathead minnow	imm	1.1×10^{4}
		plant	green algae	clr	$>5.0\times10^{5}$
34511	1,1,2-trichloroethane	insect	water flea	imm	7.8×10^{4}
			water flea	rep	3.2×10^{4}
		invertebrate	snail	hat	3.6×10^{4}
34396	hexachloroethane	fish	rainbow trout	equ	8.4×10^{2}
		insect	water flea	imm	1.3×10^{4}
			water flea	imm	1.8×10^{3}
		plant	green algae	clr	8.7×10^{4}
			green algae	clr	6.7×10^{4}
34501	1,1-dichloroethene	plant	green algae	clr	$>5.6\times10^{5}$
			green algae	gro	4.1×10^{5}

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USGS parameter code	Compound	Category of organism	Common name of organism	End point	EC50 (µg/L)
39180	trichloroethene	fish	fathead minnow	imm	2.2×10^{4}
		insect	water flea	imm	7.6×10^{4}
			water flea	imm	7.8×10^{3}
		invertebrate	flatworm	rgn	1.7×10^{3}
		plant	green algae	gro	4.5×10^{5}
34475	tetrachloroethene	fish	fathead minnow	imm	1.4×10^{4}
		insect	water flea	imm	7.5×10^{3}
			water flea	imm	3.2×10^{3}
		invertebrate	flatworm	rgn	9.0×10^{2}
		plant	green algae	clr	$>5.0\times10^{5}$
39702	hexachlorobutadiene	fish	rainbow trout	loc	1.4×10^{2}
34030	benzene	fish	coho and silver salmon	avo	1.8×10^{3}
			fathead minnow	bms	1.7×10^{2}
		insect	midge	imm	1.4×10^{6}
			water flea	enz	6.3×10^{3}
		invertebrate	snail	imm	9.7×10^{5}
		plant	green algae	gro	$>1.4\times10^{6}$
			green algae	gro	2.9×10^{4}
34696	naphthalene	insect	water flea	imm	4.7×10^{3}
			water flea	ptr	6.9×10^{2}
		plant	green algae	gro	3.3×10^{4}
			diatom	pse	2.8×10^{3}
34010	methylbenzene	fish	coho and silver salmon	avo	2.3×10^{3}
			fathead minnow	bms	8.3×10^{1}
		insect	mosquito	imm	2.2×10^{4}
			water flea	enz	3.6×10^{3}
		plant	green algae	gro	2.4×10^{5}
			green algae	gro	9.4×10^{3}
34371	ethylbenzene	insect	water flea	imm	1.8×10^{3}
		plant	green algae	gro	4.6×10^{3}
77224	n-propylbenzene	insect	water flea	imm	2.0×10^{3}
		plant	green algae	gro	1.8×10^{3}
77223	iso-propylbenzene	insect	water flea	imm	1.4×10^{3}
			water flea	imm	6.0×10^{2}
		plant	green algae	gro	2.6×10^{3}
77342	n-butylbenzene	insect	water flea	imm	3.4×10^{2}
77135	1,2-dimethylbenzene	fish	coho and silver salmon	avo	7.6×10^{2}
			coho and silver salmon	avo	6.0×10^{2}

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USGS parameter code	Compound	Category of organism	Common name of organism	End point	EC50 (µg/L)
77135	1,2-dimethylbenzene (Continued)	insect	water flea	imm	3.2×10^{3}
			water flea	imm	1.0×10^{3}
		plant	green algae	gro	5.5×10^{4}
			green algae	gro	4.2×10^{3}
85795	1,3-dimethylbenzene	insect	water flea	imm	9.6×10^{3}
			water flea	imm	4.7×10^{3}
		plant	green algae	gro	4.9×10^{3}
			green algae	gro	3.9×10^{3}
85795	1,4-dimethylbenzene	insect	water flea	imm	8.5×10^{3}
			water flea	imm	3.6×10^{3}
		plant	green algae	gro	4.4×10^{3}
			green algae	gro	3.2×10^{3}
77222	1,2,4-trimethylbenzene	insect	water flea	imm	3.6×10^{3}
34301	chlorobenzene	insect	water flea	mor	2.2×10^{4}
			water flea	imm	5.8×10^{2}
		plant	diatom	cyt	2.4×10^{5}
			green algae	pgr	2.0×10^{5}
34536	1,2-dichlorobenzene	fish	rainbow trout	loc	1.6×10^{3}
		insect	water flea	imm	7.8×10^{2}
			water flea	rep	5.5×10^{2}
		plant	green algae	clr	7.1×10^{4}
			green algae	gro	1.4×10^{4}
34566	1,3-dichlorobenzene	insect	water flea	imm	4.2×10^{3}
			water flea	rep	1.4×10^{3}
		plant	green algae	clr	1.2×10^{5}
			green algae	bms	1.9×10^{4}
34571	1,4-dichlorobenzene	fish	rainbow trout	equ	1.1×10^{3}
		insect	water flea	imm	1.6×10^{3}
			water flea	rep	9.3×10^{2}
		plant	green algae	gro	3.8×10^{4}
			green algae	gro	1.6×10^{3}
77613	1,2,3-trichlorobenzene	insect	water flea	imm	3.5×10^{2}
			water flea	rep	2.0×10^{2}
		plant	diatom	cyt	6.4×10^{3}
34551	1,2,4-trichlorobenzene	fish	rainbow trout	equ	1.3×10^{3}
		insect	water flea	imm	1.2×10^{3}
			water flea	rep	4.5×10^{2}
		invertebrate	flatworm	rgn	1.1×10^{3}
		plant	green algae	clr	2.2×10^{4}
			diatom	cyt	2.8×10^{3}
34210	2-propenal	insect	water flea	imm	9.3×10^{1}
			water flea	imm	5.1×10^{1}

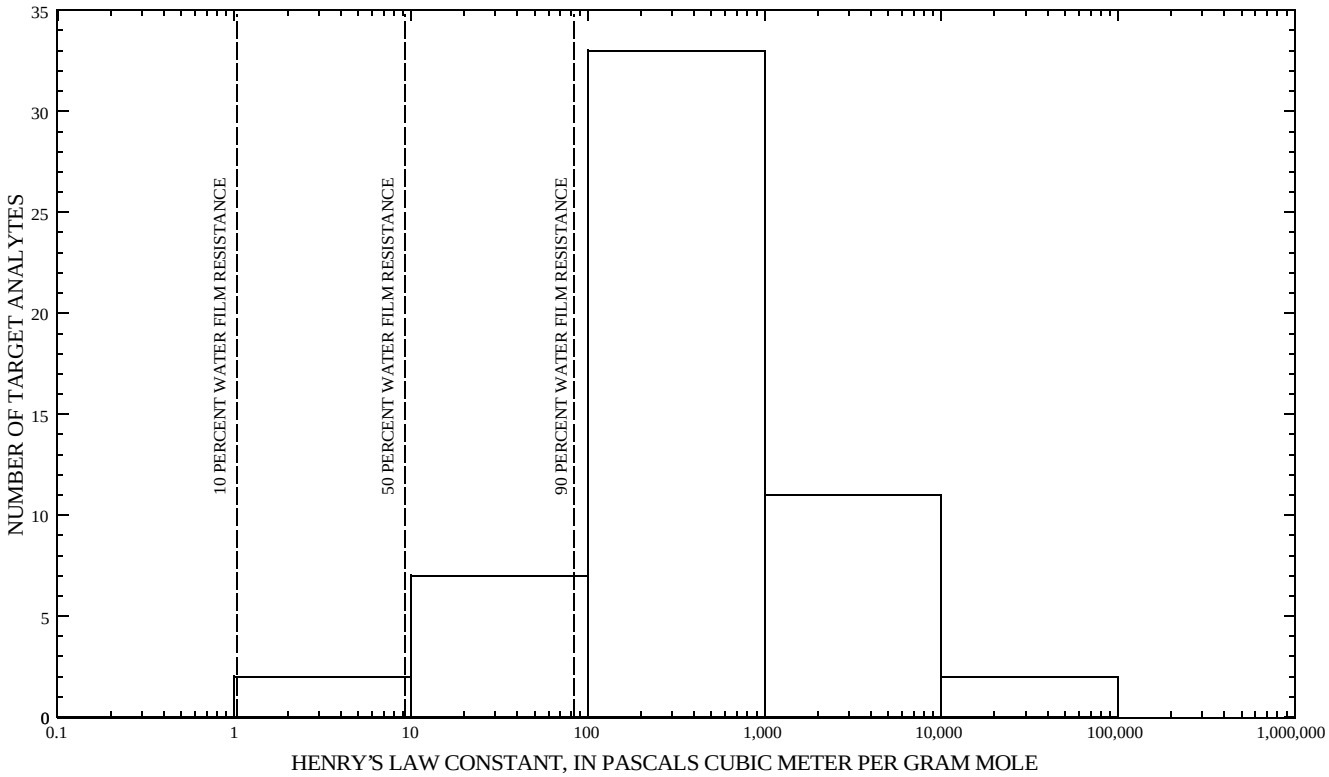

Figure 4. Frequency distribution of the Henry's law constants at 25 degrees Celsius for the target analytes.

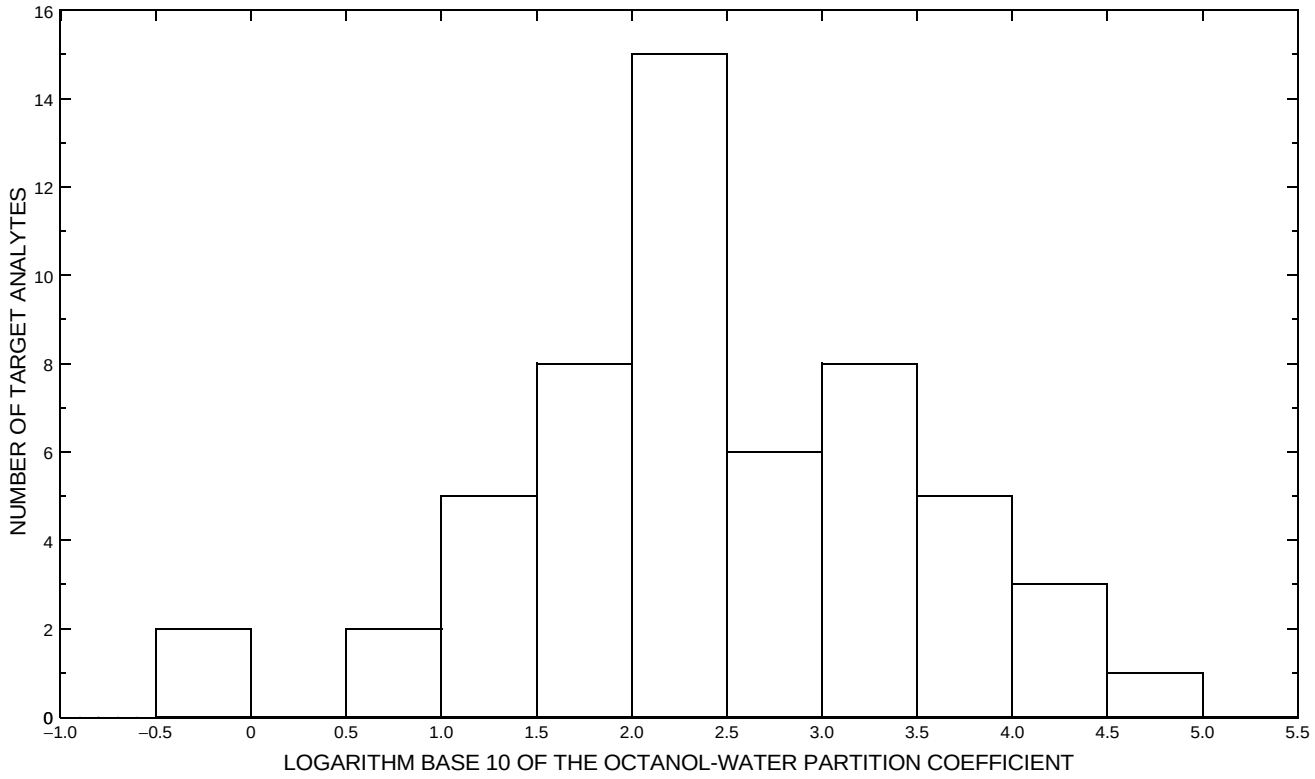

Figure 15. Frequency distribution of the logarithm base 10 of the octanol-water partition coefficient for the target analytes.

REFERENCES

Ashworth, R.A., Howe, G.B., Mullins, M.E., and Rogers, T.N., 1988, Air-water partitioning coefficients of organics in dilute aqueous solutions: Journal of Hazardous Materials, v. 18, p. 25–36.

Boyd, S.A., Xiangcan, J., and Lee, J.F., 1990, Sorption of nonionic organic compounds by corn residues from a no-tillage field: Journal Environmental Quality, v. 19, p. 734–738.

Bu, X., and Warner, M.J., 1995, Solubility of chlorofluorocarbon 113 in water and seawater: Deep-Sea Research, v. 42, no. 7, p. 1151–1161.

Burlinson, N.E., Lee, L.A., and Rosenblatt, D.H., 1982, Kinetics and products of hydrolysis of 1,2-dibromo-3-chloropropane: Environmental Science and Technology, v. 16, no. 9, p. 627–632.

Callahan, M.A., Slimak, M.W., Gabel, N.W., May, I.P., Fowler, C.F., Freed, J.R., Jennings, P., Durfee, R.L., Whitmore, F.C., Maestri, B., Mabey, W.R., Holt, B.R., and Gould, C., 1979, Water-related environmental fate of 129 priority pollutants: National Technical Information Service Report PB80–204373, v. I, 483 p., v. II, 664 p.

Chiou, C.T., Peters, L.J., and Freed, V.H., 1979, A physical concept of soil-water equilibria for nonionic organic compounds: Science, v. 206, p. 831–832.

Chiou, C.T., Porter, P.E., and Schmedding, D.W., 1983, Partition equilibria of nonionic organic compounds between soil organic matter and water: Environmental Science and Technology, v. 17, no. 4, p. 227–231.

Chow, V.T., 1964, Handbook of applied hydrology: New York, McGraw-Hill, 1453 p.

Churchill, M.A., Elmore, H.L., and Buckingham, R.A., 1962, The prediction of stream reaeration rates: Journal Sanitary Engineering Division, American Society of Civil Engineers, v. 88, no. SA4, p. 1–46.

Dewulf, Jo, Drijvers, David, and Van Langenhove, Herman, 1995, Measurement of Henry's law constant as function of temperature and salinity for the low temperature range: Atmospheric Environment, v. 29, no. 3, p. 323–331.

Dilling, W.L., Tefertiller, N.B., and Kallos, G.J., 1975, Evaporation rates and reactivities of methylene chloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, and other chlorinated compounds in dilute aqueous solutions: Environmental Science and Technology, v. 9, no. 9, p. 833–838.

Dobbs, R.A., Wang, Leping, and Govind, Rakesh, 1989, Sorption of toxic organic compounds on wastewater solids—Correlation with fundamental properties: Environmental Science and Technology, v. 23, no. 9, p. 1092–1097.

Dullin, David, Drossman, Howard, and Mill, Theodore, 1986, Products and quantum yields for photolysis of chloro-aromatics in water: Environmental Science and Technology, v. 20, no. 1, p. 72–77.

Fendinger, N.J., and Glotfelty, D.W., 1990, Henry's law constants for selected pesticides, PAHs and PCBs: Environmental Toxicology and Chemistry, v. 9, p. 731–735.

Friesel, Peter, Milde, Gerald, and Steiner, Bernd, 1984, Interactions of halogenated hydrocarbons with soils: Fresenius Zeitschrift fuer Analytische Chemie, v. 319, p. 160–164.

Garbarini, D.R., and Lion, L.W., 1985, Evaluation of sorptive partitioning of nonionic pollutants in closed systems by headspace analysis: Environmental Science and Technology, v. 19, no. 11, p. 1122–1128.

———1986, Influence of the nature of soil organics on the sorption of toluene and trichloroethylene: Environmental Science and Technology, v. 20, no. 12, p. 1263–1269.

Glew, D.N., and Moelwyn-Hughes, E.A., 1953, Chemical statics of the methyl halides in water: Discussions of the Faraday Society, no. 15, p. 150–161.

Gossett, J.M., 1987, Measurement of Henry's law constants for C_1 and C_2 chlorinated hydrocarbons: Environmental Science and Technology, v. 21, no. 2, p. 202–208.

Haag, W.R., and Mill, T., 1988, Effect of a subsurface sediment on hydrolysis of haloalkanes and epoxides: Environmental Science and Technology, v. 22, no. 6, p. 658–663.

Haag, W.R., and Yao, C.C.D., 1992, Rate constants for reaction of hydroxyl radicals with several drinking water contaminants: Environmental Science and Technology, v. 26, no. 5, p. 1005–1013.

Hamaker, J.W., and Thompson, J.M., 1972, Adsorption, *in* Goring, C.A.I., and Hamaker, J.W., eds., Organic chemicals in the soil environment, v. 1: New York, Marcel Dekker, p. 51–143.

Hart, K.M., Tremp, J., Molnar, E., and Giger, Walter, 1993, The occurrence and the fate of organic pollutants in the atmosphere: Water, Air, and Soil Pollution, v. 68, p. 91–112.

Hill, J., IV, Kollig, H.P., Paris, D.F., Wolfe, N.L., and Zepp, R.G., 1976, Dynamic behavior of vinyl chloride in aquatic ecosystems: National Technical Information Service Report PB–249 302, 63 p.

Howard, P.H., 1990, Handbook of environmental fate and exposure data for organic chemicals—volume II, Solvents: Chelsea, Mich., Lewis Publishers, 546 p.
———1991, Handbook of environmental fate and exposure data for organic chemicals—volume III, Pesticides: Chelsea, Mich., Lewis Publishers, 684 p.
Howard, P.H., Boethling, R.S., Jarvis, W.F., Meylan, W.M., and Michalenko, E.M., 1991, Environmental degradation rates: Chelsea, Mich., Lewis Publishers, 2d printing, 725 p.
Hunter-Smith, R.J., Balls, P.W., and Liss, P.S., 1983, Henry's law constants and the air-sea exchange of various low molecular weight halocarbon gases: Tellus, v. 35B, p. 170–176.
Ioffe, B.V., and Vitenberg, A.G., 1982, Head-space analysis and related methods in gas chromatography: New York, John Wiley, 276 p.
Jeffers, P.M., and Wolfe, N.L., 1996, Homogeneous hydrolysis rate constant, part II—Additions, corrections and halogen effects: Environmental Toxicology and Chemistry, v. 15, no. 7, p. 1066–1070.
Jeffers, P.M., Brenner, Christine, and Wolf, N.L., 1996, Hydrolysis of carbon tetrachloride: Environmental Toxicology and Chemistry, v. 15, no. 7, p. 1064–1065.
Jeffers, P.M., Ward, L.M., Woytowitch, L.M., and Wolfe, N.L., 1989, Homogeneous hydrolysis rate constants for selected chlorinated methanes, ethanes, ethenes, and propanes: Environmental Science and Technology, v. 23, no. 8, p. 965–969.
Karickhoff, S.W., 1981, Semi-empirical estimation of sorption of hydrophobic pollutants on natural sediments: Chemosphere, v. 10, no. 8, p. 833–846.
———1984, Organic pollutant sorption in aquatic systems: Journal of Hydraulic Engineering, American Society of Civil Engineers, v. 110, no. 6, p. 707–735.
Karickhoff, S.W., Brown, D.S., and Scott, T.A., 1979, Sorption of hydrophobic pollutants on natural sediments: Water Research, v. 13, p. 241–248.
Keeley, D.F., Hoffpauir, M.A., and Meriwether, J.R., 1988, Solubility of aromatic hydrocarbons in water and sodium chloride solutions of different ionic strength—Benzene and toluene: Journal of Chemical Engineering Data, v. 33, no. 2, p. 87–89.
Kenaga, E.E., and Goring, C.A.I., 1980, Relationship between water solubility, soil sorption, octanol-water partitioning, and concentration of chemicals in biota, *in* Eaton, J.G., Parrish, P.R., and Hendricks, A.C., eds., Aquatic toxicology: Philadelphia, Pa., American Society for Testing and Materials Special Technical Publication 707, p. 78–115.
Kile, D.E., Chiou, C.T., Zhou, H., Li, H., and Xu, O., 1995, Parititon of nonpolar organic pollutants from water to soil and sediment organic matter: Environmental Science and Technology, v. 29, no. 5, p. 1401–1406.
Kollig, H.P., 1993, Environmental fate constants for organic chemicals under consideration for EPA's hazardous waste identification projects: National Technical Information Service Report PB93–221646, 172 p.
———1995, Environmental fate constants for additional 27 organic chemicals under consideration for EPA's hazardous waste identification projects: National Technical Information Service Report PB95–188074, 18 p.
Lalezary, Shahla, Pirbazari, Massoud, McGuire, M.J., and Krasner, S.W., 1984, Air stripping of taste and odor compounds from water: Journal of the American Water Works Association, v. 76, no. 3, p. 83–87.
Leighton, D.T., Jr., and Calo, J.M., 1981, Distribution coefficients of chlorinated hydrocarbons in dilute air-water systems for groundwater contamination applications: Journal of Chemical Engineering Data, v. 26, no. 4, p. 382–385.
Ligocki, M.P., Leuenberger, C., and Pankow, J.F., 1985, Trace organic compounds in rain—II, Gas scavenging of neutral organic compounds: Atmospheric Environment, v. 19, no. 10, p. 1609–1617.
Lincoff, A.H., and Gossett, J.M., 1984, The determination of Henry's constant for volatile organics by equilibrium partitioning in closed systems, *in* Brutsaert, W., and Jirka, G.H., eds., Gas transfer at water surfaces, Ithaca, N.Y., Cornell University, June 13–15, 1983, Proceedings International Symposium on Gas Transfer at Water Surfaces: Dordrecht, D. Reidel Publishing Co., p. 17–25.
Mabey, W.R., and Mill, Theodore, 1978, Critical review of hydrolysis of organic compounds in water under environmental conditions: Journal of Physical and Chemical Reference Data, v. 7, no. 2, p. 383–415.
Mabey, W.R., Smith, J.H., Podoll, R.T., Johnson, H.L., Mill, Theodore, Chou, T.W., Gates, J., Partridge, I.W., Jaber, H., and Vandenberg, D., 1982, Aquatic fate process data for organic priority pollutants: National Technical Information Service Report PB87–169090, 434 p.
Mackay, Donald, and Shiu, W.Y., 1981, Critical review of Henry's law constants for chemicals of environmental interest: Journal of Physical and Chemical Reference Data, v. 10, no. 4, p. 1175–1199.

Mackay, Donald, Shiu, W.Y., Bobra, Alice, Billington, Jim, Chau, Eva, Yeun, Andrew, Ng, Cecilia, and Szeto, Foon, 1982, Volatilization of organic pollutants from water: National Technical Information Service Report PB82–230939, 200 p.

Mackay, Donald, Shiu, W.Y., and Ma, K.C., 1992a, Illustrated handbook of physical-chemical properties and environmental fate for organic chemicals—v. I, Monaromatic hydrocarbons, chlorobenzenes, and PCBs: Chelsea, Mich., Lewis Publishers, 697 p.

———1992b, Illustrated handbook of physical-chemical properties and environmental fate for organic chemicals—v. II, Polynuclear aromatic hydrocarbons, polychlorinated dioxins, and dibenzofurans: Chelsea, Mich., Lewis Publishers, 597 p.

———1993, Illustrated handbook of physical-chemical properties and environmental fate for organic chemicals—v. III, Volatile organic chemicals: Chelsea, Mich., Lewis Publishers, 916 p.

Mackay, Donald, Shiu, W.Y., and Sutherland, R.P., 1979, Determination of air-water Henry's law constants for hydrophobic pollutants: Environmental Science and Technology, v. 13, no. 3, p. 333–337.

McConnell, G., Ferguson, D.M., and Pearson, C.R., 1975, Chlorinated hydrocarbons and the environment: Endeavour, v. 34, p. 13–18.

Mingelgrin, U., and Gerstl, Z., 1983, Reevaluation of partitioning as a mechanism of nonionic chemicals adsorption in soils: Journal Environmental Quality, v. 12, no. 1, p. 1–11.

Munz, Christoph, and Roberts, P.V., 1982, Transfer of volatile organic contaminants into a gas phase during bubble aeration: Palo Alto, Calif., Stanford University, Department of Civil Engineering Technical Report 262, 140 p.

———1986, Effects of solute concentration and cosolvents on the aqueous activity coefficient of halogenated hydrocarbons: Environmental Science and Technology, v. 20, no. 8, p. 830–836.

———1987, Air-water phase equilibria of volatile organic solutes: Journal American Water Works Association, v. 79, no. 5, p. 62–69.

Nicholson, B.C., Maguire, B.P., and Bursill, D.B., 1984, Henry's law constants for the trihalomethanes— Effects of water composition and temperature: Environmental Science and Technology, v. 18, no. 7, p. 518–521.

O'Connor, D.J., and Dobbins, W.E., 1958, Mechanism of reaeration in natural streams: Transactions American Society of Civil Engineers, v. 123, p. 641–666.

Oliver, B.G., 1985, Desorption of chlorinated hydrocarbons from spiked and anthropogenically contaminated sediments: Chemosphere, v. 14, no. 8, p. 1087–1106.

Oliver, B.G., and Niimi, A.J., 1983, Bioconcentration of chlorobenzenes from water by rainbow trout— Correlations with partition coefficients and environmental residues: Environmental Science and Technology, v. 17, no. 5, p. 287–291.

———1985, Bioconcentration factors of some halogenated organics for rainbow trout—Limitations in their use for prediction of environmental residues: Environmental Science and Technology, v. 19, no. 9, p. 842–849.

Owens, M., Edwards, R.W., and Gibbs, J.W., 1964, Some reaeration studies in streams: International Journal Air and Water Pollution, v. 8, p. 469–486.

Pankow, J.F., Isabell, L.M., and Asher, W.E., 1984, Trace organic compounds in rain—1, Sampler design and analysis by adsorption/thermal desorption (ATD): Environmental Science and Technology, v. 18, no. 5, p. 310–318.

Park, Tracy, Rettich, T.R., Battino, Rubin, Peterson, Dennis, and Wilhelm, Emmerich, 1982, Solubility of gases in liquids—14, Bunsen coefficients for several fluorine-containing gases (Freons) dissolved in water at 298.15 K: Journal of Chemical Engineering Data, v. 27, no. 3, p. 324–326.

Pereira, W.E., Rostad, C.E., Chiou, C.T., Brinton, T.I, Barber, L.B., II, Demcheck, D.K., and Demas, C.R., 1988, Contamination of estuarine water, biota, and sediment by halogenated organic compounds—A field study: Environmental Science and Technology, v. 22, no. 7, p. 772–778.

Radding, S.B., Liu, D.H., Johnson, H.L., and Mill, Theodore, 1977, Review of the environmental fate of selected chemicals: National Technical Information Service Report PB–267 121, 147 p.

Robbins, G.A., Wang, S., and Stuart, J.D., 1993, Using the static headspace method to determine Henry's law constants: Analytical Chemistry, v. 65, no. 21, p. 3113–3118.

Rogers, R.D., McFarlane, J.C., and Cross, A.J., 1980, Adsorption and desorption of benzene in two soils and montmorillonite clay: Environmental Science and Technology, v. 14, no. 4, p. 457–460.

Rowe, B.L., Landrigan, S.J., and Lopes, T.J., 1997, Summary of published aquatic toxicity information and water-quality criteria for selected volatile organic compounds: U.S. Geological Survey Open-File Report 97–563, 60 p.

Rutherford, D.W., and Chiou, C.T., 1992, Effect of water saturation in soil organic matter on the partition of organic compounds: Environmental Science and Technology, v. 26, no. 5, p. 965–970.
Rutherford, D.W., Chiou, C.T., and Kile, D.E., 1992, Influence of soil organic matter composition on the partition of organic compounds: Environmental Science and Technology, v. 26, no. 2, p. 336–340.
Schwarzenbach, R.P., and Westall, J., 1981, Transport of nonpolar organic compounds from surface water to groundwater. Laboratory sorption studies: Environmental Science and Technology, v. 15, no. 11, p. 1360–1367.
Seip, H.M., Alstad, J., Carlberg, G.E., Martinsen, K., and Skaane, R., 1986, Measurement of mobility of organic compounds in soils: The Science of the Total Environment, v. 50, p. 87–101.
Sijm, D.T.H.M., and van der Linde, A., 1995, Size-dependent bioconcentration kinetics of hydrophobic organic chemicals in fish based on diffusive mass transfer and allometric relationships: Environmental Science and Technology, v. 29, no. 11, p. 2769–2777.
Southworth, G.R., 1979, The role of volatilization in removing polycyclic aromatic hydrocarbons from aquatic environments: Bulletin Environmental Contamination and Toxicology, v. 21, p. 507–514.
Steinberg, S.M., Pignatello, J.J., and Sawhney, B.L., 1987, Persistence of 1,2-dibromoethane in soils—Entrapment in intraparticle micropores: Environmental Science and Technology, v. 21, no. 12, p. 1201–1208.
Tancrede, M.V., and Yanagisawa, Y., 1990, An analytical method to determine Henry's law constant for selected volatile organic compounds at concentrations and temperatures corresponding to tap water use: Journal of the Air and Waste Management Association, v. 40, no. 12, p. 1658–1663.
Veith, G.D., Macek, K.J., Petrocelli, S.R., and Carroll, J., 1980, An evaluation of using partition coefficients and water solubility to estimate bioconcentration factors for organic chemicals in fish, *in* Eaton, J.G., Parrish, P.R., and Hendricks, A.C., eds., Aquatic toxicology: Philadelphia, Pa., American Society for Testing and Materials Special Technical Publication 707, p. 116–129.
Verschueren, Karel, 1983, Handbook of environmental data on organic chemicals: New York, Van Nostrand Reinhold, 2d ed., 1310 p.
Vogel, T.M., and Reinhard, M., 1986, Reaction products and rate of disappearance of simple bromoalkanes, 1,2-dibromopropane, and 1,2-dibromoethane in water: Environmental Science and Technology, v. 20, no. 10, p. 992–997.
Voice, T.C., Rice, C.P., and Weber, W.J., Jr., 1983, Effect of solids concentration on the sorptive partitioning of hydrophobic pollutants in aquatic systems: Environmental Science and Technology, v. 17, no. 9, p. 513–518.
Warner, H.P., Cohen, J.M., and Ireland, J.C., 1987, Determination of Henry's law constants of selected priority pollutants: National Technical Information Service Report PB87–212684, 14 p.
Warner, M.J., and Weiss, R.F., 1985, Solubilities of chlorofluorocarbons 11 and 12 in water and seawater: Deep-Sea Research, v. 32, no. 12, p. 1485–1497.
Washington, J.W., 1995, Hydrolysis rates of dissolved volatile organic compounds—Principles, temperature effects and literature review: Ground Water, v. 33, no. 3, p. 415–424.
Whitman, B.E., Mihelcic, J.R., and Lueking, D.R., 1995, Naphthalene biosorption in soil/water systems of low or high sorptive capacity: Applied Microbiology and Biotechnology, v. 43, p. 539–544.
Wu, S.C., and Gschwend, P.M., 1986, Sorption kinetics of hydrophobic organic compounds to natural sediments and soils: Environmental Science and Technology, v. 20, no. 7, p. 717–725.
Yurteri, C., Ryan, D.F., Callow, J.J., and Gurol, M.D., 1987, The effect of chemical composition of water on Henry's law constant: Journal Water Pollution Control Federation, v. 59, no. 11, p. 950–956.