

Formation Constants at 25°C

Ligand	Cation	$\log K_1$	$\log K_2$	$\log K_3$	$\log K_4$	Ionic Strength
Acetate (CH ₃ COO ⁻)	Ag ⁺	0.73	-0.9			0.0
	Ca ²⁺	1.18				0.0
	Cd ²⁺	1.93	1.22			0.0
	Cu ²⁺	2.21	1.42			0.0
	Fe ³⁺	3.38*	3.1*	1.8*		0.1
	Hg ²⁺	$\log K_1K_2 = 8.45$				0.0
	Mg ²⁺	1.27				0.0
	Pb ²⁺	2.68	1.40			0.0
Ammonia (NH ₃)	Ag ⁺	3.31	3.91			0.0
	Cd ²⁺	2.55	2.01	1.34	0.84	0.0
	Co ²⁺	1.99*	1.51	0.93	0.64	0.0
		$\log K_5 = 0.06$	$\log K_6 = -0.74$			0.0
	Cu ²⁺	4.04	3.43	2.80	1.48	0.0
	Hg ²⁺	8.8	8.6	1.0	0.7	0.5
	Ni ²⁺	2.72	2.17	1.66	1.12	0.0
		$\log K_5 = 0.67$	$\log K_6 = -0.03$			0.0
	Zn ²⁺	2.21	2.29	2.36	2.03	0.0
Bromide (Br ⁻)	Ag ⁺	$\text{Ag}^+ + 2\text{Br}^- \rightleftharpoons \text{AgBr}_2^-$		$\log K_1K_2 = 7.5$		0.0
	Hg ²⁺	9.00	8.1	2.3	1.6	0.5
	Pb ²⁺	1.77				0.0
Chloride (Cl ⁻)	Ag ⁺	$\text{Ag}^+ + 2\text{Cl}^- \rightleftharpoons \text{AgCl}_2^-$		$\log K_1K_2 = 5.25$		0.0
		$\text{AgCl}_2^- + \text{Cl}^- \rightleftharpoons \text{AgCl}_3^{2-}$		$\log K_3 = 0.37$		0.0
	Cu ⁺	$\text{Cu}^+ + 2\text{Cl}^- \rightleftharpoons \text{CuCl}_2^-$		$\log = 5.5^*$		0.0
	Fe ³⁺	1.48	0.65			0.0
	Hg ²⁺	7.30	6.70	1.0	0.6	0.0
	Pb ²⁺	$\text{Pb}^{2+} + 3\text{Cl}^- \rightleftharpoons \text{PbCl}_3^-$		$\log K_1K_2K_3 = 1.8$		0.0
	Sn ²⁺	1.51	0.74	-0.3	-0.5	0.0
		$\text{Ag}^+ + 2\text{CN}^- \rightleftharpoons \text{Ag}(\text{CN})_2^-$		$\log K_1K_2 = 20.48$		0.0
Cyanide (CN ⁻)	Cd ²⁺	6.01	5.11	4.53	2.27	0.0
	Hg ²⁺	17.00	15.75	3.56	2.66	0.0
	Ni ²⁺	$\text{Ni}^{2+} + 4\text{CN}^- \rightleftharpoons \text{Ni}(\text{CN})_4^-$		$\log K_1K_2K_3K_4 = 30.22$		0.0
	Zn ²⁺	$\log K_1K_2 = 11.07$		4.98	3.57	0.0
	EDTA	See Table 17-4, page 418.				
Fluoride (F ⁻)	Al ³⁺	7.0	5.6	4.1	2.4	0.0
	Fe ³⁺	5.18	3.89	3.03		0.0
Hydroxide (OH ⁻)	Al ³⁺	$\text{Al}^{3+} + 4\text{OH}^- \rightleftharpoons \text{Al}(\text{OH})_4^-$		$\log K_1K_2K_3K_4 = 33.4$		0.0
	Cd ²⁺	3.9	3.8			0.0
	Cu ²⁺	6.5				0.0
	Fe ²⁺	4.6				0.0
	Fe ³⁺	11.81	11.5			0.0
	Hg ²⁺	10.60	11.2			0.0
	Ni ²⁺	4.1	4.9	3		0.0
	Pb ²⁺	6.4	$\text{Pb}^{2+} + 3\text{OH}^- \rightleftharpoons \text{Pb}(\text{OH})_3^-$		$\log K_1K_2K_3 = 13.9$	
Zn ²⁺	5.0	$\text{Zn}^{2+} + 4\text{OH}^- \rightleftharpoons \text{Zn}(\text{OH})_4^{2-}$		$\log K_1K_2K_3K_4 = 15.5$		0.0

continues

Ligand	Cation	$\log K_1$	$\log K_2$	$\log K_3$	$\log K_4$	Ionic Strength	
Iodide (I^-)	Cd^{2+}	2.28	1.64	1.0	1.0	0.0	
	Cu^+	$Cu^+ + 2I^- \rightleftharpoons CuI_2^-$	$\log K_1K_2 = 8.9$			0.0	
	Hg^{2+}	12.87	10.95	3.8	2.2	0.5	
	Pb^{2+}	$Pb^{2+} + 3I^- \rightleftharpoons PbI_3^-$	$\log K_1K_2K_3 = 3.9$				0.0
		$Pb^{2+} + 4I^- \rightleftharpoons PbI_4^{2-}$	$\log K_1K_2K_3K_4 = 4.5$				0.0
Oxalate ($C_2O_4^{2-}$)	Al^{3+}	5.97	4.96	5.04		0.1	
	Ca^{2+}	3.19				0.0	
	Cd^{2+}	2.73	1.4	1.0		1.0	
	Fe^{3+}	7.58	6.23	4.8		1.0	
	Mg^{2+}	3.42(18°C)					
	Pb^{2+}		4.20	2.11			1.0
		Al^{3+}	3.89				0.0
Sulfate (SO_4^{2-})	Ca^{2+}	2.13				0.0	
	Cu^{2+}	2.34				0.0	
	Fe^{3+}		4.04	1.34			0.0
		Mg^{2+}	2.23				0.0
	Thiocyanate (SCN^-)	Cd^{2+}	1.89	0.89	0.1		0.0
		Cu^+	$Cu^+ + 3SCN^- \rightleftharpoons Cu(SCN)_3^{2-}$	$\log K_1K_2K_3 = 11.60$			0.0
Fe^{3+}		3.02	0.62*			0.0	
Hg^{2+}		$\log K_1K_2 = 17.26$		2.7	1.8	0.0	
Ni^{2+}		1.76				0.0	
Thiosulfate ($S_2O_3^{2-}$)	Ag^+	8.82*	4.7	0.7		0.0	
	Cu^{2+}	$\log K_1K_2 = 6.3$				0.0	
	Hg^{2+}	$\log K_1K_2 = 29.23$		1.4		0.0	