

TABLE 3-3 Some Common Types of Solubility Product Constant Expressions

Formula	Solubility equilibrium	Expression for K_{sp}
MX	$\text{MX(s)} \rightleftharpoons \text{M}^+(\text{aq}) + \text{X}^-(\text{aq})$	$[\text{M}^+][\text{X}^-] \quad s^2$
	or $\text{MX(s)} \rightleftharpoons \text{M}^{2+}(\text{aq}) + \text{X}^{2-}(\text{aq})$	$[\text{M}^{2+}][\text{X}^{2-}] \quad s^2$
	or $\text{MX(s)} \rightleftharpoons \text{M}^{3+}(\text{aq}) + \text{X}^{3-}(\text{aq})$	$[\text{M}^{3+}][\text{X}^{3-}] \quad s^2$
MX_2	$\text{MX}_2(\text{s}) \rightleftharpoons \text{M}^{2+}(\text{aq}) + 2 \text{X}^-(\text{aq})$	$[\text{M}^{2+}][\text{X}^-]^2 \quad 4s^3$
M_2X	$\text{M}_2\text{X(s)} \rightleftharpoons 2 \text{M}^+(\text{aq}) + \text{X}^{2-}(\text{aq})$	$[\text{M}^+]^2[\text{X}^{2-}] \quad 4s^3$
MX_3	$\text{MX}_3(\text{s}) \rightleftharpoons \text{M}^{3+}(\text{aq}) + 3 \text{X}^-(\text{aq})$	$[\text{M}^{3+}][\text{X}^-]^3 \quad 27s^4$
M_3X	$\text{M}_3\text{X(s)} \rightleftharpoons 3 \text{M}^+(\text{aq}) + \text{X}^{3-}(\text{aq})$	$[\text{M}^+]^3[\text{X}^{3-}] \quad 27s^4$
M_2X_3	$\text{M}_2\text{X}_3(\text{s}) \rightleftharpoons 2 \text{M}^{3+}(\text{aq}) + 3 \text{X}^{2-}(\text{aq})$	$[\text{M}^{3+}]^2[\text{X}^{2-}]^3 \quad 108s^5$
M_3X_2	$\text{M}_3\text{X}_2(\text{s}) \rightleftharpoons 3 \text{M}^{2+}(\text{aq}) + 2 \text{X}^{3-}(\text{aq})$	$[\text{M}^{2+}]^3[\text{X}^{3-}]^2 \quad 108s^5$

TABLE 3-2 Solubility Product Constant Values at 25°C

Solute	Solubility equilibrium	K_{sp}
aluminum hydroxide	$\text{Al(OH)}_3(\text{s}) \rightleftharpoons \text{Al}^{3+} + 3 \text{OH}^-$	1.3×10^{-33}
antimony(III) sulfide	$\text{Sb}_2\text{S}_3(\text{s}) \rightleftharpoons 2 \text{Sb}^{3+} + 3 \text{S}^{2-}$	5×10^{-51}
arsenic(III) sulfide	$\text{As}_2\text{S}_3(\text{s}) \rightleftharpoons 2 \text{As}^{3+} + 3 \text{S}^{2-}$	2.1×10^{-21}
barium carbonate	$\text{BaCO}_3(\text{s}) \rightleftharpoons \text{Ba}^{2+} + \text{CO}_3^{2-}$	5.1×10^{-9}
barium chromate	$\text{BaCrO}_4(\text{s}) \rightleftharpoons \text{Ba}^{2+} + \text{CrO}_4^{2-}$	1.2×10^{-10}
barium fluoride	$\text{BaF}_2(\text{s}) \rightleftharpoons \text{Ba}^{2+} + 2 \text{F}^-$	1.7×10^{-6}
barium hydroxide	$\text{Ba(OH)}_2(\text{s}) \rightleftharpoons \text{Ba}^{2+} + 2 \text{OH}^-$	5×10^{-3}
barium oxalate	$\text{BaC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Ba}^{2+} + \text{C}_2\text{O}_4^{2-}$	1.6×10^{-7}
barium phosphate	$\text{Ba}_3(\text{PO}_4)_2(\text{s}) \rightleftharpoons 3 \text{Ba}^{2+} + 2 \text{PO}_4^{3-}$	4.0×10^{-23}
barium sulfate	$\text{BaSO}_4(\text{s}) \rightleftharpoons \text{Ba}^{2+} + \text{SO}_4^{2-}$	1.1×10^{-10}
barium thiosulfate	$\text{BaS}_2\text{O}_3(\text{s}) \rightleftharpoons \text{Ba}^{2+} + \text{S}_2\text{O}_3^{2-}$	1.6×10^{-5}
bismuth(III) sulfide	$\text{Bi}_2\text{S}_3(\text{s}) \rightleftharpoons 2 \text{Bi}^{3+} + 3 \text{S}^{2-}$	1×10^{-97}
cadmium carbonate	$\text{CdCO}_3(\text{s}) \rightleftharpoons \text{Cd}^{2+}(\text{aq}) + \text{CO}_3^{2-}$	5.2×10^{-12}
cadmium sulfide	$\text{CdS(s)} \rightleftharpoons \text{Cd}^{2+} + \text{S}^{2-}$	8.0×10^{-27}
calcium carbonate	$\text{CaCO}_3(\text{s}) \rightleftharpoons \text{Ca}^{2+} + \text{CO}_3^{2-}$	2.8×10^{-9}
calcium fluoride	$\text{CaF}_2(\text{s}) \rightleftharpoons \text{Ca}^{2+} + 2 \text{F}^-$	2.7×10^{-11}
calcium hydroxide	$\text{Ca(OH)}_2(\text{s}) \rightleftharpoons \text{Ca}^{2+} + 2 \text{OH}^-$	5.5×10^{-6}
calcium oxalate	$\text{CaC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Ca}^{2+} + \text{C}_2\text{O}_4^{2-}$	2.6×10^{-9}
calcium phosphate	$\text{Ca}_3(\text{PO}_4)_2(\text{s}) \rightleftharpoons 3 \text{Ca}^{2+} + 2 \text{PO}_4^{3-}$	2.0×10^{-29}
calcium sulfate	$\text{CaSO}_4(\text{s}) \rightleftharpoons \text{Ca}^{2+} + \text{SO}_4^{2-}$	9.1×10^{-6}
chromium(III) hydroxide	$\text{Cr(OH)}_3(\text{s}) \rightleftharpoons \text{Cr}^{3+} + 3 \text{OH}^-$	6.3×10^{-31}
cobalt(II) hydroxide	$\text{Co(OH)}_2(\text{s}) \rightleftharpoons \text{Co}^{2+} + 2 \text{OH}^-$	2.5×10^{-16}
cobalt(III) hydroxide	$\text{Co(OH)}_3(\text{s}) \rightleftharpoons \text{Co}^{3+} + 3 \text{OH}^-$	1×10^{-43}
cobalt(II) sulfide	$\text{CoS(s)} \rightleftharpoons \text{Co}^{2+} + \text{S}^{2-}$	4.0×10^{-21}
copper(I) bromide	$\text{CuBr(s)} \rightleftharpoons \text{Cu}^+ + \text{Br}^-$	5.3×10^{-9}
copper(I) chloride	$\text{CuCl(s)} \rightleftharpoons \text{Cu}^+ + \text{Cl}^-$	1.2×10^{-6}
copper(I) iodide	$\text{CuI(s)} \rightleftharpoons \text{Cu}^+ + \text{I}^-$	1.1×10^{-12}
copper(I) thiocyanate	$\text{CuSCN(s)} \rightleftharpoons \text{Cu}^+ + \text{SCN}^-$	4.8×10^{-15}
copper(II) carbonate	$\text{CuCO}_3(\text{s}) \rightleftharpoons \text{Cu}^{2+} + \text{CO}_3^{2-}$	1.4×10^{-10}
copper(II) phosphate	$\text{Cu}_3(\text{PO}_4)_2(\text{s}) \rightleftharpoons 3 \text{Cu}^{2+} + 2 \text{PO}_4^{3-}$	1.3×10^{-37}
copper(II) sulfide	$\text{CuS(s)} \rightleftharpoons \text{Cu}^{2+} + \text{S}^{2-}$	6.3×10^{-36}
iron(II) hydroxide	$\text{Fe(OH)}_2(\text{s}) \rightleftharpoons \text{Fe}^{2+} + 2 \text{OH}^-$	1.8×10^{-15}
iron(II) sulfide	$\text{FeS(s)} \rightleftharpoons \text{Fe}^{2+} + \text{S}^{2-}$	6.3×10^{-18}
iron(III) hydroxide	$\text{Fe(OH)}_3(\text{s}) \rightleftharpoons \text{Fe}^{3+} + 3 \text{OH}^-$	4×10^{-38}
iron(III) phosphate	$\text{FePO}_4(\text{s}) \rightleftharpoons \text{Fe}^{3+} + \text{PO}_4^{3-}$	1.3×10^{-22}
lead(II) bromide	$\text{PbBr}_2(\text{s}) \rightleftharpoons \text{Pb}^{2+} + 2 \text{Br}^-$	4.0×10^{-5}
lead(II) chloride	$\text{PbCl}_2(\text{s}) \rightleftharpoons \text{Pb}^{2+} + 2 \text{Cl}^-$	1.6×10^{-5}
lead(II) chromate	$\text{PbCrO}_4(\text{s}) \rightleftharpoons \text{Pb}^{2+} + \text{CrO}_4^{2-}$	2.8×10^{-13}

lead(II) hydroxide	$\text{Pb(OH)}_2(\text{s}) \rightleftharpoons \text{Pb}^{2+} + 2 \text{OH}^-$	1.2×10^{-15}
lead(II) iodide	$\text{PbI}_2(\text{s}) \rightleftharpoons \text{Pb}^{2+} + 2 \text{I}^-$	7.1×10^{-9}
lead(II) sulfate	$\text{PbSO}_4(\text{s}) \rightleftharpoons \text{Pb}^{2+} + \text{SO}_4^{2-}$	1.6×10^{-8}
lead(II) sulfide	$\text{PbS}(\text{s}) \rightleftharpoons \text{Pb}^{2+} + \text{S}^{2-}$	8.0×10^{-28}
lead(II) thiocyanate	$\text{Pb(SCN)}_2(\text{s}) \rightleftharpoons \text{Pb}^{2+} + 2 \text{SCN}^-$	2.0×10^{-5}
lead(II) thiosulfate	$\text{PbS}_2\text{O}_3(\text{s}) \rightleftharpoons \text{Pb}^{2+} + \text{S}_2\text{O}_3^{2-}$	4.0×10^{-7}
lithium phosphate	$\text{Li}_3\text{PO}_4(\text{s}) \rightleftharpoons 3 \text{Li}^+ + \text{PO}_4^{3-}$	3.2×10^{-9}
magnesium carbonate	$\text{MgCO}_3(\text{s}) \rightleftharpoons \text{Mg}^{2+} + \text{CO}_3^{2-}$	3.5×10^{-8}
magnesium fluoride	$\text{MgF}_2(\text{s}) \rightleftharpoons \text{Mg}^{2+} + 2 \text{F}^-$	3.7×10^{-8}
magnesium hydroxide	$\text{Mg(OH)}_2(\text{s}) \rightleftharpoons \text{Mg}^{2+} + 2 \text{OH}^-$	1.8×10^{-11}
magnesium oxalate	$\text{MgC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Mg}^{2+} + \text{C}_2\text{O}_4^{2-}$	8.6×10^{-5}
magnesium phosphate	$\text{Mg}_3(\text{PO}_4)_2(\text{s}) \rightleftharpoons 3 \text{Mg}^{2+} + 2 \text{PO}_4^{3-}$	1×10^{-25}
magnesium sulfite	$\text{MgSO}_3(\text{s}) \rightleftharpoons \text{Mg}^{2+} + \text{SO}_3^{2-}$	3.2×10^{-3}
manganese(II) sulfide	$\text{MnS}(\text{s}) \rightleftharpoons \text{Mn}^{2+} + \text{S}^{2-}$	2.5×10^{-13}
mercury(I) bromide	$\text{Hg}_2\text{Br}_2(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + 2 \text{Br}^-$	5.6×10^{-23}
mercury(I) chloride	$\text{Hg}_2\text{Cl}_2(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + 2 \text{Cl}^-$	1.3×10^{-18}
mercury(I) chromate	$\text{Hg}_2\text{CrO}_4(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + 2 \text{CrO}_4^{2-}$	2.0×10^{-9}
mercury(I) iodide	$\text{Hg}_2\text{I}_2(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + 2 \text{I}^-$	4.5×10^{-29}
mercury(I) thiocyanate	$\text{Hg}_2(\text{SCN})_2(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + 2 \text{SCN}^-$	2.0×10^{-20}
mercury(I) sulfide	$\text{Hg}_2\text{S}(\text{s}) \rightleftharpoons \text{Hg}_2^{2+} + \text{S}^{2-}$	1.0×10^{-47}
mercury(II) sulfide	$\text{HgS}(\text{s}) \rightleftharpoons \text{Hg}^{2+} + \text{S}^{2-}$	1.6×10^{-52}
nickel(II) hydroxide	$\text{Ni(OH)}_2(\text{s}) \rightleftharpoons \text{Ni}^{2+} + 2 \text{OH}^-$	2.0×10^{-15}
nickel(II) sulfide	$\text{NiS}(\text{s}) \rightleftharpoons \text{Ni}^{2+} + \text{S}^{2-}$	3.2×10^{-19}
silver bromide	$\text{AgBr}(\text{s}) \rightleftharpoons \text{Ag}^+ + \text{Br}^-$	5.0×10^{-13}
silver carbonate	$\text{Ag}_2\text{CO}_3(\text{s}) \rightleftharpoons 2 \text{Ag}^+ + \text{CO}_3^{2-}$	8.1×10^{-12}
silver chloride	$\text{AgCl}(\text{s}) \rightleftharpoons \text{Ag}^+ + \text{Cl}^-$	1.6×10^{-10}
silver chromate	$\text{Ag}_2\text{CrO}_4(\text{s}) \rightleftharpoons 2 \text{Ag}^+ + \text{CrO}_4^{2-}$	2.4×10^{-12}
silver iodide	$\text{AgI}(\text{s}) \rightleftharpoons \text{Ag}^+ + \text{I}^-$	8.5×10^{-17}
silver oxalate	$\text{Ag}_2\text{C}_2\text{O}_4(\text{s}) \rightleftharpoons 2 \text{Ag}^+ + \text{C}_2\text{O}_4^{2-}$	3.4×10^{-11}
silver phosphate	$\text{Ag}_3\text{PO}_4(\text{s}) \rightleftharpoons 3 \text{Ag}^+ + \text{PO}_4^{3-}$	1.4×10^{-16}
silver sulfate	$\text{Ag}_2\text{SO}_4(\text{s}) \rightleftharpoons 2 \text{Ag}^+ + \text{SO}_4^{2-}$	1.4×10^{-5}
silver sulfide	$\text{Ag}_2\text{S}(\text{s}) \rightleftharpoons 2 \text{Ag}^+ + \text{S}^{2-}$	6.3×10^{-50}
silver thiocyanate	$\text{AgSCN} \rightleftharpoons \text{Ag}^+ + \text{SCN}^-$	1.0×10^{-12}
strontium carbonate	$\text{SrCO}_3(\text{s}) \rightleftharpoons \text{Sr}^{2+} + \text{CO}_3^{2-}$	1.1×10^{-10}
strontium chromate	$\text{SrCrO}_4(\text{s}) \rightleftharpoons \text{Sr}^{2+} + \text{CrO}_4^{2-}$	2.2×10^{-5}
strontium fluoride	$\text{SrF}_2(\text{s}) \rightleftharpoons \text{Sr}^{2+} + 2 \text{F}^-$	2.5×10^{-9}
strontium hydroxide	$\text{Sr(OH)}_2(\text{s}) \rightleftharpoons \text{Sr}^{2+} + 2 \text{OH}^-$	3.2×10^{-4}
strontium oxalate	$\text{SrC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Sr}^{2+} + \text{C}_2\text{O}_4^{2-}$	1.6×10^{-7}
strontium phosphate	$\text{Sr}_3(\text{PO}_4)_2(\text{s}) \rightleftharpoons 3 \text{Sr}^{2+} + 2 \text{PO}_4^{3-}$	4.0×10^{-28}
strontium sulfate	$\text{SrSO}_4(\text{s}) \rightleftharpoons \text{Sr}^{2+} + \text{SO}_4^{2-}$	3.2×10^{-7}
thallium(I) bromide	$\text{TlBr}(\text{s}) \rightleftharpoons \text{Tl}^+ + \text{Br}^-$	3.4×10^{-6}
thallium(I) chloride	$\text{TlCl}(\text{s}) \rightleftharpoons \text{Tl}^+ + \text{Cl}^-$	1.7×10^{-4}
thallium(I) iodide	$\text{TlI}(\text{s}) \rightleftharpoons \text{Tl}^+ + \text{I}^-$	6.5×10^{-8}
thallium(I) thiocyanate	$\text{TlSCN}(\text{s}) \rightleftharpoons \text{Tl}^+ + \text{SCN}^-$	1.7×10^{-4}
tin(II) sulfide	$\text{SnS}(\text{s}) \rightleftharpoons \text{Sn}^{2+} + \text{S}^{2-}$	1.0×10^{-25}
tin(IV) sulfide	$\text{SnS}_2(\text{s}) \rightleftharpoons \text{Sn}^{4+} + 2 \text{S}^{2-}$	$< 10^{-60}$
zinc oxalate	$\text{ZnC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Zn}^{2+} + \text{C}_2\text{O}_4^{2-}$	2.7×10^{-8}
zinc sulfide	$\text{ZnS}(\text{s}) \rightleftharpoons \text{Zn}^{2+} + \text{S}^{2-}$	1.0×10^{-21}

SUMMARY OF SOLUBILITY PROPERTIES OF IONS AND SOLIDS

	Cl ⁻ , Br ⁻ , I ⁻ , SCN ⁻	SO ₄ ²⁻	CO ₃ ²⁻	PO ₄ ³⁻	C ₂ O ₄ ²⁻	CO ₃ ²⁻
Na ⁺ , K ⁺ , NH ₄ ⁺	S	S	S	S	S	S
Ba ²⁺	S	I	A	A ⁻	A	A ⁻
Ca ²⁺	S	S ⁻	S	A ⁻	A	A ⁻
Mg ²⁺	S	S	S	A ⁻	A ⁻	A ⁻
Fe ³⁺ (yellow)	S ^o	S	A ⁻	A	S	D, A ⁻
Cr ³⁺ (blue-gray)	S	S	A ⁻	A	S	A ⁻
Al ³⁺	S	S	A ⁻ , C	A, C	A ⁻ , C	D, A ⁻ , C
Ni ²⁺ (green)	S	S	S	A ⁻ , C	A, C	A ⁻ , C
Co ²⁺ (pink)	S	S	A ⁻	A ⁻	A ⁻	A ⁻
Zn ²⁺	S	S	A ⁻ , C	A ⁻ , C	A ⁻ , C	A ⁻ , C
Mn ²⁺ (pale pink)	S	S	S	A ⁻	A ⁻	A ⁻
Cu ²⁺ (blue)	S ^o	S	A ⁻ , C	A ⁻ , C	A, C	A ⁻ , C
Cd ²⁺	S	S	A ⁻ , C	A ⁻ , C	A, C	A ⁻ , C
Bi ³⁺	A	A ⁻	A	A	A	A ⁻
Hg ²⁺	S ^o	S	A	A ⁻	A	A ⁻
Sn ²⁺ , Sn ⁴⁺	A, C	A, C	A, C	A, C	A, C	A, C
Sb ³⁺	A, C	A, C	A, C	A, C	A ⁻ , C	A, C
Ag ⁺	C ^o	S ⁻	A, C	A, C	A, C	A ⁻ , C
Pb ²⁺	C, HW	C	C	A, C	A, C	A ⁻ , C
Hg ₂ ²⁺	O ⁺	A	A	A	O	A

	SO ₃ ²⁻	S ²⁻	O ²⁻ , OH ⁻	NO ₃ ⁻ , ClO ₃ ⁻ , C ₂ H ₃ O ₂ ⁻ , NO ₂ ⁻	Complexes
Na ⁺ , K ⁺ , NH ₄ ⁺	S	S	S	S	—
Ba ²⁺	A	S	S ⁻	S	—
Ca ²⁺	A ⁻	D, A ⁻	S ⁻	S	—
Mg ²⁺	S	D, A ⁻	A ⁻	S	—
Fe ³⁺ (yellow)	D, S	D, A ⁻	A ⁻	S	—
Cr ³⁺ (blue-gray)	S	D, A ⁻	A ⁻	S	•
Al ³⁺	A ⁻ , C	D, A ⁻ , C	A ⁻ , C	S	OH ⁻
Ni ²⁺ (green)	A ⁻	O	A ⁻ , C	S	NH ₃
Co ²⁺ (pink)	A ⁻	O	A ⁻	S	•
Zn ²⁺	S	A ⁻ , C	A ⁻ , C	S	OH ⁻ , NH ₃
Mn ²⁺ (pale pink)	S	A ⁻	A ⁻	S	—
Cu ²⁺ (blue)	A ⁻ , C	O	A ⁻ , C	S	NH ₃
Cd ²⁺	A ⁻ , C	A	A ⁻ , C	S	NH ₃
Bi ³⁺	A	A ⁺ , O	A ⁻	A ⁻	—
Hg ²⁺	D, O	O ⁺	A ⁻	S	—
Sn ²⁺ , Sn ⁴⁺	A, C	A, C	A, C	A, C	OH ⁻
Sb ³⁺	A, C	A, C	A, C	A, C	OH ⁻
Ag ⁺	A, C	O	A ⁻ , C	S	NH ₃
Pb ²⁺	A, C	O	A ⁻ , C	S	OH ⁻
Hg ₂ ²⁺	D, O	D, O ⁺	D, O	S	—

Key: S, soluble in water; no precipitate on mixing cation, 0.1 M, with anion, 1 M
 S^o, slightly soluble; tends to precipitate on mixing cation, 0.1 M, with anion, 1 M
 HW, soluble in hot water
 A⁻, soluble in 1 M HCl
 A₁, soluble in acid (6 M HCl or other nonprecipitating, nonoxidizing acid)
 A₂, soluble in 12 M HCl
 O₁, soluble in hot 6 M HNO₃
 O₂, soluble in aqua regia
 C, soluble in solution containing a good complexing ligand
 D, unstable; decomposes to a product with solubility as indicated
 I, insoluble in any common solvent
 *Oxalates form many complex ions; oxides behave like hydroxides, but may be slow to dissolve; Fe₂ is unstable; decomposes to Fe₂ and I₂; Cu₂ is unstable; decomposes to CuI and I₂; AgBr and AgI do not dissolve in 6 M NH₃; Hg₂ is insoluble, but dissolves in excess I⁻; Cd²⁺ and Co²⁺ can, under some conditions, form complexes with OH⁻ and NH₃ respectively, but these complexes are not ordinarily produced under the conditions used in this text.

TABLE 3-8 Values of Formation Constants for Some Complex Ions

Complex	Formation reaction	K_f
$[\text{AlF}_6]^{3-}$	$\text{Al}^{3+} + 6 \text{F}^- \rightleftharpoons [\text{AlF}_6]^{3-}$	6.7×10^{19}
$[\text{Al}(\text{OH})_4]^-$	$\text{Al}^{3+} + 4 \text{OH}^- \rightleftharpoons [\text{Al}(\text{OH})_4]^-$	1.1×10^{33}
$[\text{BiBr}_4]^-$	$\text{Bi}^{3+} + 4 \text{Br}^- \rightleftharpoons [\text{BiBr}_4]^-$	6.6×10^7
$[\text{BiCl}_4]^-$	$\text{Bi}^{3+} + 4 \text{Cl}^- \rightleftharpoons [\text{BiCl}_4]^-$	4×10^5
$[\text{BiI}_4]^-$	$\text{Bi}^{3+} + 4 \text{I}^- \rightleftharpoons [\text{BiI}_4]^-$	8.9×10^{14}
$[\text{Bi}(\text{SCN})_4]^-$	$\text{Bi}^{3+} + 4 \text{SCN}^- \rightleftharpoons [\text{Bi}(\text{SCN})_4]^-$	1.7×10^4
$[\text{Cd}(\text{NH}_3)_4]^{2+}$	$\text{Cd}^{2+} + 4 \text{NH}_3 \rightleftharpoons [\text{Cd}(\text{NH}_3)_4]^{2+}$	1.3×10^7
$[\text{CdBr}_4]^{2-}$	$\text{Cd}^{2+} + 4 \text{Br}^- \rightleftharpoons [\text{CdBr}_4]^{2-}$	5.0×10^3
$[\text{CdCl}_4]^{2-}$	$\text{Cd}^{2+} + 4 \text{Cl}^- \rightleftharpoons [\text{CdCl}_4]^{2-}$	6.3×10^2
$[\text{Cd}(\text{CN})_4]^{2-}$	$\text{Cd}^{2+} + 4 \text{CN}^- \rightleftharpoons [\text{Cd}(\text{CN})_4]^{2-}$	7.1×10^{18}
$[\text{CdI}_4]^{2-}$	$\text{Cd}^{2+} + 4 \text{I}^- \rightleftharpoons [\text{CdI}_4]^{2-}$	2.6×10^5
$[\text{Cd}(\text{SCN})_4]^{2-}$	$\text{Cd}^{2+} + 4 \text{SCN}^- \rightleftharpoons [\text{Cd}(\text{SCN})_4]^{2-}$	4×10^3
$[\text{Co}(\text{NH}_3)_6]^{2+}$	$\text{Co}^{2+} + 6 \text{NH}_3 \rightleftharpoons [\text{Co}(\text{NH}_3)_6]^{2+}$	1.3×10^5
$[\text{Co}(\text{SCN})_4]^{2-}$	$\text{Co}^{2+} + 4 \text{SCN}^- \rightleftharpoons [\text{Co}(\text{SCN})_4]^{2-}$	1.0×10^3
$[\text{Co}(\text{NH}_3)_6]^{3+}$	$\text{Co}^{3+} + 6 \text{NH}_3 \rightleftharpoons [\text{Co}(\text{NH}_3)_6]^{3+}$	4.5×10^{33}
$[\text{Co}(\text{SCN})_6]^{3-}$	$\text{Co}^{3+} + 6 \text{SCN}^- \rightleftharpoons [\text{Co}(\text{SCN})_6]^{3-}$	2×10^{13}
$[\text{CuBr}_2]^-$	$\text{Cu}^+ + 2 \text{Br}^- \rightleftharpoons [\text{CuBr}_2]^-$	7.8×10^5
$[\text{CuCl}_2]^-$	$\text{Cu}^+ + 2 \text{Cl}^- \rightleftharpoons [\text{CuCl}_2]^-$	3×10^5
$[\text{Cu}(\text{CN})_3]^{2-}$	$\text{Cu}^+ + 3 \text{CN}^- \rightleftharpoons [\text{Cu}(\text{CN})_3]^{2-}$	2×10^{27}
$[\text{CuI}_2]^-$	$\text{Cu}^+ + 2 \text{I}^- \rightleftharpoons [\text{CuI}_2]^-$	7.1×10^8
$[\text{Cu}(\text{SCN})_2]^-$	$\text{Cu}^+ + 2 \text{SCN}^- \rightleftharpoons [\text{Cu}(\text{SCN})_2]^-$	1.5×10^5
$[\text{Cu}(\text{NH}_3)_4]^{2+}$	$\text{Cu}^{2+} + 4 \text{NH}_3 \rightleftharpoons [\text{Cu}(\text{NH}_3)_4]^{2+}$	1.1×10^{13}
$[\text{Fe}(\text{CN})_6]^{4-}$	$\text{Fe}^{2+} + 6 \text{CN}^- \rightleftharpoons [\text{Fe}(\text{CN})_6]^{4-}$	1×10^{37}
$[\text{Fe}(\text{CN})_6]^{3-}$	$\text{Fe}^{3+} + 6 \text{CN}^- \rightleftharpoons [\text{Fe}(\text{CN})_6]^{3-}$	1×10^{42}
$[\text{FeF}_6]^{3-}$	$\text{Fe}^{3+} + 6 \text{F}^- \rightleftharpoons [\text{FeF}_6]^{3-}$	1×10^{16}
$[\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_4]^{2-}$	$\text{Pb}^{2+} + 4 \text{C}_2\text{H}_3\text{O}_2^- \rightleftharpoons [\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_4]^{2-}$	1×10^8
$[\text{PbCl}_3]^-$	$\text{Pb}^{2+} + 3 \text{Cl}^- \rightleftharpoons [\text{PbCl}_3]^-$	2.4×10^1
$[\text{PbBr}_4]^{2-}$	$\text{Pb}^{2+} + 4 \text{Br}^- \rightleftharpoons [\text{PbBr}_4]^{2-}$	1.3×10^1
$[\text{PbCl}_4]^{2-}$	$\text{Pb}^{2+} + 4 \text{Cl}^- \rightleftharpoons [\text{PbCl}_4]^{2-}$	2.4×10^1
$[\text{PbI}_4]^{2-}$	$\text{Pb}^{2+} + 4 \text{I}^- \rightleftharpoons [\text{PbI}_4]^{2-}$	3.0×10^4
$[\text{Mg}(\text{C}_2\text{O}_4)_2]^{2-}$	$\text{Mg}^{2+} + 2 \text{C}_2\text{O}_4^{2-} \rightleftharpoons [\text{Mg}(\text{C}_2\text{O}_4)_2]^{2-}$	2.4×10^4
$[\text{HgBr}_4]^{2-}$	$\text{Hg}^{2+} + 4 \text{Br}^- \rightleftharpoons [\text{HgBr}_4]^{2-}$	1.0×10^{21}
$[\text{HgCl}_4]^{2-}$	$\text{Hg}^{2+} + 4 \text{Cl}^- \rightleftharpoons [\text{HgCl}_4]^{2-}$	1.2×10^{15}
$[\text{HgI}_4]^{2-}$	$\text{Hg}^{2+} + 4 \text{I}^- \rightleftharpoons [\text{HgI}_4]^{2-}$	1.9×10^{30}
$[\text{Hg}(\text{SCN})_4]^{2-}$	$\text{Hg}^{2+} + 4 \text{SCN}^- \rightleftharpoons [\text{Hg}(\text{SCN})_4]^{2-}$	1.7×10^{21}
$[\text{Ni}(\text{CN})_4]^{2-}$	$\text{Ni}^{2+} + 4 \text{CN}^- \rightleftharpoons [\text{Ni}(\text{CN})_4]^{2-}$	1×10^{22}
$[\text{Ni}(\text{NH}_3)_4]^{2+}$	$\text{Ni}^{2+} + 4 \text{NH}_3 \rightleftharpoons [\text{Ni}(\text{NH}_3)_4]^{2+}$	6.0×10^8
$[\text{Ag}(\text{NH}_3)_2]^+$	$\text{Ag}^+ + 2 \text{NH}_3 \rightleftharpoons [\text{Ag}(\text{NH}_3)_2]^+$	1.6×10^7
$[\text{AgBr}_2]^-$	$\text{Ag}^+ + 2 \text{Br}^- \rightleftharpoons [\text{AgBr}_2]^-$	2.1×10^7
$[\text{AgCl}_2]^-$	$\text{Ag}^+ + 2 \text{Cl}^- \rightleftharpoons [\text{AgCl}_2]^-$	1.1×10^5
$[\text{Ag}(\text{CN})_2]^-$	$\text{Ag}^+ + 2 \text{CN}^- \rightleftharpoons [\text{Ag}(\text{CN})_2]^-$	5.6×10^{18}
$[\text{AgI}_2]^-$	$\text{Ag}^+ + 2 \text{I}^- \rightleftharpoons [\text{AgI}_2]^-$	5.5×10^{11}
$[\text{Ag}(\text{SCN})_2]^-$	$\text{Ag}^+ + 2 \text{SCN}^- \rightleftharpoons [\text{Ag}(\text{SCN})_2]^-$	3.7×10^7
$[\text{Ag}(\text{S}_2\text{O}_3)_2]^{3-}$	$\text{Ag}^+ + 2 \text{S}_2\text{O}_3^{2-} \rightleftharpoons [\text{Ag}(\text{S}_2\text{O}_3)_2]^{3-}$	1.7×10^{13}
$[\text{SnCl}_6]^{2-}$	$\text{Sn}^{4+} + 6 \text{Cl}^- \rightleftharpoons [\text{SnCl}_6]^{2-}$	1×10^4
$[\text{SnCl}_4]^{2-}$	$\text{Sn}^{2+} + 4 \text{Cl}^- \rightleftharpoons [\text{SnCl}_4]^{2-}$	3.0×10^1
$[\text{Zn}(\text{NH}_3)_4]^{2+}$	$\text{Zn}^{2+} + 4 \text{NH}_3 \rightleftharpoons [\text{Zn}(\text{NH}_3)_4]^{2+}$	4.1×10^8
$[\text{Zn}(\text{CN})_4]^{2-}$	$\text{Zn}^{2+} + 4 \text{CN}^- \rightleftharpoons [\text{Zn}(\text{CN})_4]^{2-}$	1×10^{18}
$[\text{Zn}(\text{OH})_4]^{2-}$	$\text{Zn}^{2+} + 4 \text{OH}^- \rightleftharpoons [\text{Zn}(\text{OH})_4]^{2-}$	4.6×10^{17}