

## ภาคผนวก B

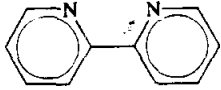
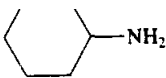
ตาราง 1B : ค่าคงที่ของการแตกตัวของกรด ( Acid Dissociation Constants)

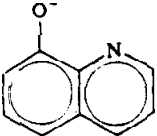
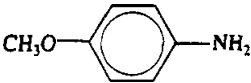
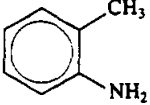

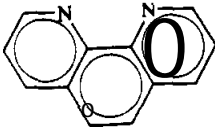

ชื่อ	สูตร	$K_a$	$pK_a$
Acetic Acid	$CH_3CO_2H$	$1.76 \times 10^{-5}$	4.754
Adipic Acid	$HO_2C(CH_2)_4CO_2H$	$3.8 \times 10^{-5}$	4.42
		$3.8 \times 10^{-16}$	5.42
Arsenic Acid	$H_3AsO_4$	$5.8 \times 10^{-3}$	2.24
		$1.1 \times 10^{-7}$	6.96
		$3.2 \times 10^{-12}$	11.49
Arsenious Acid	$H_3AsO_3$	$5.1 \times 10^{-10}$	9.29
Benzoic Acid	$C_6H_5CO_2H$	$6.28 \times 10^{-5}$	4.202
Boric Acid	$H_3BO_3$	$5.81 \times 10^{-10}$	9.236
		$1.8 \times 10^{-13}$	12.74
		$1.6 \times 10^{-14}$	13.80
Carbonic Acid	$H_2CO_3$	$4.45 \times 10^{-7}$	6.352
		$4.69 \times 10^{-11}$	10.329
Chloroacetic Acid	$ClCH_2CO_2H$	$1.36 \times 10^{-3}$	2.866
Chlorous Acid	$HClO_2$	$1.1 \times 10^{-2}$	1.96
Citric Acid	$CO_2H$	$7.45 \times 10^{-4}$	3.128
	$HO_2CCH_2C(OH)CO_2H$	$1.73 \times 10^{-5}$	4.762
		$4.02 \times 10^{-7}$	6.396
Dichloroacetic Acid	$Cl_2CHCO_2H$	$5.0 \times 10^{-2}$	1.30
Ethylenediaminetetraacetic Acid	$(HO_2CCH_2)_2NCH_2CH_2N(CH_2CO_2H)_2$	$1 \times 10^{-2}$	2.0
		$2.1 \times 10^{-3}$	2.68
		$7.8 \times 10^{-7}$	6.11
		$6.8 \times 10^{-11}$	10.17
Formic Acid	$HCO_2H$	$1.80 \times 10^{-4}$	3.745
Fumaric Acid	$HO_2C \begin{array}{l} \diagdown \\ C=C' \\ \diagup \end{array} \begin{array}{l} H \\ \\ CO_2H \end{array}$	$8.85 \times 10^{-4}$	3.053
		$3.21 \times 10^{-5}$	4.493

ชื่อ	สูตร	$K_a$	$pK_a$
Hydrazoic Acid	HN <sub>3</sub>	$2.2 \times 10^{-5}$	4.66
Hydrocyanic Acid	HCN	$6.2 \times 10^{-10}$	9.21
Hydrofluoric Acid	HF	$6.8 \times 10^{-4}$	3.17
Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	$2.2 \times 10^{-12}$	11.66
Hydrosulphuric Acid	H <sub>2</sub> S	$9.5 \times 10^{-8}$	7.02
		$1 \times 10^{-14}$	14.0
Hydrothiocyanic Acid	HSCN	$1 \times 10^{-1}$	1.0
Hydroacetic acid Acid	HOCH <sub>2</sub> CO <sub>2</sub> H	$1.48 \times 10^{-4}$	3.830
Hypochlorous Acid	HClO	$3.0 \times 10^{-8}$	7.52
Hypophosphorous Acid	$\begin{array}{c} \text{O} \\ \parallel \\ \text{HOPH}_2 \end{array}$	$5.9 \times 10^{-2}$	1.23
Iodic Acid	$\begin{array}{c} \text{O} \\ \parallel \\ \text{HOI}=\text{O} \end{array}$	$1.7 \times 10^{-1}$	0.77
Lactic Acid	$\begin{array}{c} \text{OH} \\   \\ \text{CH}_3\text{CHCO}_2\text{H} \end{array}$	$1.35 \times 10^{-4}$	3.870
Maleic Acid	$\begin{array}{c} \text{HO}_2\text{C} \quad \text{CO}_2\text{H} \\ \diagdown \quad / \\ \text{C}=\text{C} \\ / \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$	$1.23 \times 10^{-2}$	1.910
		$4.66 \times 10^{-7}$	6.332
Malic Acid	$\begin{array}{c} \text{OH} \\   \\ \text{HO}_2\text{CCH}_2\text{CHCO}_2\text{H} \end{array}$	$3.48 \times 10^{-4}$	3.458
Malonic Acid	HO <sub>2</sub> CCH <sub>2</sub> CO <sub>2</sub> H	$8.00 \times 10^{-6}$	5.097
		$1.42 \times 10^{-3}$	2.848
Nitrotriactic Acid	N(CH <sub>2</sub> CO <sub>2</sub> H) <sub>3</sub>	$2.01 \times 10^{-6}$	5.697
		$2.24 \times 10^{-2}$	1.650
		$1.15 \times 10^{-3}$	2.939
		$4.63 \times 10^{-11}$	10.334
Nitrous Acid	HNO <sub>2</sub>	$7.1 \times 10^{-4}$	3.15
Oxalic Acid	HO <sub>2</sub> CCO <sub>2</sub> H	$5.60 \times 10^{-2}$	1.252
		$5.42 \times 10^{-5}$	4.266
Periodic Acid	H <sub>5</sub> IO <sub>6</sub>	$2.6 \times 10^{-2}$	1.59
		$5.1 \times 10^{-9}$	8.29

ชื่อ	สูตร	$K_a$	$pK_a$
Phenol	$C_6H_5OH$	$1.05 \times 10^{-10}$	9.979
Phenylacetic Acid	$C_6H_5CH_2CO_2H$	$4.90 \times 10^{-5}$	4.310
Phosphoric Acid	$H_3PO_4$	$7.11 \times 10^{-3}$	2.148
		$6.32 \times 10^{-8}$	7.199
		$4.5 \times 10^{-13}$	12.35
Phosphorous Acid	$\begin{array}{c} O \\    \\ H \\   \\ HP(OH)_2 \end{array}$	$3 \times 10^{-2}$	1.5
		$1.6 \times 10^{-7}$	6.80
Phthalic Acid	$C_6H_4(CO_2H)_2$	$1.12 \times 10^{-3}$	2.951
		$3.91 \times 10^{-6}$	5.408
Salicylic Acid	$C_6H_4(CO_2H)(OH)$	$1.1 \times 10^{-3}$	2.96
		$1.0 \times 10^{-14}$	13.74
Succinic Acid	$HO_2CCH_2CH_2CO_2H$	$6.21 \times 10^{-5}$	4.207
		$2.31 \times 10^{-6}$	5.636
Sulfamic Acid	$H_2NSO_3H$	$1.03 \times 10^{-1}$	0.987
Sulfuric Acid	$H_2SO_4$	$1.0 \times 10^{-2}$	2.00
		$1.2 \times 10^{-2}$	1.92
Sulfurous Acid	$H_2SO_3$	$6.6 \times 10^{-8}$	7.18
		$9.20 \times 10^{-4}$	3.036
Tartaric Acid	$\begin{array}{c} OH \\   \\ HO_2CCHCHCO_2H \\   \\ OH \end{array}$	$4.31 \times 10^{-5}$	4.366
Trichloroacetic Acid	$Cl_3CCO_2H$	$2.2 \times 10^{-1}$	0.66

ตาราง 2B : ค่าคงที่ของการแตกตัวของเบส (Base Dissociation Constants)

ชื่อ	สูตร	$K_b$	$pK_b$
Ammonia	$NH_3$	$1.75 \times 10^{-5}$	4.757
Aniline	$C_6H_5NH_2$	$3.99 \times 10^{-10}$	9.399
Benzylamine	$C_6H_5CH_2NH_2$	$2.2 \times 10^{-5}$	4.66
2,2'-Bipyridine		$2.2 \times 10^{-10}$	9.66
Butylamine	$CH_3(CH_2)_3NH_2$	$4.37 \times 10^{-4}$	3.360
Cyclohexylamine		$4.4 \times 10^{-4}$	3.36
Diethylamine	$(CH_3CH_2)_2NH$	$8.57 \times 10^{-4}$	3.067
Dimethylamine	$(CH_3)_2NH$	$5.94 \times 10^{-4}$	3.226
Ethanolamine	$HOCH_2CH_2NH_2$	$3.15 \times 10^{-5}$	4.502
Ethylamine	$CH_3CH_2NH_2$	$4.33 \times 10^{-4}$	3.364
Ethylenediamine	$NH_2CH_2CH_2NH_2$	$8.47 \times 10^{-5}$	4.072
Glycinate	$NH_2CH_2CO_2^-$	$7.05 \times 10^{-8}$	7.152
		$2.24 \times 10^{-12}$	11.650

ชื่อ	สูตร	$K_b$	$pK_b$
Hydrazine	$H_2NNH_2$	$9.5 \times 10^{-6}$	6.02
Hydroxylamine	$HONH_2$	$9.1 \times 10^{-9}$	8.04
8-Hydroxyquinoline		$6.5 \times 10^{-5}$ $8.1 \times 10^{-10}$	4.19 9.09
4-Methoxyaniline (p-anisidine)		$2.28 \times 10^{-9}$	8.642
Methylamine	$CH_3NH_2$	$4.4 \times 10^{-4}$	3.36
2-Methoxyaniline (o-toluidine)		$2.80 \times 10^{-10}$	9.553
4-Methoxyaniline (m-toluidine)		$1.21 \times 10^{-9}$	8.917
1,10-Phenanthroline		$7.2 \times 10^{-10}$	9.14
Propylamine	$CH_3CH_2CH_2NH_2$	$3.68 \times 10^{-4}$	3.434
Pyridine		$1.69 \times 10^{-9}$	8.772

ชื่อ	สูตร	$K_b$	$pK_b$
Triethanolamine	$(HOCH_2CH_2)_3N$	$5.70 \times 10^{-7}$	6.238
Triethylamine	$(CH_3CH_2)_3N$	$5.19 \times 10^{-4}$	3.285
Trimethylamine	$(CH_3)_3N$	$6.31 \times 10^{-5}$	4.200
Tris- (hydroxymethyl) aminomethane (Tris or THAM)	$(HOCH_2)_3CNH_2$	$1.19 \times 10^{-6}$	5.924

ตาราง 3B : ค่าคงที่ของผลคูณการละลาย ( Solubility Product constants,  $K_{sp}$ )

สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Acetates</b>			
Silver acetate	$CH_3COOAg = Ag^+ + CH_3COO^-$	$4 \times 10^{-3}$	2.4
<b>Arsenates</b>			
Silver arsenate	$Ag_3AsO_4 = 3Ag^+ + AsO_4^{3-}$	$1 \times 10^{-22}$	22.0
<b>Bromates</b>			
Silver bromate	$AgBrO_3 = Ag^+ + BrO_3^-$	$6 \times 10^{-5}$	4.2
Bromides			
Copper (I) bromide	$CuBr = Cu^{+} + Br^-$	$6 \times 10^{-9}$	8.2
Lead bromide	$PbBr_2 = Pb^{2+} + 2Br^-$	$4.6 \times 10^{-6}$	5.34
Mercury (I) bromide	$Hg_2Br_2 = Hg_2^{2+} + 2Br^-$	$1.3 \times 10^{-22}$	21.89
Silver bromide	$AgBr = Ag^+ + Br^-$	$5 \times 10^{-13}$	12.3
Carbonates			
Barium carbonate	$BaCO_3 = Ba^{2+} + CO_3^{2-}$	$6 \times 10^{-9}$	8.80
Cadmium carbonate	$CdCO_3 = Cd^{2+} + CO_3^{2-}$	$5.2 \times 10^{-12}$	11.28
Calcium carbonate	$CaCO_3 = Ca^{2+} + CO_3^{2-}$	$6.9 \times 10^{-9}$	8.16
<b>Cobalt (II) carbonate</b>	$CoCO_3 = Co^{2+} + CO_3^{2-}$	$8 \times 10^{-13}$	12.1
Copper (II) carbonate	$CuCO_3 = Cu^{2+} + CO_3^{2-}$	$2.5 \times 10^{-10}$	9.60
Iron (II) carbonate	$FeCO_3 = Fe^{2+} + CO_3^{2-}$	$2.1 \times 10^{-11}$	10.68
Lead carbonate	$PbCO_3 = Pb^{2+} + CO_3^{2-}$	$1.5 \times 10^{-13}$	12.82
Magnesium carbonate	$MgCO_3 = Mg^{2+} + CO_3^{2-}$	$4 \times 10^{-5}$	4.4
Manganese (II) carbonate	$MnCO_3 = Mn^{2+} + CO_3^{2-}$	$9 \times 10^{-11}$	10.1
Mercury (I) carbonate	$Hg_2CO_3 = Hg_2^{2+} + CO_3^{2-}$	$9 \times 10^{-17}$	16.1
Nickel carbonate	$NiCO_3 = Ni^{2+} + CO_3^{2-}$	$7 \times 10^{-9}$	8.2
Silver carbonate	$Ag_2CO_3 = 2Ag^+ + CO_3^{2-}$	$8.2 \times 10^{-12}$	11.09
Strontium carbonate	$SrCO_3 = Sr^{2+} + CO_3^{2-}$	$7 \times 10^{-10}$	9.2
Zinc carbonate	$ZnCO_3 = Zn^{2+} + CO_3^{2-}$	$2 \times 10^{-11}$	10.7

สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Chlorides</b>			
Copper (I) chloride	$CuCl = Cu^+ + Cl^-$	$3.2 \times 10^{-7}$	6.49
Lead chloride	$PbCl_2 = Pb^{2+} + 2Cl^-$	$1.6 \times 10^{-5}$	4.80
Mercury (I) chloride	$Hg_2Cl_2 = Hg_2^{2+} + 2Cl^-$	$1.1 \times 10^{-18}$	17.96
Silver chloride	$AgCl = Ag^+ + Cl^-$	$1.8 \times 10^{-10}$	9.74
Thallium chloride	$TlCl = Tl^+ + Cl^-$	$3.5 \times 10^{-4}$	3.46
<b>Chromates</b>			
Barium chromates	$BaCrO_4 = Ba^{2+} + CrO_4^{2-}$	$1.2 \times 10^{-10}$	9.92
Calcium chromates	$CaCrO_4 = Ca^{2+} + CrO_4^{2-}$	$7.1 \times 10^{-4}$	3.15
Copper (I) chromates	$CuCrO_4 = Cu^{2+} + CrO_4^{2-}$	$3.6 \times 10^{-6}$	5.44
Lead chromates	$PbCrO_4 = Pb^{2+} + CrO_4^{2-}$	$2 \times 10^{-14}$	13.7
Mercury (I) chromates	$Hg_2CrO_4 = 2Hg^+ + CrO_4^{2-}$	$2 \times 10^{-9}$	8.7
Strontium chromates	$SrCrO_4 = Sr^{2+} + CrO_4^{2-}$	$1.9 \times 10^{-12}$	11.72
Silver chromate	$Ag_2CrO_4 = 2Ag^+ + CrO_4^{2-}$	$3.6 \times 10^{-5}$	4.44
<b>Cyanides</b>			
Mercury (I) cyanide	$Hg_2(CN)_2 = Hg_2^{2+} + 2CN^-$	$5 \times 10^{-40}$	39.3
Silver cyanide	$AgCN = Ag^+ + CN^-$	$1.6 \times 10^{-14}$	13.80
<b>Ferrocyanides</b>			
Copper (II)	$Cu_2[Fe(CN)_6] = 2Cu^{2+} + [Fe(CN)_6]^{4-}$	$1.3 \times 10^{-16}$	15.89
<b>ferricyanides</b>			
Silver ferricyanides	$Ag_4[Fe(CN)_6] = 4Ag^{2+} + [Fe(CN)_6]^{4-}$	$1.6 \times 10^{-41}$	40.80
Zinc ferricyanides	$K_2Zn_3[Fe(CN)_6]_2 = 2K^+ + 3Zn^{2+} + 2[Fe(CN)_6]^{4-}$	$1 \times 10^{-95}$	95.0
<b>Fluorides</b>			
Barium fluoride	$BaF_2 = Ba^{2+} + 2F^-$	$2.4 \times 10^{-5}$	4.62
Calcium fluoride	$CaF_2 = Ca^{2+} + 2F^-$	$1.7 \times 10^{-10}$	9.77
Lead fluoride	$PbF_2 = Pb^{2+} + 2F^-$	$2.7 \times 10^{-8}$	7.57
Magnesium fluoride	$MgF_2 = Mg^{2+} + 2F^-$	$6.5 \times 10^{-9}$	8.19



สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Fluorides (ต่อ)</b>			
Strontium fluoride	$SrF_2 = Sr^{2+} + 2F^-$	$7.9 \times 10^{-10}$	9.10
<b>Hydroxides</b>			
Aluminium hydroxide	$Al(OH)_3 = Al^{3+} + 3OH^-$	$5 \times 10^{-33}$	32.3
Cadmium hydroxide	$Cd(OH)_2 = Cd^{2+} + 2OH^-$	$2.0 \times 10^{-14}$	13.70
Chromium (III) hydroxide	$Cr(OH)_3 = Cr^{3+} + 3OH^-$	$7 \times 10^{-31}$	30.2
Cobalt (III) hydroxide	$Co(OH)_3 = Co^{3+} + 3OH^-$	$2.5 \times 10^{-43}$	42.60
Cobalt (II) hydroxide	$Co(OH)_2 = Co^{2+} + 2OH^-$	$2.5 \times 10^{-16}$	15.60
Copper (II) hydroxide	$Cu(OH)_2 = Cu^{2+} + 2OH^-$	$1.6 \times 10^{-19}$	18.80
Iron (III) hydroxide	$Fe(OH)_3 = Fe^{3+} + 3OH^-$	$6 \times 10^{-38}$	37.2
Iron (II) hydroxide	$Fe(OH)_2 = Fe^{2+} + 2OH^-$	$1.8 \times 10^{-15}$	14.74
Lead hydroxide	$Pb(OH)_2 = Pb^{2+} + 2OH^-$	$4.2 \times 10^{-15}$	14.38
Magnesium hydroxide	$Mg(OH)_2 = Mg^{2+} + 2OH^-$	$8.9 \times 10^{-12}$	11.05
Manganese (I) hydroxide	$Mn(OH)_2 = Mn^{2+} + 2OH^-$	$2 \times 10^{-13}$	12.7
Mercury (II) hydroxide	$HgO + H_2O = Hg^{2+} + 2OH^-$	$3 \times 10^{-26}$	25.5
Nickel hydroxide	$Ni(OH)_2 = Ni^{2+} + 2OH^-$	$1.6 \times 10^{-16}$	15.80
Silver hydroxide	$1/2 Ag_2O + 1/2 H_2O = Ag^+ + OH^-$	$2 \times 10^{-8}$	7.7
Tin (IV) hydroxide	$Sn(OH)_4 = Sn^{4+} + 4OH^-$	$1 \times 10^{-56}$	56.0
Tin (II) hydroxide	$Sn(OH)_2 = Sn^{2+} + 2OH^-$	$3 \times 10^{-27}$	26.5
Zinc hydroxide	$Zn(OH)_2 = Zn^{2+} + 2OH^-$	$5 \times 10^{-17}$	16.3
<b>Iodates</b>			
Barium iodate	$Ba(IO_3)_2 = Ba^{2+} + 2 IO_3^-$	$1.3 \times 10^{-9}$	8.89
Calcium iodate	$Ca(IO_3)_2 = Ca^{2+} + 2 IO_3^-$	$1.7 \times 10^{-6}$	5.77
Lead iodate	$Pb(IO_3)_2 = Pb^{2+} + 2 IO_3^-$	$2.6 \times 10^{-13}$	12.59
Mercury (I) iodate	$Hg_2(IO_3)_2 = Hg_2^{2+} + 2 IO_3^-$	$1.9 \times 10^{-14}$	13.72
Mercury (II) iodate	$Hg(IO_3)_2 = Hg^{2+} + 2 IO_3^-$	$3 \times 10^{-13}$	12.5
Silver iodate	$AgIO_3 = Ag^+ + IO_3^-$	$3 \times 10^{-8}$	7.5
<b>Iodides</b>			
Copper (I) iodide	$CuI = Cu^+ + I^-$	$1 \times 10^{-12}$	12.0
Lead iodide	$PbI_2 = Pb^{2+} + 2I^-$	$8.3 \times 10^{-9}$	8.08

สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Iodides (ต่อ)</b>			
Mercury (I) iodide	$Hg_2I_2 = Hg_2^{2+} + 2I^-$	$4 \times 10^{-29}$	28.4
Mercury (II) iodide	$HgI_2 = Hg^{2+} + 2I^-$	$4 \times 10^{-18}$	17.4
Silver iodide	$AgI = Ag^+ + I^-$	$8.5 \times 10^{-17}$	16.07
Thallium(I) iodide	$TlI = Tl^+ + I^-$	$2.5 \times 10^{-8}$	7.60
<b>Nitrites</b>			
Silver nitrite	$AgNO_2 = Ag^+ + NO_2^-$	$1.2 \times 10^{-4}$	3.92
<b>Oxalates</b>			
Barium oxalate	$BaC_2O_4 = Ba^{2+} + C_2O_4^{2-}$	$1.5 \times 10^{-8}$	7.82
Cadmium oxalate	$CdC_2O_4 = Cd^{2+} + C_2O_4^{2-}$	$1.5 \times 10^{-8}$	7.82
Calcium oxalate	$CaC_2O_4 = Ca^{2+} + C_2O_4^{2-}$	$1.3 \times 10^{-9}$	8.89
Iron (II) oxalate	$FeC_2O_4 = Fe^{2+} + C_2O_4^{2-}$	$2 \times 10^{-7}$	6.7
Magnesium oxalate	$MgC_2O_4 = Mg^{2+} + C_2O_4^{2-}$	$8.6 \times 10^{-5}$	4.07
Manganese (III) oxalate	$Mn_2(C_2O_4)_3 = 2Mn^{3+} + 3C_2O_4^{2-}$	$7 \times 10^{-20}$	19.2
Manganese (II) oxalate	$MnC_2O_4 = Mn^{2+} + C_2O_4^{2-}$	$1.1 \times 10^{-15}$	14.96
Silver oxalate	$Ag_2C_2O_4 = 2Ag^+ + C_2O_4^{2-}$	$1 \times 10^{-11}$	11.0
Strontium oxalate	$SrC_2O_4 = Sr^{2+} + C_2O_4^{2-}$	$5.6 \times 10^{-8}$	7.25
Zinc oxalate	$ZnC_2O_4 = Zn^{2+} + C_2O_4^{2-}$	$1.5 \times 10^{-9}$	8.82
<b>Phosphates</b>			
Barium phosphate	$Ba_3(PO_4)_2 = 3Ba^{2+} + 2PO_4^{3-}$	$6 \times 10^{-39}$	38.2
Calcium phosphate	$Ca_3(PO_4)_2 = 3Ca^{2+} + 2PO_4^{3-}$	$1 \times 10^{-25}$	25.0
Iron (III) phosphate	$FePO_4 = Fe^{3+} + PO_4^{3-}$	$1.3 \times 10^{-22}$	21.89
Magnesium Ammonium phosphate	$MgNH_4PO_4 = Mg^{2+} + NH_4^+ + PO_4^{3-}$	$2 \times 10^{-13}$	12.7
Magnesium phosphate	$Mg_3(PO_4)_2 = 3Mg^{2+} + 2PO_4^{3-}$	$2.6 \times 10^{-13}$	12.59
Silver phosphate	$Ag_3PO_4 = 3Ag^+ + PO_4^{3-}$	$1.8 \times 10^{-18}$	17.74
Strontium phosphate	$Sr_3(PO_4)_2 = 3Sr^{2+} + 2PO_4^{3-}$	$1 \times 10^{-31}$	31.0
Zirconium phosphate	$Zr_3(PO_4)_4 = 3Zr^{4+} + 4PO_4^{3-}$	$1 \times 10^{-132}$	132

สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Sulfates</b>			
Barium sulfate	$BaSO_4 = Ba^{2+} + SO_4^{2-}$	$1.5 \times 10^{-9}$	8.82
Calcium sulfate	$CaSO_4 = Ca^{2+} + SO_4^{2-}$	$2.4 \times 10^{-5}$	4.62
Lead sulfate	$PbSO_4 = Pb^{2+} + SO_4^{2-}$	$1.3 \times 10^{-8}$	7.89
Mercury (I) sulfate	$Hg_2SO_4 = Hg_2^{2+} + SO_4^{2-}$	$1 \times 10^{-6}$	6.0
Silver sulfate	$Ag_2SO_4 = 2Ag^+ + SO_4^{2-}$	$1.6 \times 10^{-5}$	4.80
Strontium sulfate	$SrSO_4 = Sr^{2+} + SO_4^{2-}$	$2.8 \times 10^{-7}$	6.55
<b>Sulfides</b>			
Bismuth sulfide	$Bi_2S_3 = 2Bi^{3+} + 3S^{2-}$	$1 \times 10^{-100}$	100
Cadmium sulfide	$CdS = Cd^{2+} + S^{2-}$	$6 \times 10^{-27}$	26.2
Cobalt (II) sulfide	$CoS = Co^{2+} + S^{2-}$	$5 \times 10^{-22} (a)$	21.3
		$6 \times 10^{-29} (\beta)$	28.2
Copper (I) sulfide	$Cu_2S = 2Cu^+ + S^{2-}$	$1.2 \times 10^{-49}$	48.92
Copper (II) sulfide	$CuS = Cu^{2+} + S^{2-}$	$4 \times 10^{-36}$	35.4
Iron (III) sulfide	$Fe_2S_3 = 2Fe^{3+} + 3S^{2-}$	$1 \times 10^{-88}$	88.0
Iron (II) sulfide	$FeS = Fe^{2+} + S^{2-}$	$5 \times 10^{-18}$	17.3
Lead sulfide	$PbS = Pb^{2+} + S^{2-}$	$8 \times 10^{-28}$	27.1
Manganese (II) sulfide	$MnS = Mn^{2+} + S^{2-}$	$8 \times 10^{-14}$	13.1
Mercury(I) sulfide	$Hg_2S = Hg_2^{2+} + S^{2-}$	$1 \times 10^{-45}$	45.0
Mercury (II) sulfide	$HgS = Hg^{2+} + S^{2-}$	$1 \times 10^{-50}$	50.0
Nickel sulfide	$NiS = Ni^{2+} + S^{2-}$	$1 \times 10^{-22} (\alpha)$	22.0
		$3 \times 10^{-28} (\beta)$	27.5
		$7 \times 10^{-30} (\gamma)$	29.2
Silver sulfide	$Ag_2S = 2Ag^+ + S^{2-}$	$1 \times 10^{-50}$	50.0
Tin (II) sulfide	$SnS = Sn^{2+} + S^{2-}$	$1 \times 10^{-26}$	26.0
Zinc sulfide	$ZnS = Zn^{2+} + S^{2-}$	$1.6 \times 10^{-23}$	22.80
<b>Sulfites</b>			
Barium sulfite	$BaSO_3 = Ba^{2+} + SO_3^{2-}$	$1.0 \times 10^{-8}$	8.00
Calcium sulfite	$CaSO_3 = Ca^{2+} + SO_3^{2-}$	$1.0 \times 10^{-4}$	4.00

สารประกอบ	สมการที่สมดุล	$K_{sp}$	$pK_{sp}$
<b>Sulfites (ต่อ)</b>			
Mercury (I) sulfite	$Hg_2SO_3 = Hg_2^{2+} + SO_3^{2-}$	$9 \times 10^{-28}$	27.0
Silver sulfite	$Ag_2SO_3 = 2Ag^+ + SO_3^{2-}$	$1.9 \times 10^{-11}$	10.72
Strontium sulfite	$SrSO_3 = Sr^{2+} + SO_3^{2-}$	$3.9 \times 10^{-8}$	7.41
Thiocyanates			
Copper (I) thiocyanate	$CuSCN = Cu^+ + SCN^-$	$4 \times 10^{-14}$	13.4
Mercury (I) thiocyanate	$Hg(SCN)_2 = Hg_2^{2+} + 2SCN^-$	$3 \times 10^{-20}$	19.5
Silver thiocyanate	$AgSCN = Ag^+ + SCN^-$	$1 \times 10^{-12}$	12.0

ตาราง 4B : ค่าคงที่ของการรวมตัวของสารเชิงซ้อน ( Formation constants)

ลิแกนด์	สมการที่สมดุล	$K_{inst}$	$pK_{inst}$
Ammonia	$[Cd(NH_3)_4]^{2+} = Cd^{2+} + 4NH_3$	$1.9 \times 10^{-7}$	6.72
	$[Co(NH_3)_6]^{3+} = Co^{3+} + 6NH_3$	$2.2 \times 10^{-34}$	33.66
	$[Co(NH_3)_4]^{2+} = Co^{2+} + 4NH_3$	$9 \times 10^{-6}$	5.0
	$[Cu(NH_3)_6]^{2+} = Cu^{2+} + 6NH_3$	$1.3 \times 10^{-5}$	4.89
	$[Cu(NH_3)_4]^{2+} = Cu^{2+} + 4NH_3$	$1 \times 10^{-12}$	12.0
	$[Ni(NH_3)_4]^{2+} = Ni^{2+} + 4NH_3$	$1 \times 10^{-8}$	8.0
	$[Ni(NH_3)_6]^{2+} = Ni^{2+} + 6NH_3$	$6 \times 10^{-9}$	8.2
	$[Zn(NH_3)_4]^{2+} = Zn^{2+} + 4NH_3$	$2 \times 10^{-9}$	8.7
	$[Ag(NH_3)]^+ = Ag^+ + NH_3$	$5.0 \times 10^{-4}$	3.30
	$[Ag(NH_3)_2]^+ = Ag^+ + 2NH_3$	$5.9 \times 10^{-8}$	7.23
			(ที่ 30°C)
Bromide ion	$[HgBr_4]^{2-} = Hg^{2+} + 4Br^-$	$1 \times 10^{-21}$	21.0
Chloride ion	$[CdCl_4]^{2-} = Cd^{2+} + 4Cl^-$	$9.1 \times 10^{-4}$	3.04
	$[FeCl]^{2+} = Fe^{3+} + Cl^-$	$3 \times 10^{-2}$	1.5
	$[FeCl_2] = Fe^{3+} + 2Cl^-$	0.222	0.654
	$[HgCl_4]^{2-} = Hg^{2+} + 4Cl^-$	$1 \times 10^{-15}$	15.0
	$[AgCl_2]^- = Ag^+ + 2Cl^-$	$7 \times 10^{-6}$	5.2
	Cyanide ion	$[Cd(CN)_4]^{2-} = Cd^{2+} + 4CN^-$	$8 \times 10^{-18}$
$[Cu(CN)_3]^{2-} = Cu^+ + 3CN^-$		$5 \times 10^{-28}$	27.3
$[Cu(CN)_4]^{3-} = Cu^+ + 4CN^-$		$5 \times 10^{-30}$	29.3
$[Fe(CN)_6]^{3-} = Fe^{3+} + 6CN^-$		$1 \times 10^{-42}$	42.0
$[Fe(CN)_6]^{4-} = Fe^{2+} + 6CN^-$		$1 \times 10^{-35}$	35.0
$[Hg(CN)_4]^{2-} = Hg^{2+} + 4CN^-$		$3 \times 10^{-42}$	41.5
$[Ni(CN)_4]^{2-} = Ni^{2+} + 4CN^-$		$1 \times 10^{-22}$	22.0
$[Ag(CN)_2]^- = Ag^+ + 2CN^-$		$1 \times 10^{-20}$	20.0
$[Zn(CN)_4]^{2-} = Zn^{2+} + 4CN^-$		$1 \times 10^{-19}$	19.0

ลิแกนด์	สมการที่สมดุล	$K_{inst}$	$pK_{inst}$
Ethylenediamine	$[CaY]^{2-} = Ca^{2+} + Y^{4-}$	$2 \times 10^{-11}$	10.7
tetraacetate ion (=Y <sup>4-</sup> ) (ที่ 20° C)	$[FeY]^{-} = Fe^{3+} + Y^{4-}$ $[MgY]^{2-} = Mg^{2+} + Y^{4-}$ $[ZnY]^{2-} = Zn^{2+} + Y^{4-}$	$1 \times 10^{-25}$ $2 \times 10^{-9}$ $3.1 \times 10^{-17}$	25.0 8.7 16.51
Fluoride ion	$[AlF_6]^{3-} = Al^{3+} + 6F^{-}$ $[FeF_6]^{3-} = Fe^{3+} + 6F^{-}$	$2 \times 10^{-21}$ $1 \times 10^{-16}$	20.7 16.0
Hydroxide ion	$[Al(OH)_4]^{-} = Al^{3+} + 4OH^{-}$ $[Zn(OH)_4]^{2-} = Zn^{2+} + 4OH^{-}$	$1.2 \times 10^{-34}$ $2.5 \times 10^{-15}$	33.92 14.60
Iodide ion	$[CdI_4]^{2-} = Cd^{2+} + 4I^{-}$ $[HgI_4]^{2-} = Hg^{2+} + 4I^{-}$	$7 \times 10^{-7}$ $5.3 \times 10^{-31}$	6.2 30.28
Oxalate ion	$[Al(C_2O_4)_3]^{3-} = Al^{3+} + 3C_2O_4^{2-}$ $[Fe(C_2O_4)_3]^{3-} = Fe^{3+} + 3C_2O_4^{2-}$	$5 \times 10^{-17}$ $6 \times 10^{-21}$	16.3 20.2
Sulfide ion	$[HgS_2]^{2-} = Hg^{2+} + 2S^{2-}$	$2.0 \times 10^{-55}$	54.70
sulfite ion	$[Ag(SO_3)_2]^{3-} = Ag^{+} + 2SO_3^{2-}$	$3 \times 10^{-9}$	8.5
Thiocyanate ion	$[Fe(SCN)]^{2+} = Fe^{3+} + SCN^{-}$ $[Fe(SCN)_6]^{3-} = Fe^{3+} + 6SCN^{-}$	$9.4 \times 10^{-4}$ $1 \times 10^{-4}$	3.03 4.0
Thiosulphate ion	$[Hg(SCN)_4]^{2-} = Hg^{2+} + 4SCN^{-}$ $[Ag(S_2O_3)_2]^{3-} = Ag^{+} + 2S_2O_3^{2-}$	$1 \times 10^{-22}$ $1 \times 10^{-13}$	22.0 13.0

**ตาราง 5 B : ค่าคงที่ของการรวมตัวของโลหะ กับ EDTA**  
**( Metal -EDTA Formation constants)**

โลหะ	$K_{MY}$	$\log K_{MY}$
Ag <sup>+</sup>	$2.1 \times 10^7$	7.32
Al <sup>3+</sup>	$1.3 \times 10^{16}$	16.11
Ba <sup>2+</sup>	$5.8 \times 10^7$	7.76
Bi <sup>3+</sup>	$6.3 \times 10^{27}$	27.80
Ca <sup>2+</sup>	$5.0 \times 10^{10}$	10.70
Cd <sup>2+</sup>	$2.9 \times 10^{16}$	16.46
Co <sup>2+</sup>	$2.0 \times 10^{16}$	16.30
Cu <sup>2+</sup>	$6.3 \times 10^{18}$	18.80
Fe <sup>2+</sup>	$2.1 \times 10^{14}$	14.32
Fe <sup>3+</sup>	$1.3 \times 10^{25}$	25.11
Hg <sup>2+</sup>	$6.3 \times 10^{21}$	21.80
Mg <sup>2+</sup>	$4.9 \times 10^8$	8.69
Mn <sup>2+</sup>	$6.2 \times 10^{13}$	13.79
Ni <sup>2+</sup>	$4.2 \times 10^{18}$	18.62
Pb <sup>2+</sup>	$1.1 \times 10^{18}$	18.04
Sn <sup>2+</sup>	$2.0 \times 10^{18}$	18.30
Sr <sup>2+</sup>	$4.3 \times 10^8$	8.63
Zn <sup>2+</sup>	$3.2 \times 10^{16}$	16.51