

附錄 酸之解離常數 (25°C)

酸解離常數 Acid dissociation constants

酸 Acid	解離反應 Dissociation reaction	K_a	pK_a
Acetic acid	$\text{CH}_3\text{CO}_2\text{H} \rightleftharpoons \text{CH}_3\text{CO}_2^- + \text{H}^+$	1.75×10^{-5}	4.757
Ammonium ion	$\text{NH}_4^+ \rightleftharpoons \text{NH}_3 + \text{H}^+$	5.8×10^{-10}	9.24
Arsenic acid	$\text{H}_3\text{AsO}_4 \rightleftharpoons \text{H}_2\text{AsO}_4^- + \text{H}^+$	6.0×10^{-3}	2.22
	$\text{H}_2\text{AsO}_4^- \rightleftharpoons \text{HAsO}_4^{2-} + \text{H}^+$	1.0×10^{-7}	7.00
	$\text{HAsO}_4^{2-} \rightleftharpoons \text{AsO}_4^{3-} + \text{H}^+$	3.0×10^{-12}	11.52
Arsenous acid	$\text{H}_3\text{AsO}_3 \rightleftharpoons \text{H}_2\text{AsO}_3^- + \text{H}^+$	6.0×10^{-10}	9.22
	$\text{H}_2\text{AsO}_3^- \rightleftharpoons \text{HAsO}_3^{2-} + \text{H}^+$	3.0×10^{-14}	13.52
Benzoic acid	$\text{C}_6\text{H}_5\text{CO}_2\text{H} \rightleftharpoons \text{C}_6\text{H}_5\text{CO}_2^- + \text{H}^+$	6.3×10^{-5}	4.20
Boric acid	$\text{H}_3\text{BO}_3 \rightleftharpoons \text{H}_2\text{BO}_3^- + \text{H}^+$	7.3×10^{-10}	9.14
Carbonic acid	$\text{H}_2\text{CO}_3 \rightleftharpoons \text{HCO}_3^- + \text{H}^+$	4.5×10^{-7}	6.35
	$\text{HCO}_3^- \rightleftharpoons \text{CO}_3^{2-} + \text{H}^+$	4.7×10^{-11}	10.33
Chloric acid	$\text{HClO}_3 \rightleftharpoons \text{ClO}_3^- + \text{H}^+$	5.0×10^2	-2.70
Chloroacetic acid	$\text{ClCH}_2\text{CO}_2\text{H} \rightleftharpoons \text{ClCH}_2\text{CO}_2^- + \text{H}^+$	1.4×10^{-3}	2.85
Chlorous acid	$\text{HClO}_2 \rightleftharpoons \text{ClO}_2^- + \text{H}^+$	1.1×10^{-2}	1.96
Chromic acid	$\text{H}_2\text{CrO}_4 \rightleftharpoons \text{HCrO}_4^- + \text{H}^+$	9.6	-0.98
	$\text{HCrO}_4^- \rightleftharpoons \text{CrO}_4^{2-} + \text{H}^+$	3.2×10^{-7}	6.50
Citric acid	$\text{H}_3\text{Cit} \rightleftharpoons \text{H}_2\text{Cit}^- + \text{H}^+$	7.5×10^{-4}	3.13
	$\text{H}_2\text{Cit}^- \rightleftharpoons \text{HCit}^{2-} + \text{H}^+$	1.7×10^{-5}	4.77
	$\text{HCit}^{2-} \rightleftharpoons \text{Cit}^{3-} + \text{H}^+$	4.0×10^{-7}	6.40
Dichloroacetic acid	$\text{Cl}_2\text{CHCO}_2\text{H} \rightleftharpoons \text{Cl}_2\text{CHCO}_2^- + \text{H}^+$	5.1×10^{-2}	1.29
Formic acid	$\text{HCO}_2\text{H} \rightleftharpoons \text{HCO}_2^- + \text{H}^+$	1.8×10^{-4}	3.75
Glycine	$\text{H}_3\text{N}^+\text{CH}_2\text{CO}_2\text{H} \rightleftharpoons \text{H}_3\text{N}^+\text{CH}_2\text{CO}_2^- + \text{H}^+$	4.5×10^{-3}	2.35
	$\text{H}_3\text{N}^+\text{CH}_2\text{CO}_2^- \rightleftharpoons \text{H}_2\text{NCH}_2\text{CO}_2^- + \text{H}^+$	2.5×10^{-10}	9.60
Hydrazoic acid	$\text{HN}_3 \rightleftharpoons \text{N}_3^- + \text{H}^+$	1.9×10^{-5}	4.72
Hydrobromic acid	$\text{HBr} \rightleftharpoons \text{Br}^- + \text{H}^+$	1×10^9	-9
Hydrochloric acid	$\text{HCl} \rightleftharpoons \text{Cl}^- + \text{H}^+$	1×10^6	-6
Hydrocyanic acid	$\text{HCN} \rightleftharpoons \text{CN}^- + \text{H}^+$	6×10^{-10}	9.22
Hydrofluoric acid	$\text{HF} \rightleftharpoons \text{F}^- + \text{H}^+$	7.2×10^{-4}	3.14
Hydroiodic acid	$\text{HI} \rightleftharpoons \text{I}^- + \text{H}^+$	3×10^9	-9.5
Hydrogen peroxide	$\text{H}_2\text{O}_2 \rightleftharpoons \text{HO}_2^- + \text{H}^+$	2.2×10^{-12}	11.66
Hydrogen selenide	$\text{H}_2\text{Se} \rightleftharpoons \text{HSe}^- + \text{H}^+$	1.0×10^{-4}	4.00
Hydrogen sulfide	$\text{H}_2\text{S} \rightleftharpoons \text{HS}^- + \text{H}^+$	1.0×10^{-7}	7.00
	$\text{HS}^- \rightleftharpoons \text{S}^{2-} + \text{H}^+$	1.3×10^{-13}	12.89
Hypobromous acid	$\text{HOBr} \rightleftharpoons \text{OBr}^- + \text{H}^+$	2.4×10^{-9}	8.62
Hypochlorous acid	$\text{HOCl} \rightleftharpoons \text{OCl}^- + \text{H}^+$	2.9×10^{-8}	7.54
Hypoiodous acid	$\text{HOI} \rightleftharpoons \text{OI}^- + \text{H}^+$	2.3×10^{-11}	10.64
Iodic acid	$\text{HIO}_3 \rightleftharpoons \text{IO}_3^- + \text{H}^+$	0.16	0.80
Nitric acid	$\text{HNO}_3 \rightleftharpoons \text{NO}_3^- + \text{H}^+$	28	-1.45
Nitrous acid	$\text{HNO}_2 \rightleftharpoons \text{NO}_2^- + \text{H}^+$	5.1×10^{-4}	3.29

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Oxalic acid	$H_2C_2O_4 \rightleftharpoons HC_2O_4^- + H^+$	5.4×10^{-2}	1.27
	$HC_2O_4^- \rightleftharpoons C_2O_4^{2-} + H^+$	5.4×10^{-5}	4.27
Perchloric acid	$HOCIO_3 \rightleftharpoons ClO_4^- + H^+$	1×10^8	-8
Periodic acid	$H_5IO_6 \rightleftharpoons H_4IO_6^- + H^+$	2.3×10^{-2}	1.64
Phenol	$C_6H_5OH \rightleftharpoons C_6H_5O^- + H^+$	1.0×10^{-10}	10.00
Phosphoric acid	$H_3PO_4 \rightleftharpoons H_2PO_4^- + H^+$	7.1×10^{-3}	2.15
	$H_2PO_4^- \rightleftharpoons HPO_4^{2-} + H^+$	6.3×10^{-8}	7.20
	$HPO_4^{2-} \rightleftharpoons PO_4^{3-} + H^+$	4.2×10^{-13}	12.38
Phosphorous acid	$H_3PO_3 \rightleftharpoons H_2PO_3^- + H^+$	1.00×10^{-2}	2.00
	$H_2PO_3^- \rightleftharpoons HPO_3^{2-} + H^+$	2.6×10^{-7}	6.59
Sulfamic acid	$H_2NSO_3H \rightleftharpoons H_2NSO_3^- + H^+$	1.03×10^{-1}	0.987
Sulfuric acid	$H_2SO_4 \rightleftharpoons HSO_4^- + H^+$	10^3	-3
	$HSO_4^- \rightleftharpoons SO_4^{2-} + H^+$	1.2×10^{-2}	1.92
Sulfurous acid	$H_2SO_3 \rightleftharpoons HSO_3^- + H^+$	1.7×10^{-2}	1.77
	$HSO_3^- \rightleftharpoons SO_3^{2-} + H^+$	6.4×10^{-8}	7.19
Thiocyanic acid	$HSCN \rightleftharpoons SCN^- + H^+$	71	-1.85
Trichloroacetic acid	$Cl_3CCO_2H \rightleftharpoons Cl_3CCO_2^- + H^+$	0.22	0.66

錄自：Bodner, G. M.; Pardue, H. L. *Chemistry-An Experimental Science*; 2nd ed., John Wiley & Sons, Inc.: New York, 1995.