

Relative Strengths of Acids and Bases at 25°C

ACIDS		K_a
perchloric acid	$\text{HClO}_{4(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{ClO}_4^-_{(\text{aq})}$	Very large
hydroiodic acid	$\text{HI}_{(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{I}^-_{(\text{aq})}$	Very large
hydrobromic acid	$\text{HBr}_{(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{Br}^-_{(\text{aq})}$	Very large
hydrochloric acid	$\text{HCl}_{(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{Cl}^-_{(\text{aq})}$	Very large
sulfuric acid	$\text{H}_2\text{SO}_{4(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{HSO}_4^-_{(\text{aq})}$	Very large
nitric acid	$\text{HNO}_{3(\text{aq})} \rightarrow \text{H}^+_{(\text{aq})} + \text{NO}_3^-_{(\text{aq})}$	Very large
hydronium ion	$\text{H}_3\text{O}^+_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$	1
oxalic acid	$\text{HOOC}\text{COOH}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HOOC}\text{COO}^-_{(\text{aq})}$	5.4×10^{-2}
sulfurous acid	$\text{H}_2\text{SO}_{3(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HSO}_3^-_{(\text{aq})}$	1.7×10^{-2}
hydrogen sulfate ion	$\text{HSO}_4^-_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{SO}_4^{2-}_{(\text{aq})}$	1.3×10^{-2}
phosphoric acid	$\text{H}_3\text{PO}_{4(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{H}_2\text{PO}_4^-_{(\text{aq})}$	7.1×10^{-3}
citric acid	$\text{H}_3\text{C}_6\text{H}_5\text{O}_7_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{H}_2\text{C}_6\text{H}_5\text{O}_7^-_{(\text{aq})}$	7.4×10^{-4}
hydrofluoric acid	$\text{HF}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{F}^-_{(\text{aq})}$	6.7×10^{-4}
nitrous acid	$\text{HNO}_{2(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{NO}_2^-_{(\text{aq})}$	5.1×10^{-4}
formic acid (methanoic acid)	$\text{HCHO}_2_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{CHO}_2^-_{(\text{aq})}$	1.8×10^{-4}
ascorbic	$\text{HC}_6\text{H}_7\text{O}_6_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{C}_6\text{H}_7\text{O}_6^-_{(\text{aq})}$	8.0×10^{-5}
benzoic acid	$\text{C}_6\text{H}_5\text{COOH}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{C}_6\text{H}_5\text{COO}^-_{(\text{aq})}$	6.6×10^{-5}
acetic acid (ethanoic acid)	$\text{CH}_3\text{COOH}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{CH}_3\text{COO}^-_{(\text{aq})}$	1.8×10^{-5}
carbonic acid	$\text{H}_2\text{CO}_{3(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HCO}_3^-_{(\text{aq})}$	4.4×10^{-7}
hydrogen sulfide	$\text{H}_2\text{S}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HS}^-_{(\text{aq})}$	1.0×10^{-7}
dihydrogen phosphate ion	$\text{H}_2\text{PO}_4^-_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HPO}_4^{2-}_{(\text{aq})}$	6.3×10^{-8}
hydrogen sulfite ion	$\text{HSO}_3^-_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{SO}_3^{2-}_{(\text{aq})}$	6.2×10^{-8}
hypochlorous acid	$\text{HClO}_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{ClO}^-_{(\text{aq})}$	2.9×10^{-8}
boric acid	$\text{H}_3\text{BO}_{3(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{H}_2\text{BO}_3^-_{(\text{aq})}$	7.3×10^{-10}
ammonium ion	$\text{NH}_4^+_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{NH}_{3(\text{aq})}$	5.7×10^{-10}
hydrogen carbonate ion	$\text{HCO}_3^-_{(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{CO}_3^{2-}_{(\text{aq})}$	4.7×10^{-11}
hydrogen peroxide	$\text{H}_2\text{O}_{2(\text{aq})} \rightleftharpoons \text{H}^+_{(\text{aq})} + \text{HO}_2^-_{(\text{aq})}$	2.4×10^{-12}
BASES		K_b
methylamine	$\text{CH}_3\text{NH}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{CH}_3\text{NH}_3^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	4.4×10^{-4}
dimethylamine	$(\text{CH}_3)_2\text{NH}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons (\text{CH}_3)_2\text{NH}_2^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	5.4×10^{-4}
ethylamine	$\text{C}_2\text{H}_5\text{NH}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{C}_2\text{H}_5\text{NH}_3^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	6.4×10^{-4}
ammonia	$\text{NH}_{3(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{NH}_4^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	1.8×10^{-5}
trimethylamine	$(\text{CH}_3)_3\text{N}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons (\text{CH}_3)_3\text{NH}^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	6.4×10^{-5}
hydrazine	$\text{H}_2\text{NNH}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{H}_2\text{NNH}_3^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	1.3×10^{-6}
hydroxylamine	$\text{HONH}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{HONH}_3^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	1.1×10^{-8}
pyridine	$\text{C}_5\text{N}_5\text{N}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{C}_5\text{N}_5\text{NH}^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	1.7×10^{-9}
aniline	$\text{C}_6\text{H}_5\text{NH}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{C}_6\text{H}_5\text{NH}_3^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$	4.3×10^{-10}