
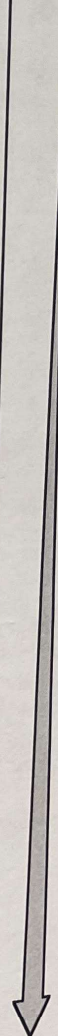


C12 - 0.0 - Acid Base Strength

RELATIVE STRENGTHS OF BRØNSTED-LOWRY ACIDS AND BASES

in aqueous solution at room temperature

Strength of Acid	Name of Acid	Acid	Base	K_a	Strength of Base
EQUALLY STRONG ACIDS	Perchloric	$\text{HClO}_4 \rightarrow \text{H}^+ + \text{ClO}_4^-$			DO NOT ACT AS BASES
	Hydriodic	$\text{HI} \rightarrow \text{H}^+ + \text{I}^-$			
	Hydrobromic	$\text{HBr} \rightarrow \text{H}^+ + \text{Br}^-$			
	Hydrochloric	$\text{HCl} \rightarrow \text{H}^+ + \text{Cl}^-$			
	Nitric	$\text{HNO}_3 \rightarrow \text{H}^+ + \text{NO}_3^-$			
	Sulphuric	$\text{H}_2\text{SO}_4 \rightarrow \text{H}^+ + \text{HSO}_4^-$			
Strong	Hydronium ion	$\text{H}_3\text{O}^+ \rightleftharpoons \text{H}^+ + \text{H}_2\text{O}$		1.0	Weak
	Iodic	$\text{HIO}_3 \rightleftharpoons \text{H}^+ + \text{IO}_3^-$		1.7×10^{-1}	
	Oxalic	$\text{H}_2\text{C}_2\text{O}_4 \rightleftharpoons \text{H}^+ + \text{HC}_2\text{O}_4^-$		5.9×10^{-2}	
	Sulphurous ($\text{SO}_2 + \text{H}_2\text{O}$)	$\text{H}_2\text{SO}_3 \rightleftharpoons \text{H}^+ + \text{HSO}_3^-$		1.5×10^{-2}	
	Hydrogen sulphate ion	$\text{HSO}_4^- \rightleftharpoons \text{H}^+ + \text{SO}_4^{2-}$		1.2×10^{-2}	
	Phosphoric	$\text{H}_3\text{PO}_4 \rightleftharpoons \text{H}^+ + \text{H}_2\text{PO}_4^-$		7.5×10^{-3}	
	Iron(III), hexaaquoiron(III) ion	$\text{Fe}(\text{H}_2\text{O})_6^{3+} \rightleftharpoons \text{H}^+ + \text{Fe}(\text{H}_2\text{O})_5(\text{OH})^{2+}$		6.0×10^{-3}	
	Citric	$\text{H}_3\text{C}_6\text{H}_5\text{O}_7 \rightleftharpoons \text{H}^+ + \text{H}_2\text{C}_6\text{H}_5\text{O}_7^-$		7.1×10^{-4}	
	Nitrous	$\text{HNO}_2 \rightleftharpoons \text{H}^+ + \text{NO}_2^-$		4.6×10^{-4}	
	Hydrofluoric	$\text{HF} \rightleftharpoons \text{H}^+ + \text{F}^-$		3.5×10^{-4}	
	Methanoic, formic	$\text{HCOOH} \rightleftharpoons \text{H}^+ + \text{HCOO}^-$		1.8×10^{-4}	
	Chromium(III), hexaaquochromium(III) ion	$\text{Cr}(\text{H}_2\text{O})_6^{3+} \rightleftharpoons \text{H}^+ + \text{Cr}(\text{H}_2\text{O})_5(\text{OH})^{2+}$		1.5×10^{-4}	
	Benzoic	$\text{C}_6\text{H}_5\text{COOH} \rightleftharpoons \text{H}^+ + \text{C}_6\text{H}_5\text{COO}^-$		6.5×10^{-5}	
	Hydrogen oxalate ion	$\text{HC}_2\text{O}_4^- \rightleftharpoons \text{H}^+ + \text{C}_2\text{O}_4^{2-}$		6.4×10^{-5}	
	Ethanoic, acetic	$\text{CH}_3\text{COOH} \rightleftharpoons \text{H}^+ + \text{CH}_3\text{COO}^-$		1.8×10^{-5}	
	Dihydrogen citrate ion	$\text{H}_2\text{C}_6\text{H}_5\text{O}_7^- \rightleftharpoons \text{H}^+ + \text{HC}_6\text{H}_5\text{O}_7^{2-}$		1.7×10^{-5}	
	Aluminum ion, hexaaquoaluminum ion	$\text{Al}(\text{H}_2\text{O})_6^{3+} \rightleftharpoons \text{H}^+ + \text{Al}(\text{H}_2\text{O})_5(\text{OH})^{2+}$		1.4×10^{-5}	
	Carbonic ($\text{CO}_2 + \text{H}_2\text{O}$)	$\text{H}_2\text{CO}_3 \rightleftharpoons \text{H}^+ + \text{HCO}_3^-$		4.3×10^{-7}	
	Monohydrogen citrate ion	$\text{HC}_6\text{H}_5\text{O}_7^{2-} \rightleftharpoons \text{H}^+ + \text{C}_6\text{H}_5\text{O}_7^{3-}$		4.1×10^{-7}	
	Hydrogen sulphite ion	$\text{HSO}_3^- \rightleftharpoons \text{H}^+ + \text{SO}_3^{2-}$		1.0×10^{-7}	
	Hydrogen sulphide	$\text{H}_2\text{S} \rightleftharpoons \text{H}^+ + \text{HS}^-$		9.1×10^{-8}	
	Dihydrogen phosphate ion	$\text{H}_2\text{PO}_4^- \rightleftharpoons \text{H}^+ + \text{HPO}_4^{2-}$		6.2×10^{-8}	
	Boric	$\text{H}_3\text{BO}_3 \rightleftharpoons \text{H}^+ + \text{H}_2\text{BO}_3^-$		7.3×10^{-10}	
	Ammonium ion	$\text{NH}_4^+ \rightleftharpoons \text{H}^+ + \text{NH}_3$		5.6×10^{-10}	
	Hydrocyanic	$\text{HCN} \rightleftharpoons \text{H}^+ + \text{CN}^-$		4.9×10^{-10}	
	Phenol	$\text{C}_6\text{H}_5\text{OH} \rightleftharpoons \text{H}^+ + \text{C}_6\text{H}_5\text{O}^-$		1.3×10^{-10}	
	Hydrogen carbonate ion	$\text{HCO}_3^- \rightleftharpoons \text{H}^+ + \text{CO}_3^{2-}$		5.6×10^{-11}	
	Hydrogen peroxide	$\text{H}_2\text{O}_2 \rightleftharpoons \text{H}^+ + \text{HO}_2^-$		2.4×10^{-12}	
	Monohydrogen phosphate ion	$\text{HPO}_4^{2-} \rightleftharpoons \text{H}^+ + \text{PO}_4^{3-}$		2.2×10^{-13}	
Weak	Water	$\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$		1.0×10^{-14}	Strong
DO NOT ACT AS ACIDS		$\text{OH}^- \leftarrow \text{H}^+ + \text{O}^{2-}$		Oxide	EQUALLY STRONG BASES
		$\text{NH}_3 \leftarrow \text{H}^+ + \text{NH}_2^-$		Amide	