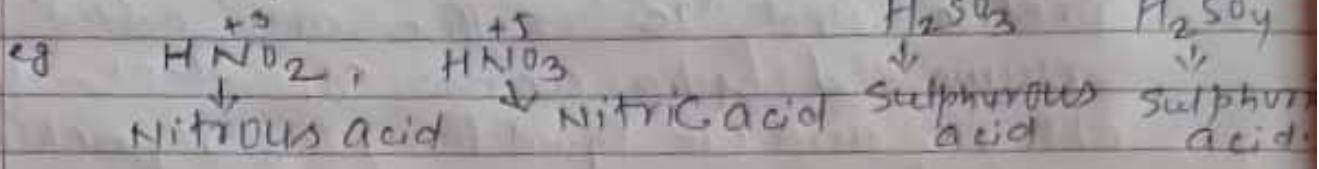


Date - 02 - 04 - 20



Nomenclature of oxy acid →

Case (1) If no. of oxy acids of any element is only two then "ous" suffix is added if the O.N (oxidation number) of central element is minimum. "ic" suffix is added when the O.N of central element is maximum.



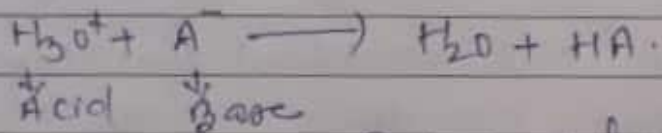
Case II If there are many oxy acids of any element is present then nomenclature is done as follow -

Hypo prefix and ous suffix are added if O.N is the least (ii) Ous suffix is added when O.N of element is lower (iii) IC suffix is added if O.N of element is lower (iv) per prefix and "IC" suffix are added if O.N is highest.

	O.N	Name	
$\begin{array}{c} +1 \\ \text{HClO} \\ \downarrow \\ \text{HClO}_2 \\ \downarrow \\ \text{HClO}_3 \\ \downarrow \\ \text{HClO}_4 \end{array}$	+1	Hypochlorous acid	HFO
	+3	chlorous acid	HFO ₂
	+5	chloric acid	HFO ₃
	+7	per chloric acid	HFO ₄
$\begin{array}{c} \text{HBrO} \\ \downarrow \\ \text{HBrO}_2 \\ \downarrow \\ \text{HBrO}_3 \\ \downarrow \\ \text{HBrO}_4 \end{array}$	+1	Hypobromous acid	HBO
	+3	Bromous acid	HBO ₂
	+5	bromic acid	HBO ₃
	+7	per bromic acid	HBO ₄



In the reverse reaction also has acid-base reaction.

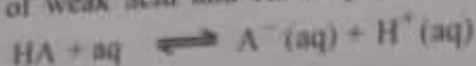


Each acid has conjugate base and vice-versa

Acid	Base		
HCl	Cl ⁻	HNO ₂	NO ₂ ⁻
HNO ₃	NO ₃ ⁻	CH ₃ -COOH	CH ₃ -COO ⁻
		H ₂ SO ₄	HSO ₄ ⁻
		HSO ₄ ⁻	SO ₄ ⁻

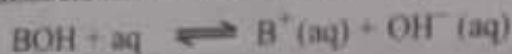
$$K_a = \frac{[A^-][H_3O^+]}{[HA]}$$

K_a is called ionisation constant or dissociation constant of weak acid. The chemical equation for the dissociation of weak acid and K_a may also be represented as :



$$K_a = \frac{[A^-][H^+]}{[HA]}$$

Similarly, dissociation of a weak base in water may be represented as :



Applying law of chemical equilibrium,

$$K_b = \frac{[B^+][OH^-]}{[BOH]}$$

K_b is called dissociation constant or ionisation constant of the weak base.

Calculation of degree of dissociation (α) for the weak acid and weak base

Let the concentration of weak acid (HA) be C mol/lit and degree of dissociation at this concentration and constant temperature is α . Moles of acid dissociated will be $C\alpha$. Moles of acid left at equilibrium will be $(C - C\alpha)$.

	$HA(aq)$	\rightleftharpoons	$H^+(aq)$	$+$	$A^-(aq)$
Initial molar conc.	C		0		0
Molar conc. at equilibrium	$C - C\alpha$		$C\alpha$		$C\alpha$

$$K_a = \frac{[H^+][A^-]}{[HA]} \quad \text{or} \quad K_a = \frac{C\alpha \times C\alpha}{C - C\alpha} \quad \text{or} \quad K_a = \frac{C\alpha^2}{1 - \alpha}$$

As degree of dissociation (α) is very small, $(1 - \alpha)$ may be taken equal to one.

$$\therefore K_a = C\alpha^2, \quad \alpha = \sqrt{\frac{K_a}{C}} \quad \text{and} \quad [H^+] = C\alpha \quad \text{or} \quad [H^+] = \sqrt{K_a \times C}$$

K_a is constant at a given temperature. K_a is a dimensionless quantity with the understanding that the standard state concentration is 1 M.

Let us calculate the degree of dissociation (α) of a weak base (BOH).

	$BOH(aq)$	\rightleftharpoons	$B^+(aq)$	$+$	$OH^-(aq)$
Initial molar conc.	C		0		0
Molar conc. at equilibrium	$C - C\alpha$		$C\alpha$		$C\alpha$

$$K_b = \frac{[B^+][OH^-]}{[BOH]} \quad \text{or} \quad K_b = \frac{C\alpha \times C\alpha}{C - C\alpha} \quad \text{or} \quad K_b = \frac{C\alpha^2}{1 - \alpha}$$