

Acid-Base Theory

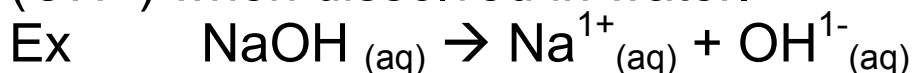
	Acid	Base
Taste	sour	bitter
Feel	watery	slippery
Conductivity	conductive	conductive
Metals	produce H ₂	
CO ₃ ²⁻	produce CO ₂	
NH ₄ ¹⁺		produce NH ₃
Litmus	red	blue
Phenylphthalein	clear	pink

Arrhenius Theory

Acid: a substance that produces hydrogen ions (H¹⁺) when dissolved in water.



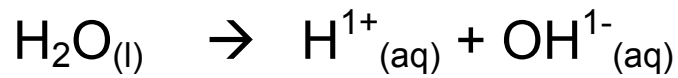
Base: a substance that produces hydroxide ions (OH¹⁻) when dissolved in water.



Strong: ionizes (dissociates) 100 %

Weak: low % ionization

pH: the strength of hydrogen ions in solution



$$[\text{H}^{1+}] \text{ at } 25 \text{ }^\circ\text{C} = 1.0 \times 10^{-7} \text{ M}$$

$$[\text{OH}^{1-}] \text{ at } 25 \text{ }^\circ\text{C} = 1.0 \times 10^{-7} \text{ M}$$

pH is a logarithmic scale (goes up by the power of 10)

$$\begin{aligned} \text{pH} &= -\log[\text{H}^{1+}] \\ &= -\log(1.0 \times 10^{-7} \text{ M}) \\ &= -(-7.0) \\ &= 7 \end{aligned}$$