

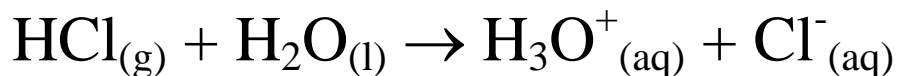
STRONG & WEAK ACIDS/BASES

Strength of an acid or a base

- determined by % ionization
- is NOT determined by the concentration

Strong Acid

- 100 % ionization in water solution
- there won't be any undissociated acids left
- completely dissociated
- the reaction only goes one way
- single arrow (goes to completion)



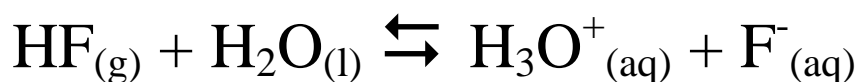
What is the concentration of HCl and H_3O^+ in 1.0M HCl?

$$[\text{HCl}] = 0.0\text{M}$$

$$[\text{H}_3\text{O}^+] = 1.0\text{M}$$

Weak Acid

- less than 100% ionization
- there will be undissociated acids in the solution
- most of the molecules don't ionize
- reverse reactions do occur
- double arrow



$[\text{H}_3\text{O}^+]$ is only a small fraction of $[\text{HF}]$

Strong Base

- ionizes (dissociates) 100% in solution
- OH^- , O^{2-} , NH_2^-
- any substance which dissociates completely to produce OH^- , O^{2-} , or NH_2^- is a Strong Base
- Alkali metal hydroxides
- Alkaline earth hydroxides (even though $\text{Sr}(\text{OH})_2$ is the only one called "soluble" on the Solubility Table.)

Weak Bases

- Found above OH⁻ on right side of the acid table

concentration vs. strength

How would you describe 1.0M HCl?

This is a strong, and diluted acid.

How would you describe 17.4M HF?

This is a concentrated, and weak acid.

Weak & Strong

→ refers to % ionization

Concentrated & Diluted

→ refers to the moles of acid dissolved per liter.

Levelling effect for ACIDS

What is [H₃O⁺] in 1.0M H₃O⁺? _____

What is [H₃O⁺] in 1.0M HNO₃? _____

What is [H₃O⁺] in 1.0M HCl? _____

Although HClO_4 is above HCl on the chart, it is no more acidic than HCl in a water solution.

H_3O^+ is the **STRONGEST ACID** that can exist in aqueous solution because all strong acids will dissociate to form H_3O^+ .

HW

Read p112-114 and 121 -125

p125 #21-27