

Unit 6 - Review

Solubility: Table F

Concentration: Molarity (Table T)

Titration/Neutralization: (Table T)

Acids & Bases (Table K, L, M)

Electrolytes need 2 things to be conductive:

1. Charged particles
2. Mobile

ESA

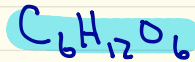
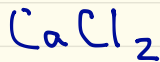
Molarity: $M = \frac{\text{mol solute}}{\text{L solution}}$ (* must convert to L)

Titration: $M_A V_A = M_B V_B$
(completely neutralized)

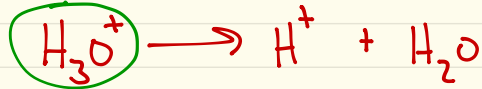
DILUTION: $M_I V_I = M_F V_F$

Arrhenius: ACID: H^+ is the only (+) ion. $H^+ = H_3O^+$ hydronium ion

BASE: OH^- is the only (-) ion. OH^- hydroxide ion



Hydronium



Acid

Base

Water

Salt

How many mL of 1.75 M HCl is required to completely neutralize 12.6 mL of 2.4 M NaOH?



$$M_A V_A = M_B V_B$$

$$(1.75\text{M})(x?) = (2.4\text{M})(12.6\text{mL})$$

pH scale = 1 \rightarrow 14
 |
 | hydronium ion

pH=1, $[H^+] = [H_3O^+] = 1 \times 10^{-1}$, 0.1
pH=2, $[H^+] = [H_3O^+] = 1 \times 10^{-2}$, 0.01
pH=5, $[H^+] = [H_3O^+] = 1 \times 10^{-5}$, 0.00001

10
10
10
10,000

Each step in pH is a factor of 10 change in concentration.

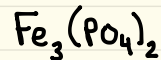
TABLE M

	<u>pH</u>	<u>color</u>
methyl orange	< 3.1	
	3.1 \rightarrow 4.4	
	> 4.4	

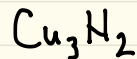
Molarity Ladder

14 Jan 2013

* Iron II phosphate



* Copper II nitride



} These are the building blocks of the entire packet.

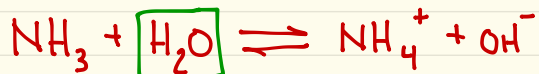
- Read the problem
- Review dimensional analysis
- Use Table T
- $1 \text{ L} = 1000 \text{ mL} = 1000 \text{ cm}^3$

$$\text{Molarity} = \frac{\text{moles solute}}{\text{L solution}}$$

2.5 g NaOH in 0.3 L of water. What is the concentration?

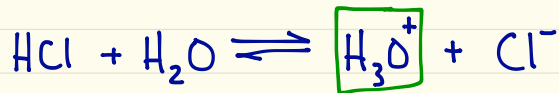
IB Material - Further Acid/Base Discussion

Brønsted - Lowry: Acid - proton (H^+) donor



Amphoteric

Base - proton (H^+) acceptor



Lewis Acid: e^- pair acceptor (BF_3)

Lewis Base: e^- pair donor ($\ddot{N}H_3$)

Anhydrides: Acids and Bases without water. $[2HNO_3] \xrightarrow{H_2O} N_2O_5$

1B Material - Further Acid/Base Discussion

Naming Acids : Bases

* Use the information given in the booklet.

Binary (two) vs. Oxyacids (containing polatomic ions w/ oxygen)

HCl vs. HClO_3 [chloric acid]
[hydrochloric acid]

* Determine the oxidation state of the chlorine, then use the table to complete the name.

