ACID-BASE NUETRALIZATION REACTIONS

**EXAMPLE**

You are given 1.0 *M* HF and 1.0 *M* KOH. How much base is required to neutralize 15 mL of the acid?

**1**HF + **1**KOH 🡪 **1**HOH + **1**KF

0.015 L \* 1.0 mol = 0.015 mol HF

1L

1 mol HF = 1 mol KOH

Therefore,

0.015 mol HF = 0.015 mol KOH

0.015 mol KOH \* 1L = 0.15 L or 15 mL KOH to neutralize 15 mL of HF

1.0 mol

**Problem #1**

How much 0.25*M* NaOH is required to neutralize 65 mL of 0.5*M* HBr?

**Example of Dilution Equation**

How much18.0M HCl is needed to prepare 250 mL 1.0M HCl?

M­1 \*V1 = M­2 \*V2

(18.0 M)(V1) = (1.0M)(0.250 L)

V1 = .25/18 = .013889 L = 13.9 mL

**Problem #2**

You are supplied with 2.0M NaOH but we need a 0.5M NaOH solution. How many mL of 2.0 M NaOH are needed to prepare 0.5M NaOH?

1. How much 2*M* LiOH is required to neutralize 35 mL of 0.1*M* H2SO4?
2. It requires 25 mL of 1.0*M* Ca(OH)2 to neutralize 48.75 mL of H2SO4. What is the concentration of H2SO4­?
3. What is the molarity of a solution that contains 60.1g NaOH and 1 liter of water?
   1. How do we dilute this solution to 0.1M NaOH?
   2. How much of 0.1M NaOH is needed to neutralize 50 mL HNO3?
4. Describe how to make 500 mL 3M KOH from solid potassium hydroxide.
   1. Describe how to dilute 3M KOH to 0.5M KOH.
   2. Describe hot to neutralize 1M H2SO4?