Chapter 8: Chemical Composition – Extra Problems

The author is providing these notes as an addition to the students reading the text book and listening to the lecture. Although the author tries to keep errors to a minimum, the student is responsible for correcting any errors in these notes.

1. Calculate Moles

10.0 g Hyrodrgen = ? Moles

10.0 g Water = ? Moles

15.7 g Sulfuric Acid = ? Moles

4.0 g Sodium Hydroxide = ? Moles

1.00 Moles Sodium Hydroxide = ? g

1. Moles of Sodium Hydroxide = ? g

2.50 Moles of Water = ? g

If one mole of any gas occupies 22.4 Liters, how many Liters does 21.2 g of Nitrogen Gas occupy?

2. Percent Composition

2A. Given Molecular Formulae, What is the % Composition of each element in:

Ethanol, $H_3C\text{-}CH_2\text{-}CHOH$

Rubbing Alcohol, $(H_3C)_2HC\text{-}CH_3$

Sulfuric Acid

Sodium Bicarbonate

Hydrochloric Acid

Sodium Hydroxide

Ammonium Nitrate

2B. Given % Of Each Element determine the Emp & Molecular Form

C 39.9%, H 6.75%, Mw around 30 g/mole	CH_2O
Na 45.1%, C 11.4%, Mw between 100 and 110 g/mole	Na_2CO_3
C 39.9%, H 6.75%, Mw around 60 g/mole	Acetic Acid CH_3COOH
C 92.3%, H 7.6%, Mw around 25-28 g/mole	Acetylene
C 92.1%, H 7.8%, Mw around 75-80 g/mole	Benzene
C 10.0%, H 0.83%, Cl 89.1%, Mw between 115-125 g/mole	Chloroform
C 7.7%, Cl 92.%, Mw between 150 – 160 g/mole	Carbon Tet
C 37.3%, H 12.6%, Mw between 30 – 35 g/mole	Methanol