

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 Hydrogen = ? 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, $\text{H}_3\text{C}-\text{CH}_2-\text{CHOH}$

Rubbing Alcohol, $(\text{H}_3\text{C})_2\text{HC}-\text{CH}_3$

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

Na 45.1%, C 11.4%, Mw between 100 and 110 g/mole

C 39.9%, H 6.75%, Mw around 60 g/mole

C 92.3%, H 7.6%, Mw around 25-28 g/mole

C 92.1%, H 7.8%, Mw around 75-80 g/mole

C 10.0%, H 0.83%, Cl 89.1%, Mw between 115-125 g/mole

C 7.7%, Cl 92.%, Mw between 150 – 160 g/mole

C 37.3%, H 12.6%, Mw between 30 – 35 g/mole