

Non Sibi High School

Andover's Chem 550/580: Advanced Chemistry

Chapter 3, Review Quiz 1

1

What is the percent by mass of sulfur in $\text{Fe}_2(\text{S}_2\text{O}_3)_3$?

2

What is the empirical formula of $\text{C}_{10}\text{H}_{14}\text{N}_2$?

3

a. An unknown compound was found to be 21.84% carbon and 76.93% iodine by mass, with the remainder being hydrogen. Determine the empirical formula of the compound.

b. In a separate experiment, the molar mass of the compound was found to be about 330 g/mol. Determine the molecular formula of the compound.

4

After 8.75 grams of the hydrate $\text{LiClO}_4 \cdot x\text{H}_2\text{O}$ was heated, the mass of anhydrous LiClO_4 remaining was 5.79 grams. Determine the value of x to the correct number of significant figures and the most likely formula of the hydrate.

5

a. An unknown compound contains carbon, hydrogen, and nitrogen. When 12.6 grams of the compound was burned completely in the presence of oxygen gas, 19.1 grams of CO_2 and 11.7 grams of H_2O were produced. Determine the empirical formula of the compound.

b. In a separate experiment, the molar mass of the compound was found to be about 58 g/mol. Determine the molecular formula of the compound.



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