

Empirical/ Molecular Formula Worksheet

Chem 65

1. What is the mass of iron contained in a 100.0 g sample of iron ore which is 80.0% hematite, Fe_2O_3 ? Iron ore is a rock which contains a mixture of hematite and other minerals.
2. A pure oxide of iron contains 74.2% Fe. What is the empirical formula of this iron oxide?
3. A 3.000 g sample of a gaseous compound was found to contain 2.560 grams of carbon and 0.440 g of hydrogen.
 - a) What is the compound's empirical formula?
 - b) The molecular mass of the compound was determined to be 42.08 *g/mol*. What is the molecular formula of the compound?

4. A 15.67 g sample of a hydrate of magnesium carbonate was heated to drive off all of the water. The mass of the resulting anhydrous magnesium carbonate was 7.58 g. What is the formula of this hydrate of magnesium carbonate?

5. A 3.216 g sample of $\text{Na}_x\text{B}_y\text{O}_z \cdot \text{XH}_2\text{O}$ was heated to drive off the water of hydration. The resulting anhydrous salt, which has a mass of 2.222 g, contained 0.5077 g of sodium, 0.4775 g of boron, and some oxygen. What is the formula of the hydrated salt?