

WKS 3-2 – Percent Composition & Empirical Formula; Hydrates

Problems pg. 106 #3.36, 3.39, 3.40, 3.48, 3.50; Empirical Formula & Hydrate Problems

- 3.36 Describe how the knowledge of the percent composition by mass of an unknown compound can help us identify the compound.**
- 3.39 Tin (Sn) exists in Earth's crust as SnO₂. Calculate the percent composition by mass of Sn and O in SnO₂.**
- 3.40 Calculate the percent composition of chloroform (CHCl₃).**
- 3.48 What is the mass of F, in grams, in 24.6 g of tin(II) fluoride (SnF₂)?**
- 3.50 What are the empirical formulas of the compounds with the following compositions?**
(a) 40.1 % C, 6.6 % H, 53.3 % O
- (b) 60.1 % K, 18.4 % C, 21.5 % N**

- A. An unknown hydrocarbon is found to contain 84.21% C by mass. What is its empirical formula?
- B. The general formula of Epsom salts can be written as $\text{MgSO}_4 \cdot x \text{H}_2\text{O}$. When 5.061 g of this hydrate is heated to 250°C , all the water of hydration is lost, leaving 2.472 g of MgSO_4 . What is the value of x ?

Answers: 3.39) %Sn = 78.77%, %O = 21.23%; 3.40) %C = 10.06%, %H = 0.8442%, %Cl = 89.07%; 3.48) 5.97 g F; 3.50(a) CH_2O ; 3.50(b) KCN; A) C_4H_9 ; B) $x = 7$.