

EMPIRICAL FORMULA WORKSHEET

Name key Date _____ Period _____

1. What is the empirical formula for a compound which contains 0.0134 g of iron, 0.00769 g of sulfur and 0.0115 g of oxygen?

$$0.0134 \text{ g Fe} \times \frac{1 \text{ mol Fe}}{55.85 \text{ g Fe}} = 2.40 \times 10^{-4} \text{ mol Fe} / 2.40 \times 10^{-4} = 1.00$$

$$0.00769 \text{ g S} \times \frac{1 \text{ mol S}}{32.07 \text{ g S}} = 2.40 \times 10^{-4} \text{ mol S} / 2.40 \times 10^{-4} = 1.00$$

$$0.0115 \text{ g O} \times \frac{1 \text{ mol O}}{16.00 \text{ g O}} = 7.19 \times 10^{-4} \text{ mol O} / 2.40 \times 10^{-4} = 2.99$$



2. Find the empirical formula for a compound which contains 32.8% chromium and 67.2% chlorine.

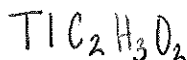
Assume 100g sample:

$$32.8 \text{ g Cr} \times \frac{1 \text{ mol Cr}}{52.00 \text{ g Cr}} = .631 \text{ mol Cr} / .631 = 1.00$$

$$67.2 \text{ g Cl} \times \frac{1 \text{ mol Cl}}{35.45 \text{ g Cl}} = 1.90 \text{ mol Cl} / .631 = 3.01$$



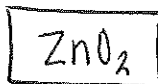
3. NAME the compound which contains 0.463 g Tl (#81), 0.0544 g of carbon, 0.00685 g of hydrogen and 0.0725 g oxygen by finding its empirical formula.



Thallium acetate

4. What is the empirical formula for a compound which contains 67.1% zinc and the rest is oxygen?

Assume 100g sample:



$$\begin{array}{r} 100\% \\ - 67.1\% \\ \hline 32.9\% \text{ O} \end{array}$$

5. Barry Um has a sample of a compound which weighs 200 grams and contains only carbon, hydrogen, oxygen and nitrogen. By analysis, he finds that it contains 97.56 grams of carbon, 4.878 g of hydrogen, 52.03 g of oxygen and 45.53 g of nitrogen. Find its empirical formula.

