How many grams of lithium hydroxide are found in 16.39 mL of a 2.78 M solution?

$$\frac{9.04 \text{ mol } Ba_3(PO_4)_2}{1000 \text{ mL}}$$

How many mL of a 9.04 M solution of barium phosphate contain 5.87×10^{22} atoms of barium?

$$5.87 \times 10^{22} \text{ atoms Ba} \times \frac{1 \text{ mol}}{N_A \text{ atoms}} \times \frac{1000 \text{ mL}}{9.04 \text{ mol}} = 3.59 \text{ mL}$$

$$\frac{1 \text{ } Ba_3(PO_4)_2}{3 \text{ Ba}}$$

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What is the percent composition of calcium acetate? $Ca(C_2H_3O_2)_2$

$$\% \text{ Ca} = \frac{40.078}{158.166} \times 100$$

$$\% \text{ C} = \frac{4(12.0107)}{158.166} \times 100$$

$$\% \text{ H} = \frac{6(1.00794)}{1} \times 100$$

$$\% \text{ O} = \frac{4(15.9994)}{1} \times 100$$

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Empirical Formula = simplest whole # ratio HO

Molecular Formula = correct formula H_2O_2

A compound is found to contain 80% carbon and 20% hydrogen. If the molar mass is 60 g/mol, what are the empirical and molecular formulas?

80% C $80\text{g C} \times \frac{1\text{ mol}}{12.0107\text{ g}} = \frac{6.6607}{6.6607} = 1$

CH_3

20% H $20\text{g H} \times \frac{1\text{ mol}}{1.00794\text{ g}} = \frac{19.842}{6.6607} = 3$

ETLOMG GTM PLG +D

Emp formula CH_3 molec. C_4H_{12}

mass 15 60

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When hydrocarbons are burned in limited oxygen, both CO and CO_2 are formed. When 0.450g of a particular hydrocarbon was burned in air, 0.467 g of CO, 0.733g of CO_2 and 0.450 g of H_2O were formed. What is the empirical formula of the hydrocarbon?

$.467\text{g CO} \times \frac{1\text{ mol}}{28.0101\text{ g}} \times \frac{1\text{ C}}{1\text{ CO}} \times \frac{12.0107\text{ g}}{1\text{ mol}} = .200\text{ g C}$

$.733\text{g } CO_2 \times \frac{1\text{ mol}}{44.0095\text{ g}} \times \frac{1\text{ C}}{1\text{ } CO_2} \times \frac{12.0107\text{ g}}{1\text{ mol}} = .200\text{ g C}$

$.400\text{g C}$

$.450\text{g } H_2O \times \frac{1\text{ mol}}{18.0153\text{ g}} \times \frac{2\text{ H}}{1\text{ } H_2O} \times \frac{1.00794\text{ g}}{1\text{ mol}} = .0504\text{ g H}$

$.400\text{g C} \times \frac{1\text{ mol}}{12.0107\text{ g}} = \frac{.0333}{.0333} = 1$

$.0504\text{g H} \times \frac{1\text{ mol}}{1.00794\text{ g}} = \frac{.05000}{.0333} = 1.5$

C_2H_3

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