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

$16.39\ mL\ soln \times \frac{2.78\ mol}{1000\ mL} \times \frac{23.9\ 429\ g}{1\ mol} = 1.09\ g\ LiOH$ $\frac{2.78\ mol}{1\ L}$

$16.39 \times \frac{2.78}{1000} \times 23.9\ 429 = 1.09\ g\ LiOH$

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

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

$\frac{1000\ mL}{9.04\ mol}$

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

$\%\ Ca = \frac{40.078}{158.166} \times 100 = 25.339\ \%$

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

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

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

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Empirical Formula = simplest whole # ratio HO

Molecular Formula = correct H_2O_2

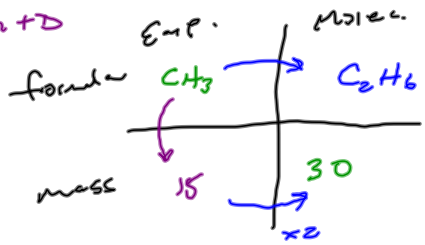
A compound is found to contain 80% carbon and 20% hydrogen. If the molar mass is 30 g/mol, what are the empirical and molecular formulas?

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

20% H $20\text{ g H} \times \frac{1\text{ mol}}{1.00794\text{ g}} = \frac{19.8424}{6.6607} = 3$

CH_3

ETLOMB GTM PLGHD



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A compound is found to be 46.3% Phosphorus, the rest being oxygen. What is the empirical formula of the compound?

Sep 4-6:01 PM

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?

$.467\,g\ CO \times \frac{1\ mol}{28.0101\ g} \times \frac{1\ C}{1\ CO} \times \frac{12.0107\ g}{1\ mol} = 0.200\,g\ C$

$.733\,g\ CO_2 \times \frac{1\ mol}{44.0095\ g} \times \frac{1\ C}{1\ CO_2} \times \frac{12.0107\ g}{1\ mol} = 0.200\,g\ C$

} $0.400\,g\ C$ total

$.450\,g\ H_2O \times \frac{1\ mol}{18.0153} \times \frac{2\ H}{1\ H_2O} \times \frac{1.00794\ g}{1\ mol} = 0.0504\,g\ H$

$0.400\,g\ C \times \frac{1\ mol}{12.0107\ g} = .0333\ mol\ C \div .0333 = 1$

$.0504\,g\ H \times \frac{1\ mol}{1.00794\ g} = .0500\ mol\ H \div .0333 = 1.5$

} $\times 2$ → 2 and 3

C_2H_3

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