potassium carbonate $K_2^+CO_3^{2-}$

K_2CO_3

K: 2 × 39.10 = 78.20

C: 1 × 12.01 = 12.01

O: 3 × 16.00 = 48.00

138.21 g/mol

138.21 g = 1 mol

What would be the mass of 2.454 moles of K_2CO_3?

$$2.454 \text{ mol } K_2CO_3 \times \frac{138.21 \text{ g}}{1 \text{ mol}} = 339.17 \text{ g } K_2CO_3$$

How many formula units of K_2CO_3 would be present in 10.30 g of K_2CO_3?

PCl_3 unit = "molecule"

K_2CO_3 unit = "formula unit"

$$10.30 \text{ g } K_2CO_3 \times \frac{1 \text{ mol}}{138.21 \text{ g}} \times \frac{6.02 \times 10^{23} \text{ formula units}}{1 \text{ mol}} =$$

$$= 4.49 \times 10^{22} \text{ formula units } K_2CO_3$$

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10/30/12, 6:50 AM, 33m 26s

potassium carborate $K_2^+CO_3^{2-}$

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Percent Composition $\frac{\%}{100}$ $\frac{\text{part}}{\text{whole}} \times 100\%$

type A

A 6.25 g sample of a compound was found to be composed of 2.50 g C, 3.33 g O, and 0.42 g H. What is the percent composition?

C: $\frac{2.50\text{ g}}{6.25\text{ g}} \times 100\% = 40.00\%\text{ C}$

O: $\frac{3.33\text{ g}}{6.25\text{ g}} \times 100\% = 53.28\%\text{ O}$

H: $0.42\text{ g}/6.25\text{ g} \times 100\% = 6.72\%\text{ H}$

type B What is the percent composition of aluminum sulfate?

$Al_2^{3+}(SO_4)_3^{2-}$

Al: $2 \times 26.98 = 53.96$ g

S: $3 \times 32.07 = 96.21$ g

O: $12 \times 16.00 = 192.00$ g

342.17 g

Al: $\frac{53.96\text{ g}}{342.17\text{ g}} \times 100\% = 15.77\%\text{ Al}$

S: $\frac{96.21\text{ g}}{342.17\text{ g}} \times 100\% = 28.12\%\text{ S}$

O: $\frac{192.00\text{ g}}{342.17\text{ g}} \times 100\% = 56.11\%\text{ O}$

$Fe(NO_3)_3$ molar mass = 241.88 g/mol

$Fe_2(SO_4)_3$ molar mass = 399.91 g/mol

Which has more Fe as a percentage?

$Fe(NO_3)_3$ $\frac{55.85g}{241.88g} \times 100\% = 23.09\%$ Fe

$Fe_2(SO_4)_3$ $\frac{111.70g}{399.91g} \times 100\% = 27.93\%$ Fe

How many grams of Fe are in 23.36g $Fe_2(SO_4)_3$?

$$23.36\,g\,Fe_2(SO_4)_3 \times \frac{27.93\,g\,Fe}{100\,g\,Fe_2(SO_4)_3} = 6.52\,g\,Fe$$

If I needed 78.13 g of Fe, how many grams of $Fe(NO_3)_3$ should I start with?

$$78.13\,g\,Fe \times \frac{100\,g\,Fe(NO_3)_3}{23.09\,g\,Fe} = 338.37\,g\,Fe(NO_3)_3$$