

Percent Composition Problems

An 8.20 g sample of Mg combines completely with 5.40 g O to form a cpd. What is the percent composition of compound (cpd)?

$$\text{Total mass of cpd: } 8.20 \text{ g Mg} + 5.40 \text{ g O} = 13.60 \text{ g cpd}$$

$$\% \text{ Mg: } \frac{8.20 \text{ g Mg}}{13.60 \text{ g cpd}} \cdot 100\% = 60.29\% = 60.3\%$$

(I will tell
you how many
decimal
places in
percentage)

$$\% \text{ O: } \frac{5.40 \text{ g O}}{13.60 \text{ g cpd}} \cdot 100\% = 39.70\% = 39.7\%$$

What is percent composition of C_1O_2 ?

Assume: Mass of 1 mole of cpd

Molar mass C_1O_2 :

$$1(12 \text{ g C}) + 2(16 \text{ g O}) = \frac{44 \text{ g C}_1}{1 \text{ mole C}_1}$$

$$\text{g C: } 1(12 \text{ g C}) = 12 \text{ g C (in 1 mole C}_1\text{O}_2)$$

$$\text{g O: } 2(16 \text{ g O}) = 32 \text{ g O (in 1 mole C}_1\text{O}_2)$$

$$\% \text{ C: } \frac{12 \text{ g C}}{44 \text{ g cpd}} \cdot 100\% = 27.27\% = 27.3\%$$

$$\% \text{ O: } \frac{32 \text{ g O}}{44 \text{ g cpd}} \cdot 100\% = 72.72\% = 72.7\%$$