



PERCENT COMPOSITION NOTES



PERCENT COMPOSITION

- The percent composition of a compound is the mass percent of each element in the compound

PERCENT COMPOSITION

➤ Percentage of anything:

$$\frac{\text{Part}}{\text{whole}} \times 100 = \text{Percent}$$

PERCENT COMPOSITION

➤ For elements in a compound:

$$\frac{\text{Mass of element}}{\text{Molar Mass}} \times 100 = \text{Percent of the element}$$

EXAMPLES

Calculate the percent composition of:



$$\text{H: } 2 \times 1.01 = 2.02$$

$$\text{S: } 1 \times 32.07 = 32.07$$

$$34.09$$

$$\% \text{H: } \frac{2.02}{34.09} \times 100$$

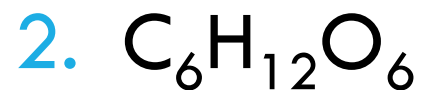
$$\% \text{S: } \frac{32.07}{34.09} \times 100$$

$$= 5.93 \% \text{H}$$

$$= 94.07 \% \text{S}$$

Should add
up to 100%

EXAMPLES



$$\text{C: } 6 \times 12.01 = 72.06$$

$$\text{H: } 12 \times 1.01 = 12.12$$

$$\text{O: } 6 \times 16.00 = 96.00$$

$$180.18$$

$$\% \text{C: } \frac{72.06}{180.18} \times 100 = 39.99\% \text{C}$$

$$\% \text{H: } \frac{12.12}{180.18} \times 100 = 6.727\% \text{H}$$

$$\% \text{O: } \frac{96.00}{180.18} \times 100 = 53.28\% \text{O}$$

EXAMPLES

For Hydrates: Find the % of the compound and the % of the water separately

3. $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ Barium chloride dihydrate

BaCl₂:

$$\text{Ba: } 1 \times 137.33 = 137.33$$

$$\text{Cl: } 2 \times 35.45 = \frac{70.90}{208.23}$$

H₂O:

$$\text{H: } 2 \times 1.01 = 2.02$$

$$\text{O: } 1 \times 16.00 = \frac{16.00}{18.02 \times 2 = 36.04}$$

$$\text{Total} = 208.23 + 36.04 = 244.27$$

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$$\% \text{BaCl}_2: \frac{208.23}{244.27} \times 100 = 85.246\%$$

$$\% \text{H}_2\text{O}: \frac{36.04}{244.27} \times 100 = 14.75\%$$

