

Percent Composition

Sample Problems

① What is the percent potassium in K_2CrO_4 ?



$$2 \times K = 2 \times 39.10 \text{ g/mol} = 78.20 \text{ g/mol}$$

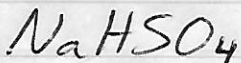
$$1 \times Cr = 1 \times 52.00 \text{ g/mol} = 52.00 \text{ g/mol}$$

$$4 \times O = 4 \times 16.00 \text{ g/mol} = 64.00 \text{ g/mol}$$

$$\underline{194.20 \text{ g/mol}}$$

$$\begin{aligned} \%K &= \frac{g_K}{g_{total}} \times 100\% \\ &= \frac{78.20 \text{ g/mol}}{194.20 \text{ g/mol}} \times 100\% \\ &= 40.3\% \end{aligned}$$

② What is the percent composition of $NaHSO_4$?



$$1 \times Na = 1 \times 22.99 \text{ g/mol} = 22.99 \text{ g/mol}$$

$$1 \times H = 1 \times 1.01 \text{ g/mol} = 1.01 \text{ g/mol}$$

$$1 \times S = 1 \times 32.06 \text{ g/mol} = 32.06 \text{ g/mol}$$

$$4 \times O = 4 \times 16.00 \text{ g/mol} = 64.00 \text{ g/mol}$$

$$\underline{120.06 \text{ g/mol}}$$

$$\begin{aligned} \%Na &= \frac{g_{Na}}{g_{total}} \times 100\% \\ &= \frac{22.99 \text{ g/mol}}{120.06 \text{ g/mol}} \times 100\% \\ &= 19.1\% \end{aligned}$$

$$\begin{aligned} \%H &= \frac{g_H}{g_{total}} \times 100\% \\ &= \frac{1.01 \text{ g/mol}}{120.06 \text{ g/mol}} \times 100\% \\ &= 0.8\% \end{aligned}$$

$$\begin{aligned} \%S &= \frac{g_S}{g_{total}} \times 100\% \\ &= \frac{32.06 \text{ g/mol}}{120.06 \text{ g/mol}} \times 100\% \\ &= 26.7\% \end{aligned}$$

$$\begin{aligned} \%O &= \frac{g_O}{g_{total}} \times 100\% \\ &= \frac{64.00 \text{ g/mol}}{120.06 \text{ g/mol}} \times 100\% \\ &= 53.3\% \end{aligned}$$