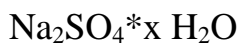


Answer on Question #64968 - Chemistry / General Chemistry

Question

A Na_2SO_4 hydrate contains 55.91% H_2O Find the empirical formula.

Solution



$$M(\text{Na}_2\text{SO}_4) = 142 \text{g/mol}$$

$$M(\text{H}_2\text{O}) = 18 \text{g/mol}$$

$$M(\text{Na}_2\text{SO}_4 \cdot x \text{H}_2\text{O}) = (142 + 18 \cdot x) \text{g/mol}$$

$$\frac{(142 + 18 \cdot x)}{100} = \frac{18 \cdot x}{55.91}$$

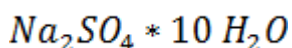
$$0.5591 \cdot (142 + 18 \cdot x) = 18 \cdot x$$

$$79.3922 + 10.0638 \cdot x = 18 \cdot x$$

$$7.9362 \cdot x = 79.3922$$

$$x = 10$$

Answer



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