

Answer on Question #49003, Chemistry, Other

**Task:**

**MgNH<sub>4</sub>PO<sub>4</sub>·6H<sub>2</sub>O loses H<sub>2</sub>O stepwise as it is heated. Between 40°C and 60°C the monohydrate (MgNH<sub>4</sub>PO<sub>4</sub>·H<sub>2</sub>O) is formed and above 100°C the anhydrous material (MgNH<sub>4</sub>PO<sub>4</sub>) is formed. What are the phosphorus percentages of the monohydrate and anhydrous material?**

**Answer:**

$$M(\text{MgNH}_4\text{PO}_4 \cdot \text{H}_2\text{O}) = 155,3 \text{ g / mol}$$

$$M(\text{MgNH}_4\text{PO}_4) = 137,3 \text{ g / mol}$$

$$M(\text{P}) = 31 \text{ g / mol}$$

$$\%P(\text{MgNH}_4\text{PO}_4 \cdot \text{H}_2\text{O}) = \frac{31}{155,3} \times 100 = 20\%$$

$$\%P(\text{MgNH}_4\text{PO}_4) = \frac{31}{137,3} \times 100 = 22,6\%$$