Answer on Question #48899, Chemistry, Other

Task:

$MgNH_4PO_4 \cdot 6H_2O$ loses H_2O stepwise as it is heated. Between 40°C and 60°C the monohydrate ($MgNH_4PO_4 \cdot H_2O$) is formed and above 100°C the anhydrous material ($MgNH_4PO_4$) is formed. What are the phosphorus percentages of the monohydrate and anhydrous material?

Answer:

$$M(MgNH_4PO_4 \cdot H_2O) = 155,3 \, g/mol$$

$$M(MgNH_4PO_4) = 137,3 \, g/mol$$

$$M(P) = 31 \, g/mol$$

$$\%P(MgNH_4PO_4 \cdot H_2O) = \frac{31}{155,3} \times 100 = 20\%$$

$$\%P(MgNH_4PO_4) = \frac{31}{137,3} \times 100 = 22,6\%$$