

AS level Chemistry A
H032/02 Depth in chemistry

Question Set 15

1. Magnesium nitrate is used in fertilisers as a source of nitrogen.

(a)* A student plans to prepare 250.0 cm³ of a 0.4000 mol dm⁻³ solution of magnesium nitrate, starting from magnesium nitrate crystals, Mg(NO₃)₂•6H₂O.

Describe how the student would prepare the solution, giving full details of quantities, apparatus and method.

[6]

(b) A solution of magnesium nitrate can be prepared by reacting magnesium carbonate, MgCO₃, with nitric acid, HNO₃(aq).

The equation is shown below.



Calculate the minimum volume, in cm³, of 1.75 mol dm⁻³ HNO₃ that is needed to prepare a solution containing 5.00 g of Mg(NO₃)₂.

Give your answer to 3 significant figures.

[3]

(c) Magnesium nitrate decomposes when heated, as shown in the equation.



Using oxidation numbers, show which element has been oxidised and which has been reduced when magnesium nitrate decomposes.

State the changes in oxidation numbers, including all signs.

Element oxidised

Oxidation number change: from to

Element reduced

Oxidation number change: from to

[2]

Total Marks for Question Set 2: 11

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