Investigation into the percentage by mass of magnesium hydroxide in milk of magnesia

Education in Chemistry
January 2019
rsc.li/2zXK5Lw

Milk of magnesia is used as a treatment for excess stomach acid. Determining the amount of acid required to neutralise a dose of milk of magnesia can be used to determine the amount of magnesium hydroxide present in each dose.

The equation for the reaction between milk of magnesia and sulfuric acid is:

$$Mg(OH)_2 + H_2SO_4 \rightarrow MgSO_4 + 2H_2O$$

You will determine the percentage by mass of magnesium hydroxide in milk of magnesia. You will need to write up your investigation and results in full.

You have access to the following apparatus:

- Doses of milk of magnesia
- 0.25 mol/dm^3 sulfuric acid
- Distilled water
- Burette
- Pipette
- Pipette filler
- Conical flasks
- Balance
- White tile
- Indicators

Your write-up will need to include the following:

- A suitable method for your investigation.
- An explanation of any risks encountered during the experiment and strategies for minimising the hazards.
- An explanation of how you have ensured that your results are accurate and reliable.
- A results table.
- A commentary of relevant observations and explanations for them.
- Clear analysis of your results, using mole calculations as appropriate.
- A discussion of any errors which may have impacted your results and suggestions for improvements.

Support sheet

1. Determine the mass of milk of magnesia in a single dose.
2. Determine the mean titre of sulfuric acid required to neutralise a dose of milk of magnesia.
3. Determine the moles of sulfuric acid used in the neutralisation.
4. Determine the moles of magnesium hydroxide in a dose of milk of magnesia.
5. Determine the mass of magnesium hydroxide present in a dose of milk of magnesia.