

WJEC (Wales) Chemistry GCSE

SP 1.6 - Investigation of Thermal Stabilities of Calcium Carbonate, Copper(II) Carbonate and Sodium Carbonate

Flashcards

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Give the chemical and word equations
for the thermal decomposition of calcium
carbonate



Give the chemical and word equations for the thermal decomposition of calcium carbonate

Calcium carbonate → calcium oxide + carbon dioxide



Give the chemical and word equations
for the thermal decomposition of sodium
carbonate



Give the chemical and word equations for the thermal decomposition of sodium carbonate

Sodium carbonate → sodium oxide + carbon dioxide



What apparatus is required to investigate the thermal stability of various metal carbonates?



What apparatus is required to investigate the thermal stability of various metal carbonates?

- Boiling tubes
- Test tube holder
- Bunsen burner
- Heat proof mat
- Digital mass balance
- Spatula



Different metal carbonates are heated in a boiling tube. What 2 measurements should be taken to identify which has the lowest thermal stability?



Different metal carbonates are heated in a boiling tube. What 2 measurements should be taken to identify which has the lowest thermal stability?

- Initial mass of carbonate and the boiling tube
- Final mass of carbonate and boiling tube



How does the mass lost during thermal decomposition relate to the thermal stability of the carbonate?



How does the mass lost during thermal decomposition relate to the thermal stability of the carbonate?

The more mass lost by a carbonate during decomposition, the less thermally stable the carbonate compound is.



What safety precautions should be taken when investigating the thermal stability of metal carbonates?



What safety precautions should be taken when investigating the thermal stability of metal carbonates?

- Wear gloves and safety goggles (irritant compounds).
- Wait for hot apparatus to cool before moving.
- Don't leave Bunsen burner unattended. Turn off the gas or leave on orange safety flame when not in use.
- Tie back long hair.



Why is it important that the test tube containing the metal carbonate is not pointed at anyone during heating?



Why is it important that the test tube containing the metal carbonate is not pointed at anyone during heating?

The metal carbonate powder might spit during decomposition due to the production of the carbon dioxide gas. The test tube must not be directed at anyone to prevent the hot powder from spitting into someone's face.



How could the gas released from thermal decomposition be identified?



How could the gas released from thermal decomposition be identified?

The gas is carbon dioxide so the test for carbon dioxide can be carried out:

Place a delivery tube bung on the heated carbonate test tube and connect the delivery tube to a test tube of limewater. The limewater will turn cloudy if carbon dioxide is present.



What is observed when copper(II) carbonate is gently heated?



What is observed when copper(II) carbonate is gently heated?

The green copper(II) carbonate turns black on decomposition.



What is observed when calcium carbonate is strongly heated?



What is observed when calcium carbonate is strongly heated?

Calcium carbonate will glow for several minutes.



What is observed when sodium carbonate is heated using a Bunsen burner?



What is observed when sodium carbonate is heated using a Bunsen burner?

No observations.

Decomposition of sodium carbonate does not occur at the highest temperature of a Bunsen burner.



As reactivity of the metal increases, what happens to the stability of metal carbonates?



As reactivity of the metal increases, what happens to the stability of metal carbonates?

Stability increases

