

WJEC (Wales) Chemistry GCSE

Specified Practical 1.6

Investigation of thermal stabilities of calcium carbonate, copper(II) carbonate and sodium carbonate

[Method taken from the [WJEC SP 1.6 Practical Specification](#)]

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Investigating Thermal Stabilities

Aim

Investigate the **thermal stabilities** of **carbonates** by heating them strongly to see how easily they **decompose**.

Equipment list

- Boiling tubes
- Test tube holder
- Bunsen burner
- Heat proof mat
- Calcium carbonate (CaCO_3)
- Copper(II) carbonate (CuCO_3)
- Sodium carbonate (Na_2CO_3)
- Spatula
- Electronic balance ± 0.01 g

Method

1. Record the **mass** of an **empty** boiling tube.
2. Measure approximately 2 g of calcium carbonate into the boiling tube.
3. Record the **mass** of the boiling tube and the calcium carbonate
4. **Heat** the boiling tube for 5 minutes in a blue Bunsen burner flame.
5. Allow the boiling tube to **cool**.
6. Record the **mass** of the boiling tube and calcium carbonate.
7. **Repeat** steps 1-6 using sodium carbonate and then copper(II) carbonate.
8. Calculate the **loss of mass** for each carbonate.

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

Safety Precautions

- Direct the tube away from anyone when heating to avoid **spitting hot carbonate powder**. Wear safety goggles to avoid spitting hot carbonate powder.
- The apparatus will get **very hot**. Do not move the apparatus until cool and run any burns under running water for at least 10 minutes.

