

Thermal Decomposition

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

What is thermal decomposition?

Step 1 · 'Thermal'

Using heat.

Step 2 · 'Decomposition'

Breaking down into simpler substances.

Answer: Breaking down a compound into simpler substances using heat

Check: One reactant, two or more products.

2. Now try one with the steps

Write the word equation for heating copper carbonate.

Step 1 · Reactant

Step 2 · Products

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What does 'thermal' mean? [1]

2. What does 'decomposition' mean? [1]

3. Which gas is made when metal carbonates are heated? [1]

4. What is the test for carbon dioxide? [1]

5. What colour change is seen when copper carbonate is heated? [1]
6. Write the word equation for heating zinc carbonate. [1]
7. Is thermal decomposition usually exothermic or endothermic? [1]
8. Why does the mass of solid go down when a carbonate is heated in an open tube? [1]
9. Why must you remove the delivery tube from the limewater BEFORE you stop heating? [2]
10. 4.0 g of a carbonate leaves 2.6 g of oxide. What mass of carbon dioxide was released, in g? [1]
11. What is the common name for calcium oxide made by heating limestone? [1]
12. Copper carbonate decomposes more easily than calcium carbonate. Describe a fair test to compare how easily different carbonates decompose. [3]
13. Why is heating copper carbonate a chemical change, but heating wax is not? [2]
14. Name the products when sodium hydrogencarbonate decomposes. [1]

4. Before you hand it in

"The solid got lighter, so mass was destroyed."

Total mass of solid + gas = original mass.

Writing 'oxygen' product of carbonates.

metal carbonate → metal oxide + carbon dioxide.

Leaving the delivery tube in limewater after heating stops.

Lift the tube out of the limewater first, then turn off the Bunsen.

Thinking thermal decomposition is the same

Decomposition: ONE substance broken down by heat. Combustion: a fuel reacting WITH oxygen.