

# Carbonates

## Question Paper 2

<b>Level</b>	IGCSE
<b>Subject</b>	Chemistry
<b>Exam Board</b>	CIE
<b>Topic</b>	Carbonates
<b>Sub-Topic</b>	
<b>Paper Type</b>	Alternative to Practical
<b>Booklet</b>	Question Paper 2

**Time Allowed:** 44 minutes

**Score:** /36

**Percentage:** /100

## 1 Toothbright



Toothbright toothpaste contains three compounds, sodium fluoride, calcium carbonate and water. Calcium carbonate is insoluble in water and sodium fluoride is soluble in water.

Plan an investigation to find out the percentage of calcium carbonate present in this toothpaste. You are provided with common laboratory apparatus.

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..... [7]

[Total: 7]

2

**Which is the more pure - limestone or marble?**

Calcium carbonate is found in limestone and in marble. All carbonates react with hydrochloric acid to form chlorides. Calcium carbonate is insoluble in water but calcium chloride is water soluble.

Most impurities in limestone and marble are insoluble.

Plan an experiment to find out which of limestone and marble contain most insoluble impurities. You are provided with common laboratory apparatus.

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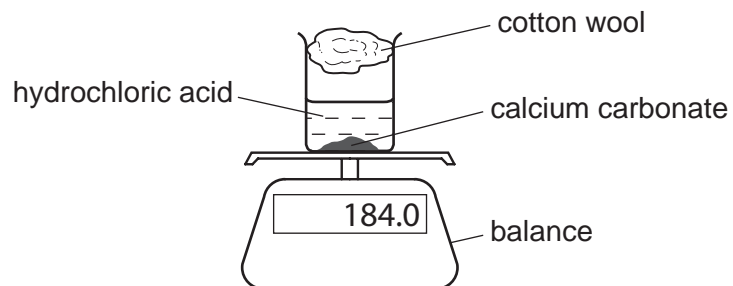
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..... [7]

[Total: 7]

- 3 Dilute hydrochloric acid was added to excess calcium carbonate in a beaker as shown.

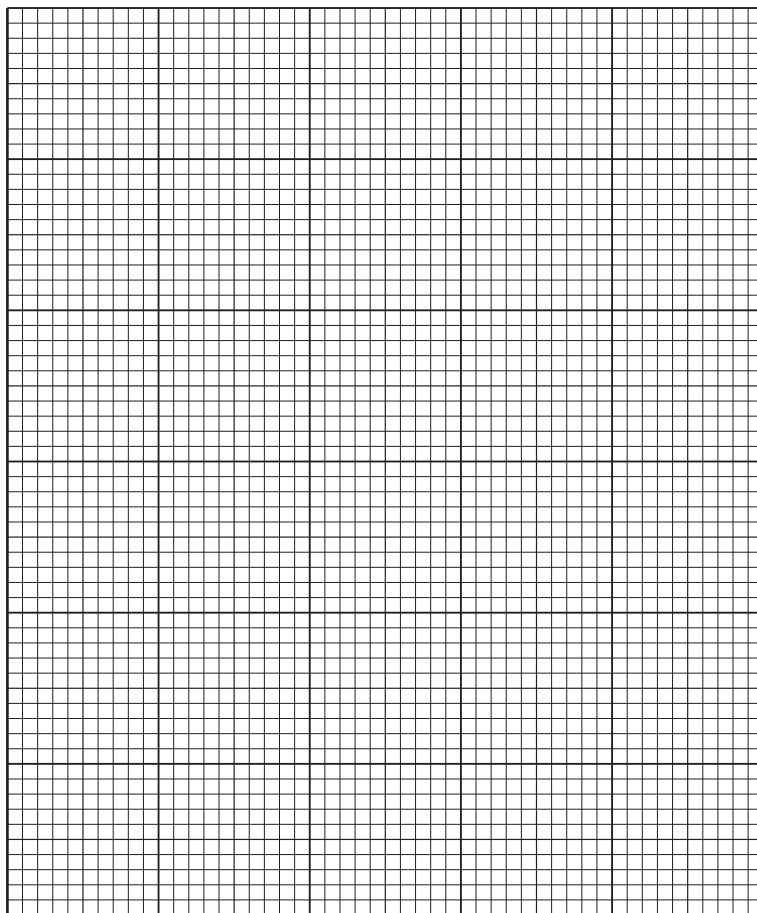


The beaker was placed on a balance and the mass of the beaker and contents recorded every minute.

The results are shown in the table.

mass of beaker and contents /g	184.0	178.0	175.6	174.6	174.0	174.0
time /min	0	1	2	3	4	5

(a) Plot the results on the grid and draw a smooth line graph.



[5]

(b) Use your graph to determine the mass of the beaker and contents after 30 seconds. Show clearly on your graph how you worked out your answer.

..... [2]

(c) Why does the mass of the beaker and contents decrease?

..... [1]

(d) Suggest the purpose of the cotton wool.

..... [1]

(e) After how long did the reaction finish?

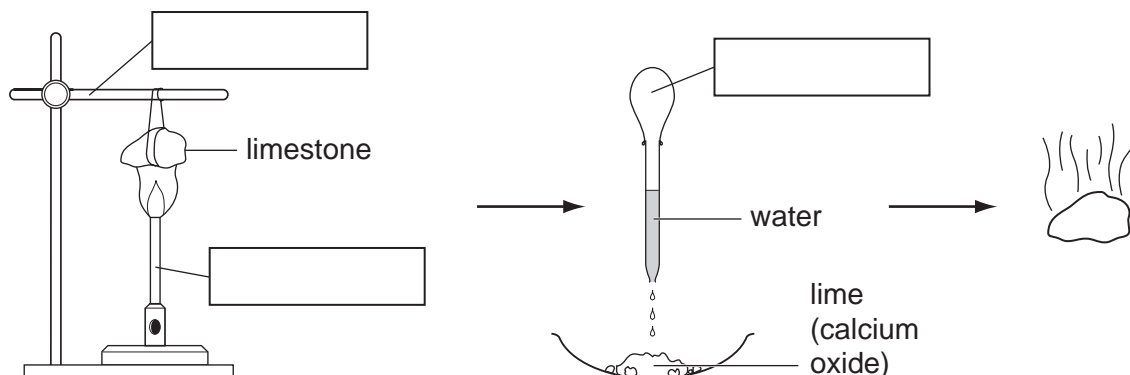
..... [1]

(f) A second experiment was carried out using hydrochloric acid at a lower temperature. On the grid sketch a curve to show the expected results for this experiment. Label this curve **C**.

[2]

[Total: 12]

- 4 A small piece of limestone was heated strongly and left to cool. A few drops of cold water were added. The solid expanded and gave off steam.



(a) Complete the empty boxes to identify the pieces of apparatus labelled. [3]

(b) What type of chemical reaction takes place when water is added?

..... [1]

