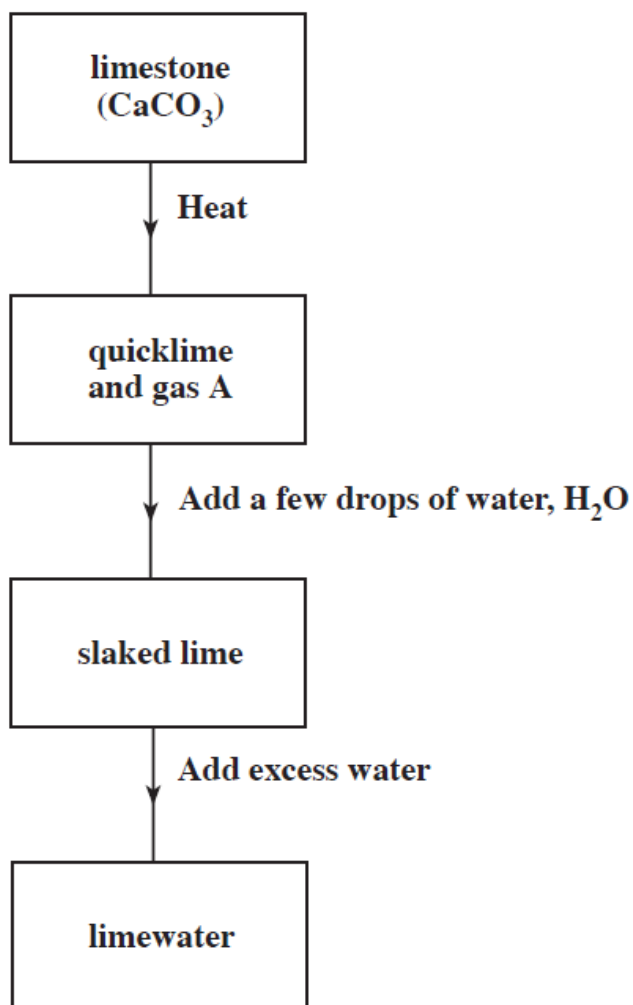


Past Paper Questions – Limestone – Higher

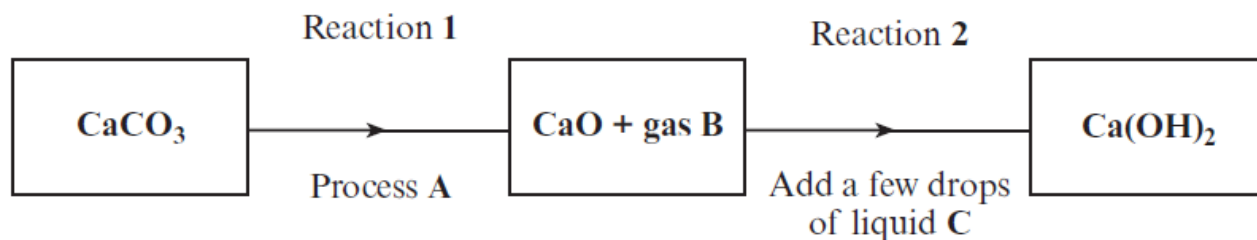
5. The flow diagram below shows the reactions necessary to turn limestone, CaCO_3 , into limewater.



Give the chemical name for

- (i) quicklime, [1]
- (ii) gas A, [1]
- (iii) slaked lime. [1]

4. (a) The flow diagram below shows the reactions that occur to prepare slaked lime, Ca(OH)_2 , from limestone, CaCO_3 .



- (i) I. Give the term for the breakdown of calcium carbonate in Reaction 1. [1]

.....

- II. State what needs to be done to limestone for this to happen. [1]

.....

- (ii) Give the name of

- I. gas B,

- II. liquid C.

- (iii) Write a **balanced symbol** equation for Reaction 2. [3]

..... + →

- (b) Name the **metallic element** which uses limestone during its extraction. [1]

.....

- (c) Give **two** disadvantages associated with limestone quarrying. [2]

1.

2.

6. (a) Carbonates undergo thermal decomposition forming carbon dioxide.

(i) The following table contains the decomposition temperatures of three metal carbonates.

Metal carbonate	Decomposition temperature / °C
calcium carbonate	900
copper carbonate	290
magnesium carbonate	540

State which of the three is the most stable and give a reason for your choice. [1]

.....
.....

(ii) Describe an experiment to show the thermal decomposition of copper carbonate. State how you would collect and identify the carbon dioxide gas produced. [3]

.....
.....
.....
.....
.....
.....

(b) Limestone is made of calcium carbonate. It decomposes on heating to form quicklime, calcium oxide, which reacts with water giving calcium hydroxide.

(i) Give **one** use of limestone. [1]

.....

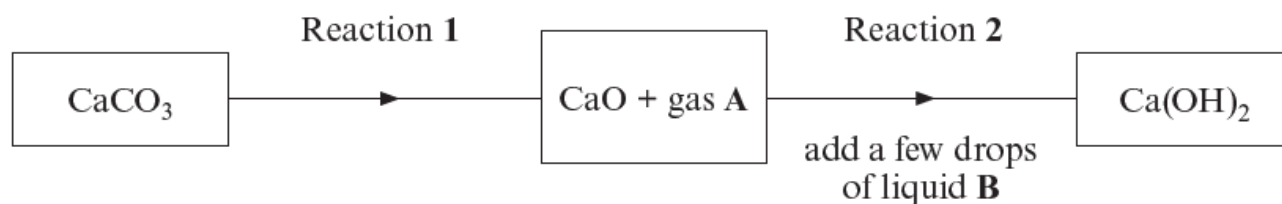
(ii) Give the reason why farmers spread quicklime on their soil. [1]

.....

(iii) State the common name for calcium hydroxide. [1]

.....

2. (a) The flow diagram below shows the reactions used to prepare slaked lime, Ca(OH)_2 , from limestone, CaCO_3 .



- (i) I Briefly describe what needs to be done to limestone for reaction 1 to take place. [1]

.....
II Give the name for the type of reaction taking place. [1]

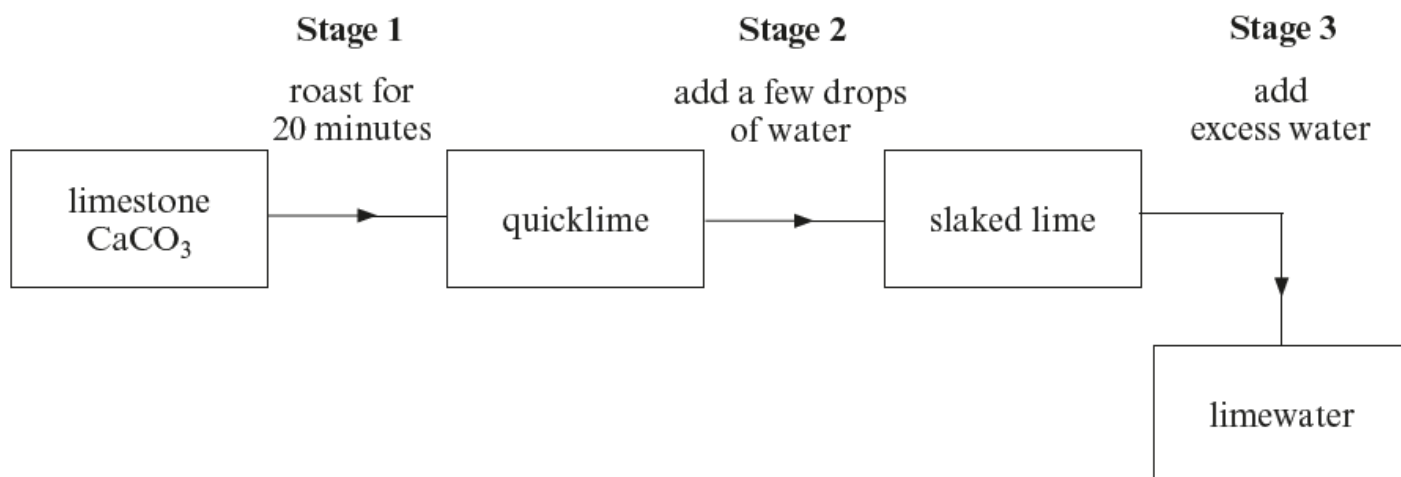
- (ii) Name gas A. [1]

- (iii) Name liquid B. [1]

- (b) Write a balanced **symbol** equation for the reaction which takes place when slaked lime, Ca(OH)_2 , is neutralised by hydrochloric acid, HCl . [3]

..... + \longrightarrow +

6. (a) The flow chart below outlines the stages involved in the preparation of limewater from limestone.



- (i) Write a **balanced symbol** equation for the reaction taking place in **stage 2**. [3]



- (ii) Give the **stage** in the flow chart which

I is extremely exothermic,

[1]

II demonstrates thermal decomposition.

[1]

- (iii) Describe a simple test you would carry out to show that limewater is formed in **stage 3**. Include the result of the test. [1]

.....

- (b) Limestone is an important raw material obtained by quarrying. There are advantages and disadvantages associated with limestone quarrying.

In your opinion do the advantages of limestone quarrying outweigh the disadvantages? Give **two** reasons to support your answer. [2]

Opinion (Yes or No)

Reasons to support your opinion

.....

.....

.....

.....

4. When samples of calcium carbonate and copper(II) carbonate are heated they undergo thermal decomposition.

(a) Describe **one** similarity and **one** difference in the reactions that take place when these two carbonates thermally decompose. [2]

.....

.....

.....

(b) Give the balanced **symbol** equation for the reaction that takes place when calcium carbonate is heated. [2]



(c) If the two carbonates were replaced with sodium carbonate, what would be the difference when this was heated? Give a reason for this difference. [2]

.....

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