

- 1 When limestone is heated it forms lime (calcium oxide) and carbon dioxide.



Which statement is **not** correct?

- A** Carbon dioxide is a greenhouse gas which may contribute to climate change.
- B** Slaked lime is used to neutralise industrial waste.
- C** The lime can be used to treat alkaline soil.
- D** This reaction is an example of thermal decomposition.

- 2 Lime (calcium oxide) is used to treat waste water from a factory.

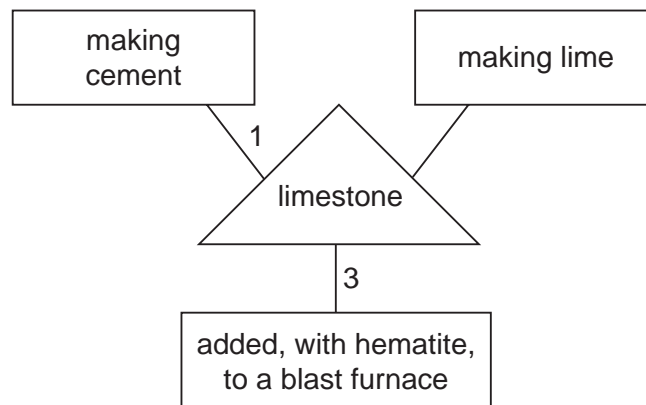
Which substance is removed by the lime?

- A** ammonia
- B** sodium chloride
- C** sodium hydroxide
- D** sulfuric acid

- 3 Which process is used to make lime (calcium oxide) from limestone (calcium carbonate)?

- A** chromatography
- B** electrolysis
- C** fractional distillation
- D** thermal decomposition

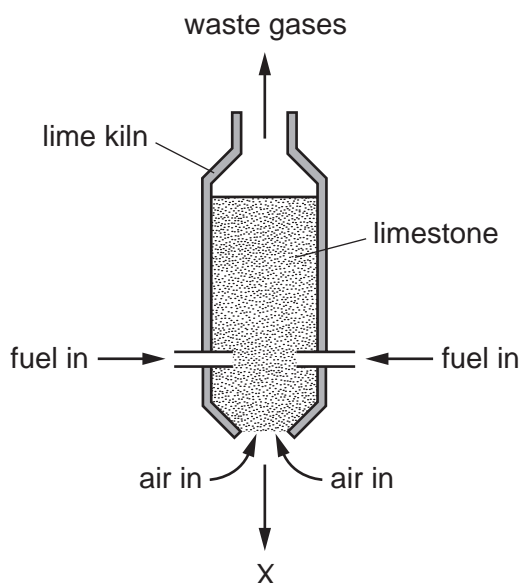
4 A student is asked to draw a diagram showing the uses of limestone.



Which numbered lines show a correct use of limestone?

- A** 1, 2
- B** 1 and 2 only
- C** 1 and 3 only
- D** 2 and 3 only

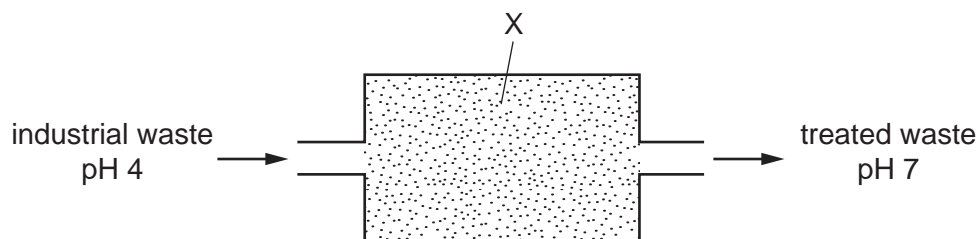
5 The diagram represents a lime kiln.



What leaves the furnace at X?

- A** calcium carbonate
- B** calcium hydroxide
- C** calcium oxide
- D** calcium sulfate

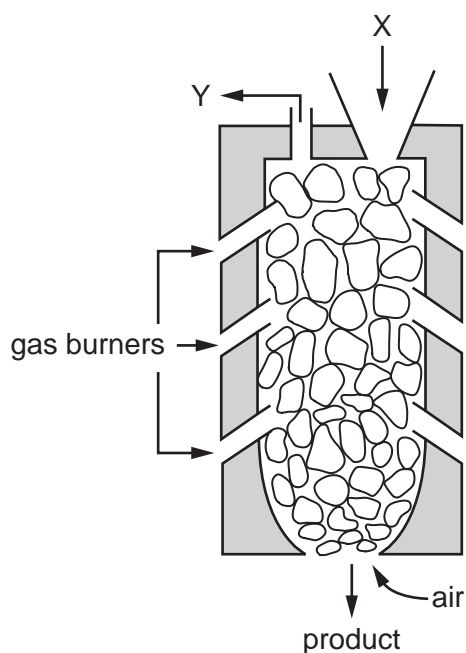
6 Substance X is used to treat industrial waste.



What is X and which type of reaction occurs during the treatment?

| | X | type of reaction |
|----------|----------------------|------------------|
| A | calcium oxide (lime) | neutralisation |
| B | calcium oxide (lime) | redox |
| C | carbon | neutralisation |
| D | carbon | redox |

7 The diagram shows a kiln used to manufacture lime.



Which row identifies X and Y?

| | X | Y |
|---|-----------|----------------|
| A | lime | carbon dioxide |
| B | lime | steam |
| C | limestone | carbon dioxide |
| D | limestone | steam |

8 The diagram shows the soil pH range over which a vegetable grows well.

The pH of the soil to be used is 5.5.



Why is lime added to the soil before planting the vegetable?

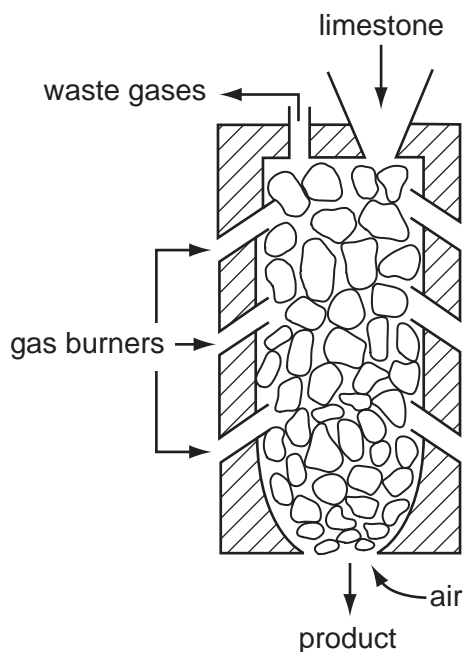
- A The lime acts as a catalyst.
- B The lime changes the soil acidity.
- C The lime is an indicator.
- D The lime supplies nitrogen.

- 9 When compound X is heated, it changes colour from green to black. Compound Y is formed and a gas is given off which turns limewater milky.

What are X and Y?

| | X | Y |
|----------|-------------------|---------------|
| A | calcium carbonate | calcium oxide |
| B | copper carbonate | carbon |
| C | copper carbonate | copper oxide |
| D | copper sulfate | copper oxide |

- 10 The diagram shows a kiln used to heat limestone.

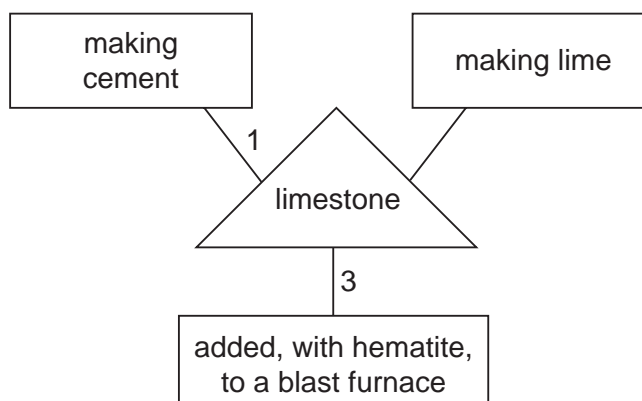


What is the product and what waste gas is formed?

| | product | gas |
|----------|--------------------------------|-----------------|
| A | lime, CaO | carbon monoxide |
| B | lime, CaO | carbon dioxide |
| C | slaked lime, Ca(OH)_2 | carbon monoxide |
| D | slaked lime, Ca(OH)_2 | carbon dioxide |

- 11 In which process is carbon dioxide **not** formed?
- A burning of natural gas
 - B fermentation
 - C heating lime
 - D respiration
- 12 Which process does **not** produce carbon dioxide?
- A fermentation
 - B respiration
 - C the production of lime from limestone
 - D the treatment of acidic soil with lime
- 13 Carbon dioxide is produced when dilute hydrochloric acid reacts with
- A calcium sulfate.
 - B carbon.
 - C copper(II) carbonate.
 - D limewater.

14 A student is asked to draw a diagram showing the uses of limestone.



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- D** 1, 2

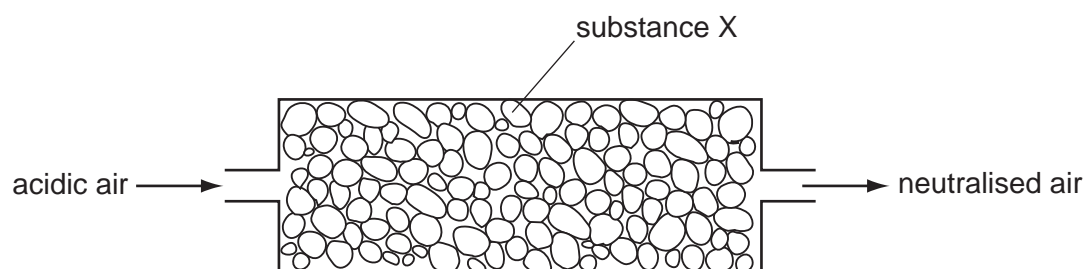
15 Two industrial processes that involve heating are

- extracting iron from its ore using a blast furnace,
- making lime.

In which of these processes is calcium carbonate used?

| | extracting iron | making lime |
|----------|-----------------|-------------|
| A | ✓ | ✓ |
| B | ✓ | x |
| C | x | ✓ |
| D | x | x |

- 16 Air containing an acidic impurity was neutralised by passing it through a column containing substance X.



What is substance X?

- A** calcium oxide
- B** sand
- C** sodium chloride
- D** concentrated sulfuric acid