

Chapter 13

Carbonates

13.1 Carbonates

01. 0620_m21_qp_22 Q: 33

What is an industrial use of calcium carbonate?

- A** cracking of hydrocarbons
- B** manufacture of aluminium
- C** manufacture of cement
- D** purification of water



AceIGCSE

02. 0620_s21_qp_21 Q: 32

A white solid Z reacts with dilute hydrochloric acid to produce a gas.

The same gas is produced when compound Z is heated strongly.

What is Z?

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

03. 0620_s21_qp_22 Q: 33

The equations represent two reactions, P and Q, of lime (calcium oxide).



In which processes do the reactions occur?

	P	Q
A	extraction of iron	extraction of iron
B	extraction of iron	flue gas desulfurisation
C	flue gas desulfurisation	extraction of iron
D	flue gas desulfurisation	flue gas desulfurisation

04. 0620_s21_qp_23 Q: 33

Which statement about calcium carbonate is correct?

- A** It is made by the thermal decomposition of limestone.
- B** It is used to neutralise alkaline soils.
- C** It is a reactant in the test for carbon dioxide.
- D** It is used to remove impurities in iron extraction.

AcelGCSE
Paper Perfection, Crafted With Passion

13.1. CARBONATES

05. 0620_w21_qp_21 Q: 32

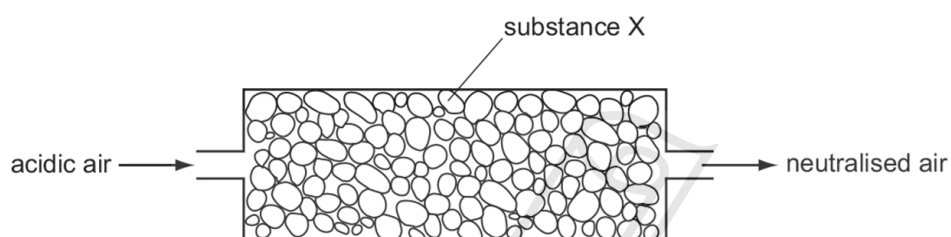
Lime (calcium oxide) is used to treat waste water from a factory.

Which substance is removed by the lime?

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

06. 0620_p20_qp_20 Q: 35

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
-

07. 0620_s20_qp_21 Q: 33

A student suggests three uses of calcium carbonate (limestone).

- 1 manufacture of cement
- 2 manufacture of iron
- 3 treating alkaline soils

Which suggestions are correct?

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

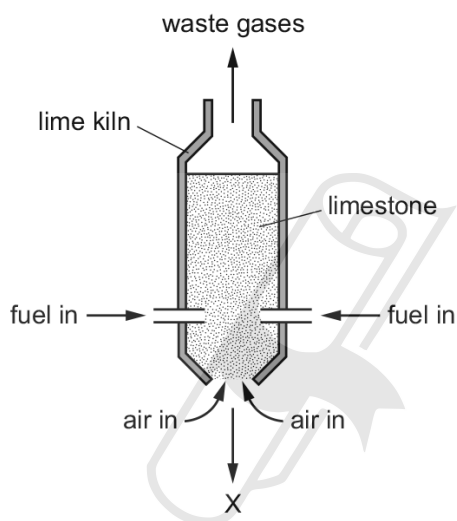
08. 0620_w20_qp_23 Q: 35

Which calcium compound does **not** neutralise an acid soil?

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

09. 0620_s19_qp_21 Q: 34

The diagram represents a lime kiln used to heat limestone to a very high temperature.



What leaves the kiln at X?

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

10. 0620_w19_qp_21 Q: 35

Which process is used to obtain lime from limestone?

- A cracking
 - B fractional distillation
 - C neutralisation
 - D thermal decomposition
-

13.1. CARBONATES

11. 0620_w19_qp_22 Q: 35

Which statement about limestone and lime is correct?

- A** Limestone combines with water to produce slaked lime.
 - B** Lime is obtained from limestone by oxidation.
 - C** Lime is used in the desulfurisation of flue gases.
 - D** Lime is used in the treatment of alkaline soil.
-

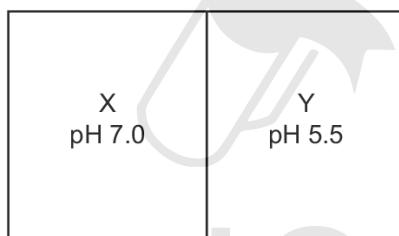
12. 0620_w19_qp_23 Q: 35

Which type of reaction occurs when lime is manufactured from limestone?

- A** combustion
 - B** neutralisation
 - C** redox
 - D** thermal decomposition
-

13. 0620_m18_qp_22 Q: 34

The diagram shows the pH values of the soil in two parts of a garden, X and Y.



Lime is used to neutralise the soil in one part of the garden.

To which part of the garden should the lime be added and why?

	part of the garden	because lime is
A	X	acidic
B	X	basic
C	Y	acidic
D	Y	basic

14. 0620_s18_qp_21 Q: 34

Which process is used to convert limestone (calcium carbonate) into lime?

- A electrolysis
 - B fractional distillation
 - C incomplete combustion
 - D thermal decomposition
-

15. 0620_s18_qp_22 Q: 34

Limestone is used in many industrial processes.

In which process is it **not** used?

- A manufacture of alkenes
 - B manufacture of cement
 - C manufacture of iron
 - D manufacture of lime
-

16. 0620_s18_qp_23 Q: 34

Limestone is an important material with many uses.

Limestone is heated to produce1..... and carbon dioxide.

This reaction is called2..... .

Which words correctly complete gaps 1 and 2?

	1	2
A	lime	neutralisation
B	lime	thermal decomposition
C	slaked lime	neutralisation
D	slaked lime	thermal decomposition

17. 0620_w18_qp_21 Q: 34

Which reaction is endothermic?

- A $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
 - B $\text{CaO} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O}$
 - C $2\text{Ca} + \text{O}_2 \rightarrow 2\text{CaO}$
 - D $\text{Ca} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2$
-

13.1. CARBONATES

18. 0620_w18_qp_22 Q: 34

What is **not** a use of lime?

- A It is used as a bleach in the manufacture of wood pulp.
 - B It is used to desulfurise flue gases.
 - C It is used to neutralise acidic industrial waste.
 - D It is used to treat acidic soil.
-

19. 0620_w18_qp_23 Q: 34

Which equation represents the formation of lime?

- A $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
 - B $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$
 - C $\text{Ca} + 2\text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{H}_2$
 - D $\text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$
-

20. 0620_s17_qp_21 Q: 34

Which statement is **not** correct?

- A Converting limestone into lime is a thermal decomposition reaction.
 - B Flue gas desulfurisation is a neutralisation reaction.
 - C In the extraction of iron, calcium carbonate is converted into calcium oxide.
 - D Slaked lime is added to soil as a fertiliser.
-

21. 0620_s17_qp_22 Q: 34

Statements about methods of manufacture and uses of calcium oxide are shown.

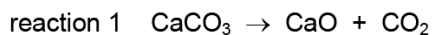
- 1 It is manufactured by reacting acids with calcium carbonate.
- 2 It is manufactured by heating calcium carbonate.
- 3 It is used to desulfurise flue gases.
- 4 It is used to treat alkaline soil.

Which statements are correct?

- A 1 and 2
 - B 1 and 4
 - C 2 and 3
 - D 3 and 4
-

22. 0620_s17_qp_23 Q: 34

Two equations are shown.



Which terms describe reactions 1 and 2?

	reaction 1	reaction 2
A	reduction	hydration
B	reduction	hydrolysis
C	thermal decomposition	hydration
D	thermal decomposition	hydrolysis

23. 0620_w17_qp_21 Q: 34

Some marble chips (calcium carbonate) are heated strongly and substances X and Y are formed.

Substance X is a white solid that reacts with water, giving out heat. Substance Y is a colourless gas.

What are substances X and Y?

	X	Y
A	calcium chloride	oxygen
B	calcium hydroxide	carbon dioxide
C	calcium oxide	carbon dioxide
D	calcium sulfate	oxygen

24. 0620_m16_qp_22 Q: 34

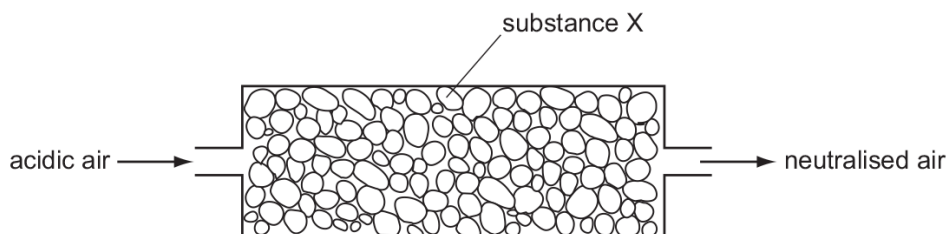
Why does a farmer put lime (calcium oxide) on the soil?

- A** to act as a fertiliser
- B** to kill pests
- C** to make the soil less acidic
- D** to make the soil less alkaline

13.1. CARBONATES

25. 0620_p16_qp_20 Q: 35

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
-

26. 0620_s16_qp_22 Q: 34

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
-

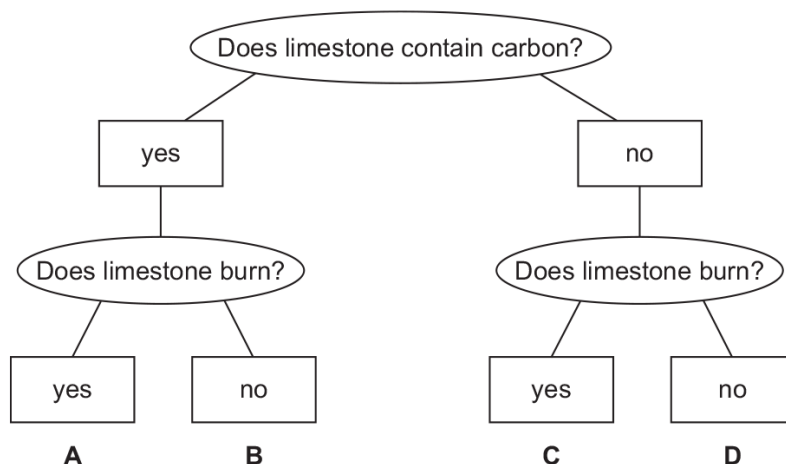
27. 0620_s16_qp_23 Q: 34

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

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

28. 0620_w16_qp_21 Q: 34

Which box corresponds to limestone?



29. 0620_w16_qp_22 Q: 34

Which substance gives off carbon dioxide on heating?

- A lime
- B limestone
- C limewater
- D slaked lime

30. 0620_w16_qp_23 Q: 34

Slaked lime is used to neutralise an acidic soil.

How does the pH of the soil change?

	from	to
A	6	7
B	7	8
C	8	7
D	8	6

SN	Paper	Q. No.	Answer
01	0620_m21_qp_22	33	C
02	0620_s21_qp_21	32	B
03	0620_s21_qp_22	33	B
04	0620_s21_qp_23	33	D
05	0620_w21_qp_21	32	D
06	0620_p20_qp_20	35	A
07	0620_s20_qp_21	33	A
08	0620_w20_qp_23	35	B
09	0620_s19_qp_21	34	C
10	0620_w19_qp_21	35	D
11	0620_w19_qp_22	35	C
12	0620_w19_qp_23	35	D
13	0620_m18_qp_22	34	D
14	0620_s18_qp_21	34	D
15	0620_s18_qp_22	34	A
16	0620_s18_qp_23	34	B
17	0620_w18_qp_21	34	A
18	0620_w18_qp_22	34	A
19	0620_w18_qp_23	34	A
20	0620_s17_qp_21	34	D
21	0620_s17_qp_22	34	C
22	0620_s17_qp_23	34	C
23	0620_w17_qp_21	34	C
24	0620_m16_qp_22	34	C
25	0620_p16_qp_20	35	A
26	0620_s16_qp_22	34	D
27	0620_s16_qp_23	34	D
28	0620_w16_qp_21	34	B
29	0620_w16_qp_22	34	B
30	0620_w16_qp_23	34	A

Paper Perfection, Crafted With Passion