

Sulfur – 2022 IGCSE

1. June/2022/Paper_11/No.33

Which statements about sulfur dioxide are correct?

- 1 Sulfur dioxide decolourises acidified potassium manganate(VII).
- 2 Sulfur dioxide forms when acids react with carbonates.
- 3 Sulfur dioxide is used as a bleach.
- 4 Sulfur dioxide is used to treat acidic soil.

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

2. June/2022/Paper_12/No.30

Which property of sulfur dioxide explains why it is used as a food preservative?

- A** acidic oxide
- B** bleach
- C** kills bacteria
- D** pungent smell

3. June/2022/Paper_13/No.32

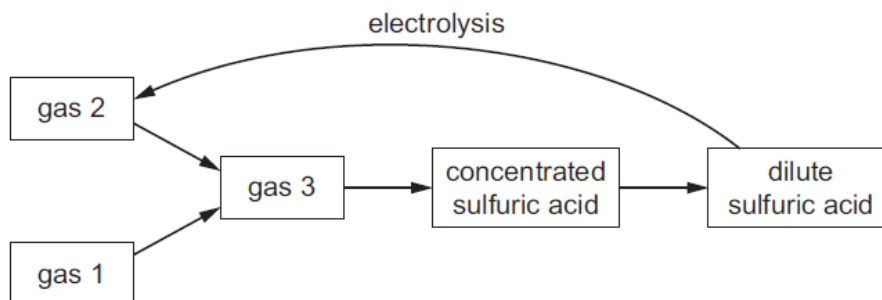
Sulfur dioxide is tested by reacting it with acidified potassium manganate(VII).

Which colour change is seen in the test?

- A** blue to white
- B** colourless to purple
- C** purple to colourless
- D** white to blue

4. June/2022/Paper_21/No.32

The flow chart shows part of the process for the manufacture of sulfuric acid and its electrolysis.



What are gases 1, 2 and 3?

	gas 1	gas 2	gas 3
A	sulfur dioxide	hydrogen	sulfur trioxide
B	sulfur dioxide	oxygen	sulfur trioxide
C	sulfur trioxide	hydrogen	sulfur dioxide
D	sulfur trioxide	oxygen	sulfur dioxide

5. June/2022/Paper_21/No.33

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

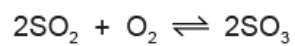
6. June/2022/Paper_22/No.33

Which reaction in the Contact process requires the use of a catalyst?

- A** $S + O_2 \rightarrow SO_2$
- B** $2SO_2 + O_2 \rightarrow 2SO_3$
- C** $SO_3 + H_2SO_4 \rightarrow H_2S_2O_7$
- D** $H_2S_2O_7 + H_2O \rightarrow 2H_2SO_4$

7. June/2022/Paper_33/No.5(d)

(d) Sulfur is used in the manufacture of sulfuric acid.
The equation shows one of the reactions.

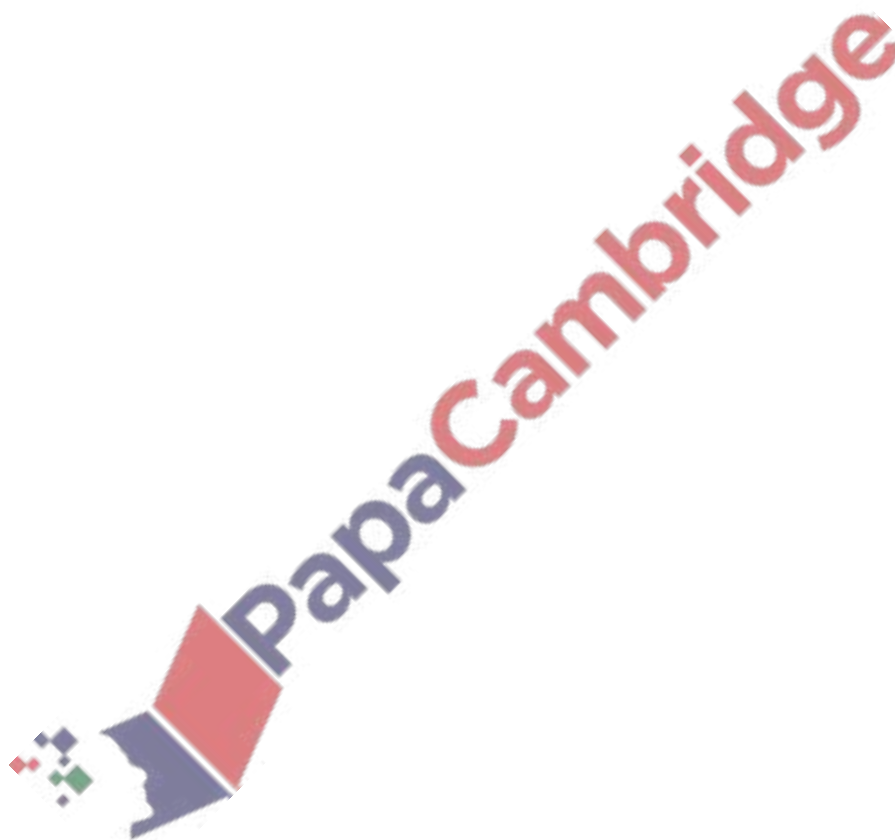


(i) State the meaning of the symbol \rightleftharpoons .

..... [1]

(ii) Give **one** use of sulfur dioxide other than in making sulfuric acid.

..... [1]



8. June/2022/Paper_41/No.4

This question is about compounds of sulfur.

- (a) Sulfuric acid, H_2SO_4 , is manufactured using the Contact process. This manufacture involves four stages.

stage 1 Molten sulfur burns in air to produce sulfur dioxide.

stage 2 Sulfur dioxide reacts with oxygen to form sulfur trioxide.

stage 3 Sulfur trioxide combines with concentrated sulfuric acid to form oleum, $\text{H}_2\text{S}_2\text{O}_7$.

stage 4 Oleum reacts to form concentrated sulfuric acid.

- (i) Write a chemical equation for the reaction occurring in stage 1.

..... [1]

- (ii) State the essential conditions that are necessary for stage 2. Write an equation for the chemical reaction that occurs.

.....
.....
.....
..... [4]

- (iii) Write a chemical equation for the reaction occurring in stage 3.

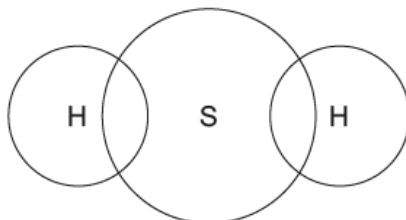
..... [1]

- (iv) Name the substance that reacts with oleum in stage 4.

..... [1]

- (b) Hydrogen sulfide has the formula H_2S .

- (i) Complete the dot-and-cross diagram to show the electron arrangement in a molecule of hydrogen sulfide. Show outer shell electrons only.



[2]

- (ii) Balance the chemical equation for the reaction of hydrogen sulfide with sulfur dioxide shown.



[Total: 10]

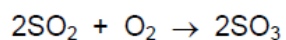
9. March/2022/Paper_22/No.33

Which row identifies uses of sulfur?

	use 1	use 2	use 3
A	making ammonia	bleaching wood pulp	food preservative
B	making sulfuric acid	bleaching wood pulp	food preservative
C	making sulfuric acid	food preservative	as an NPK fertiliser
D	making ammonia	food preservative	as an NPK fertiliser

10. March/2022/Paper_32/No.31

The equation for a reaction occurring in the Contact process is shown.



What is the catalyst used in this reaction?

- A** iron
- B** phosphoric(V) acid
- C** sulfuric acid
- D** vanadium(V) oxide

