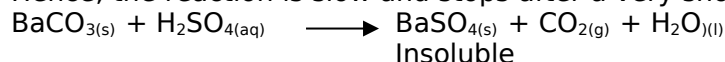


SULPHUR AND ITS COMPOUNDS

MARKING SCHEME

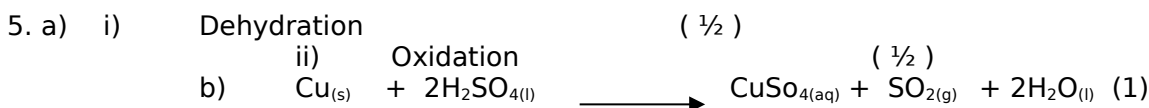
- Barium carbonate reacts with dilute sulphuric (VI) acid to form the insoluble Barium sulphate (BaSO_4) which covers the reactant Barium carbonate preventing any contact between the acid and the carbonate salt. ✓ 1
Hence, the reaction is slow and stops after a very short time.



- The dye is oxidized to a new product with chlorine (1mk) but oxygen is removed to form an unstable product which gradually gets re-oxidized by atmospheric oxygen on exposure for sometime to air (1mk) in the case of Sulphur (IV) oxide.

- (a) Dehydrating agent (1mk)
(b) Oxidizing agent (1mk)

- 1 - Compressed hot air, in
2 - Molten froth of Sulphur water mixture, out
3 - Superheated water - in



$$\text{6. (a) Mass of acid} = \frac{75}{100} \times 1.84 \times 1000 = 1380\text{g in } 1000\text{cm}^3$$

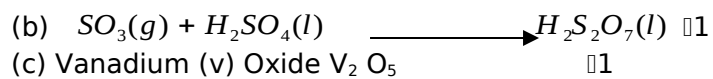
$$\text{Morality} = \frac{1380}{98} = 14.08\text{m} \quad \frac{1}{2}$$

$$\text{(b) Moles of dilute acid} = 0.25 \times 1 = 0.25 \times \frac{1}{\frac{1}{2}} = 0.25 \text{ moles.}$$

$$\text{Volume} = \frac{0.25}{14.08} \times 1000 \quad \frac{1}{2} = 17.756\text{cm}^3 \quad \frac{1}{2}$$

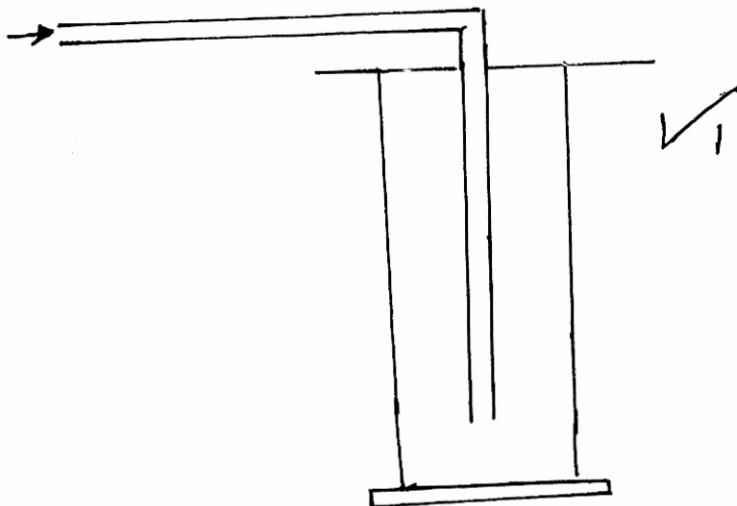
Penalize $\frac{1}{2}$ for wrong units

- It reacts with ammonia $\frac{1}{2}$ gas to form ammonium sulphate. $\frac{1}{2}$
(b) Quick time / Ca O $\frac{1}{2}$
- (a) To avoid poisoning the catalyst $\frac{1}{2}$



9.	<p>a) $3H_2S_{(g)} + H_2SO_{4(l)} \longrightarrow 4H_2O_{(l)} + 4S_{(s)}$ ✓</p> <p>b) H_2S ✓ $\frac{1}{2}$ reducing agent ; Sulphur in H_2S oxidized from -2 to 0 (zero)</p> <p>c) $Pb(C_2H_3O_2)_{2(aq)} + H_2S_{(g)} \longrightarrow PbS_{(s)} + 2C^2H_4O_{2(aq)}$</p>
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9. a) Hydrogen chloride ✓ 1
 Sulphur (IV) oxide ✓ 1
 b)



25. a) Frasch process ✓ 1
 b) Hot compressed air ✓ 1
 c) Monoclinic / prismatic sulphur / beta sulphur ✓ $\frac{1}{2}$
 Rhombic / octahedral sulphur / alpha sulphur ✓ $\frac{1}{2}$