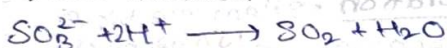


Rhombic sulphur (α) Stable below 369 K ^{STP} Converts to β when $t > 369$ Yellow (Pale) Prepared by dissolving roll sulphur in CS_2 369 K = Transition Temperature • Puckered crown shape ring (S_8) • Insoluble in H_2O / soluble in CS_2 • At 369 both the forms are stable • $Cyclo S_6 \rightarrow$ chair form • $S_2 \rightarrow$ Paramag	Monoclinic sulphur (β) Stable above 369 K and transform to α below it Yellow (Bright) Rhombic sulphur melted cooled till crust is formed. Two hole are made then remaining liq is poured out to get a needle shaped crystal β -S	Sulphoxylic acid $HO-S-OH$ (H_2SO_2)	Peroxo monosulphuric acid (H_2SO_5) (Caro's acid) $HO-\overset{\overset{O}{\parallel}}{S}-O-O-H$
		Sulphurous acid (H_2SO_3) $HO-\overset{\overset{O}{\parallel}}{S}-OH$	Thiosulphurous acid ($H_2S_2O_2$) $HO-\overset{\overset{O}{\parallel}}{S}-OH$
		Sulphuric acid (H_2SO_4) $HO-\overset{\overset{O}{\parallel}}{S}-OH$	Thiosulphuric acid ($H_2S_2O_3$) $HO-\overset{\overset{O}{\parallel}}{S}-OH$
			Dithionous acid ($H_2S_2O_4$) $HO-\overset{\overset{O}{\parallel}}{S}-\overset{\overset{O}{\parallel}}{S}-OH$

Sulphur dioxide

Preparation • $S + O_2 \rightarrow SO_2$

a) Lab method



b) Industrial method

Roasting of sulphide ores

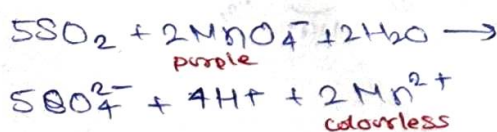


Physical Properties

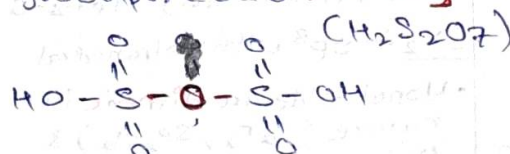
- Colourless, Pungent smell
- Highly soluble in water

Chemical Properties

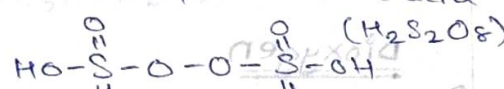
- $SO_2 + H_2O \rightarrow H_2SO_3$
- $2NaOH + SO_2 \rightarrow Na_2SO_3 + H_2O$
- $Na_2SO_3 + H_2O + SO_2 \rightarrow 2NaHSO_3$
Sodium sulphite & Sodium Hydrogensulphite
- $SO_2 + Cl_2 \xrightarrow{\text{Chloroform}} SO_2Cl_2$
Sulphuryl chloride
- $2SO_2 + O_2 \xrightarrow{V_2O_5} 2SO_3$
- **Moist SO_2** acts as an reducing agent
 $2Fe^{3+} + SO_2 + 2H_2O \rightarrow 2Fe^{2+} + SO_4^{2-} + 4H^+$



Pyrosulphuric acid [Oleum]



Peroxydisulphuric Acid (Marshall's acid)



Sulphuric Acid

Preparation

i) Burning sulphide ore / S in air
 $S + O_2 \rightarrow SO_2$

ii) Conversion of SO_2 to SO_3 ^{Key step}
 $2SO_2 + O_2 \xrightarrow{V_2O_5} 2SO_3$

iii) Absorption of SO_3 in H_2SO_4 (Oleum)
 $SO_3 + H_2SO_4 \rightarrow H_2S_2O_7$
 $H_2S_2O_7 + H_2O \rightarrow 2H_2SO_4$

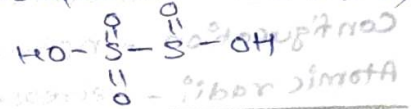
Physical Property

- Colourless dense, oily, liq
- Dissolve in water to liberate large amt heat
- Stored in a steel container

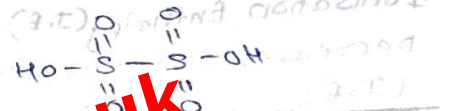
Chemical Properties

- Low volatility
- Strong acidic character
- Strong Affinity for H_2O
- Strong oxidising agent

Pyrosulphuric acid ($H_2S_2O_5$)

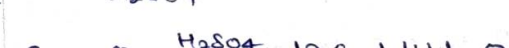
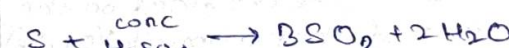


Dithionic acid ($H_2S_2O_6$)



The acid forms two series of salts • normal and • acid sulphates

- Strong dehydrating agent
- Oxidising action on Carbohydrates
- Hot conc sulphuric acid is strong o.a.



A nation's strength can be judged by the quant of sulphuric acid

Preview from Notesale.co.uk
Page 2 of 2