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Compound of S-Block

Na_2O_2 →

$$Na + O_2 \underset{(excess)}{\longrightarrow} Na_2O_2$$

① Pale yellow col.

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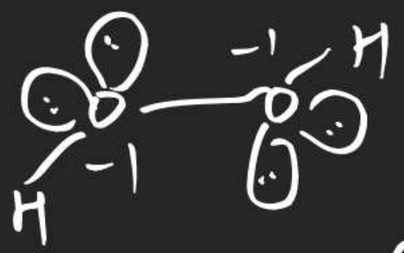

O.A as well as R.A, oxid.

$Na_2O_2 + H^+ - OH^- \xrightarrow{0^\circ C} NaOH + H_2O_2$

Na_2O_2 → $NaOH$, H_2O_2

Not ⇒ H_2O_2 25°C unstable (at room temp.)

$Na_2O_2 + H-OH \xrightarrow{25^\circ C} NaOH + O_2$

Na_2O_2 → $NaOH$, H_2O_2

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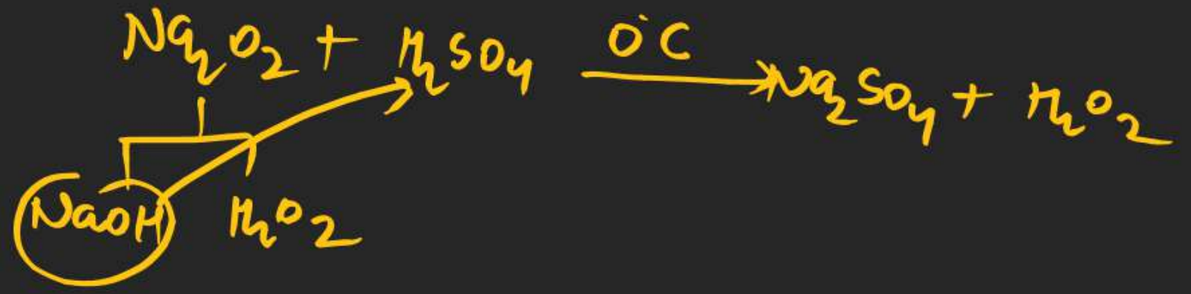

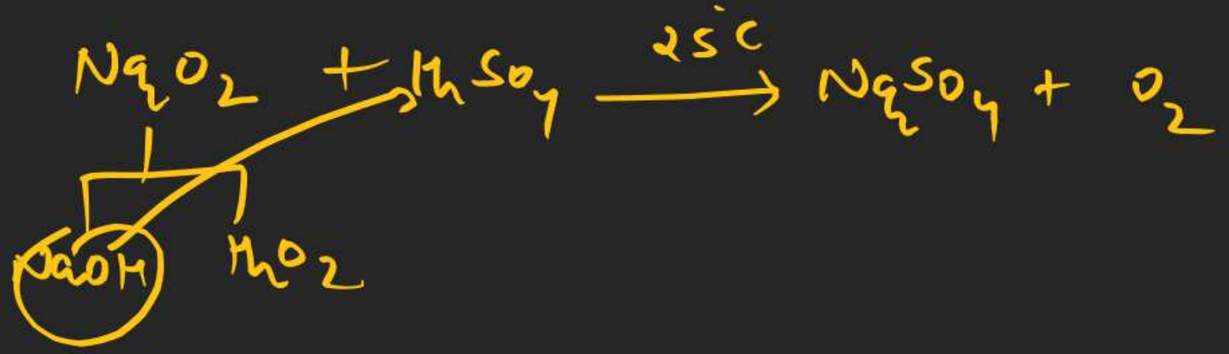

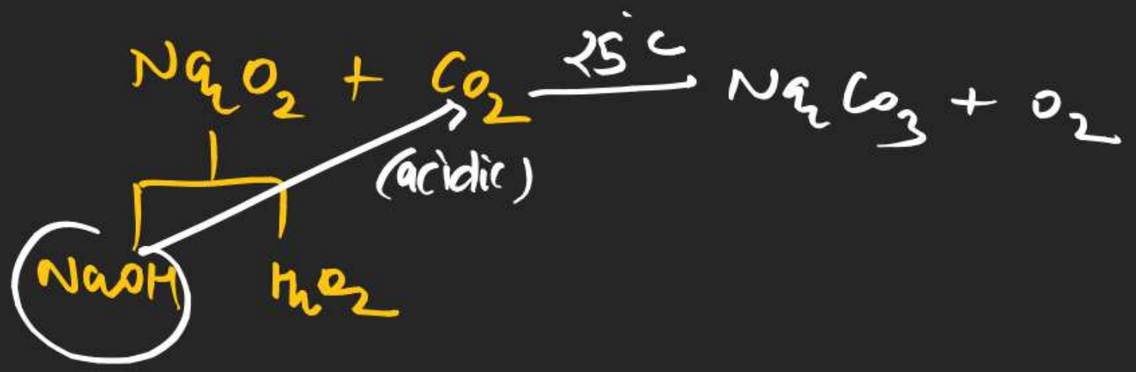

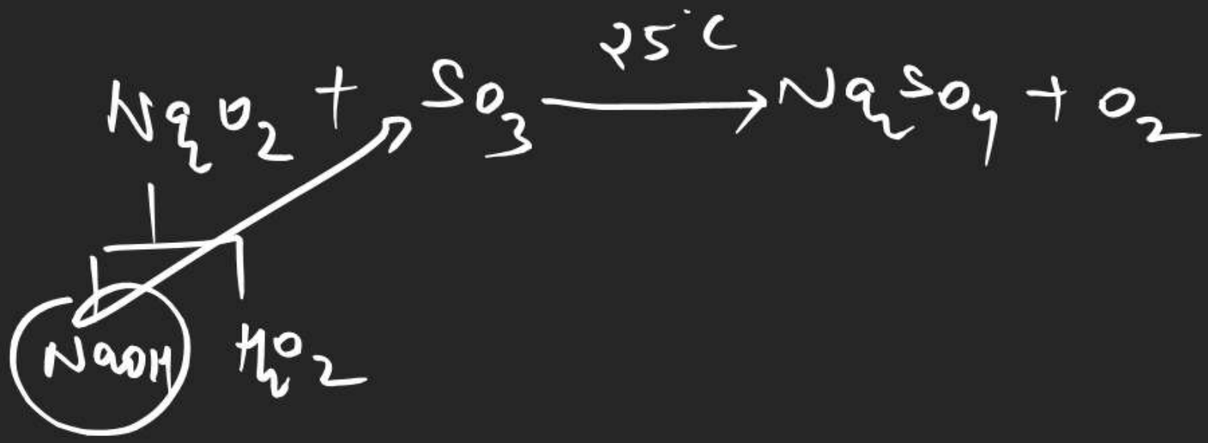

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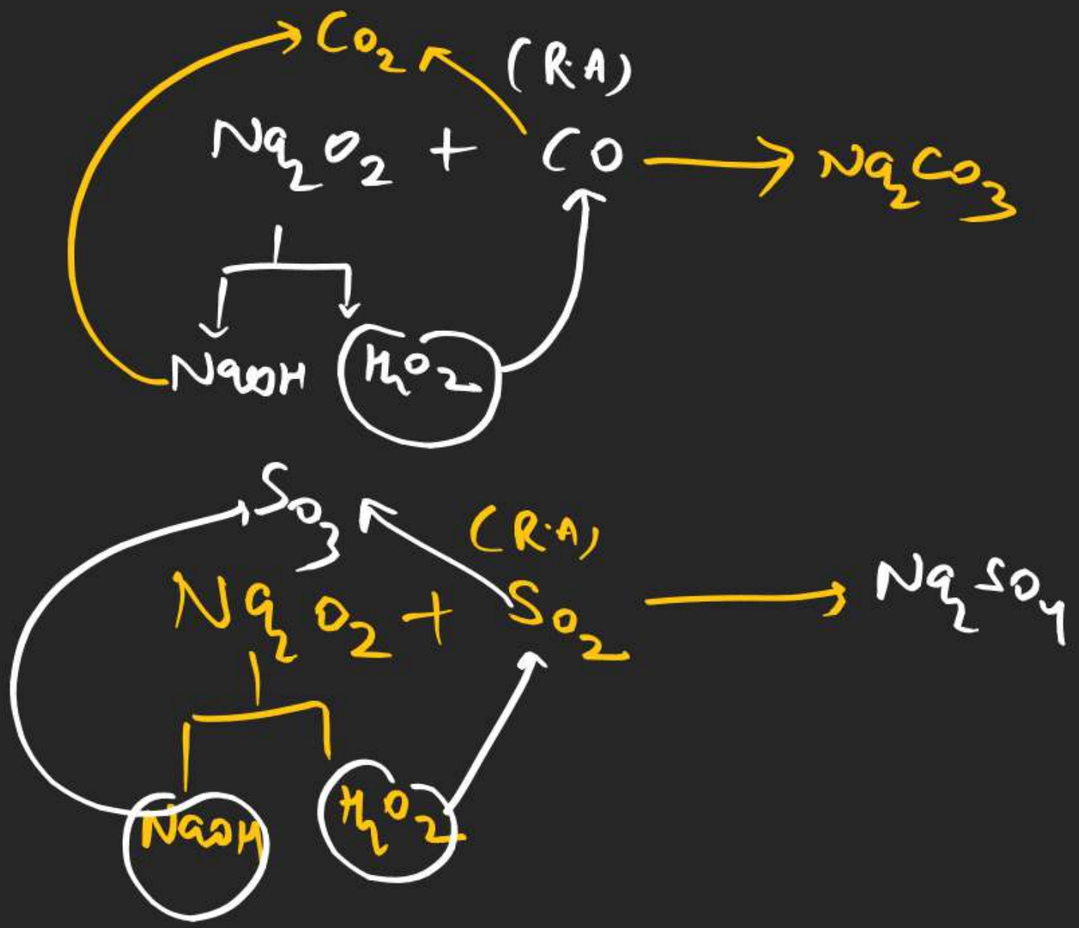


$Na_2O_2 + NH_3 \longrightarrow N_2 + NaOH$

NaOH H_2O_2 (O.A)

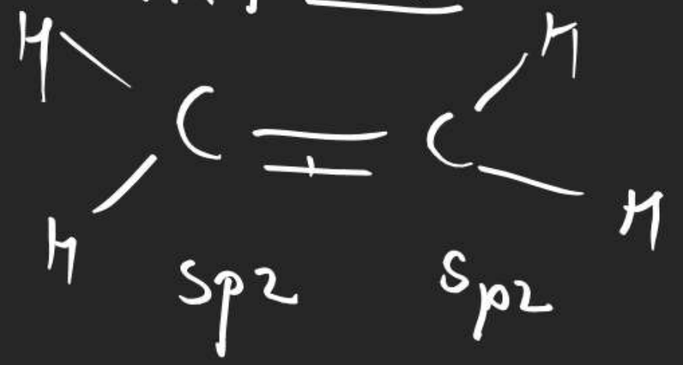
Keypoint

any

$NH_3 + O.A \longrightarrow N_2$

$NH_3 + O_2 \longrightarrow NO$

Cu, Ag, Au } Coinage Metal



Solvay process (Prep. of Na_2CO_3)

Note ⇒ K_2CO_3 is not produced by solvay process because $KHCO_3$ is Soluble

$$NH_3 + CO_2 + H_2O \longrightarrow (NH_4)_2CO_3$$

$$(NH_4)_2CO_3 + CO_2 \text{ (excess)} \longrightarrow NH_4HCO_3$$

$$NH_4HCO_3 + NaCl \longrightarrow NaHCO_3 + NH_4Cl$$

(Sparingly soluble)

$$NaHCO_3 \xrightarrow[\Delta]{\text{heat}} Na_2CO_3 + CO_2 + H_2O$$

$$NH_4Cl + Ca(OH)_2 \longrightarrow CaCl_2 + NH_4OH$$

$(NH_3 + H_2O)$

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Castner Kellner Cell (Prep of NaOH)

Electrolysis of brine solution (NaCl) with Hg cathod and graphite anode

$$NaCl \longrightarrow Na^+ + Cl^-$$

$$Na^+ + e^- \xrightarrow{Hg} Na-Hg$$

(alloy)

Amalgam

$$Na-Hg + H^+-OH \longrightarrow NaOH + H_2 + Hg$$

Gypsum

$CaSO_4 \cdot 2H_2O \xrightarrow{\Delta}$ Plaster of paris $CaSO_4 \cdot \frac{1}{2}H_2O$

$\downarrow \Delta$

$CaSO_4$ [Dead burn plaster]

$Na_2CO_3 \cdot 10H_2O$ [Washing Soda]

Na_2CO_3 = [Soda ash]

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$NaHCO_3$ ⇒ baking soda

$NaHCO_3$ ⇒ use as fire extinguisher