

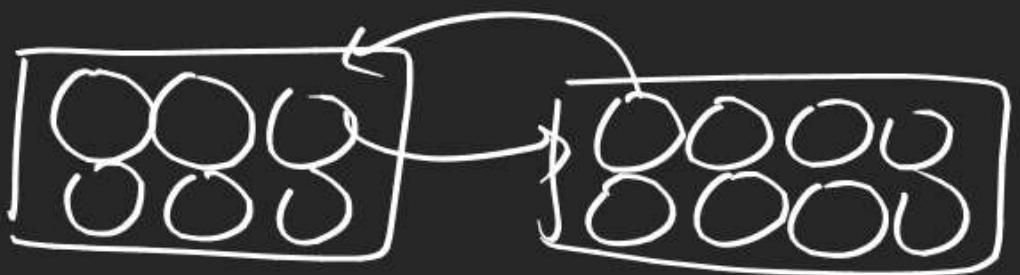
D-BLOCK - L-2Formation of interstitial Compound

- They retain Metallic conductivity
- They chemically inert



- ① They have high m.p. than the pure metal
- ② They Harder than pure metal
Some borides are approaching diamond to Hardness
- ③ Density higher than pure metal

alloy formation

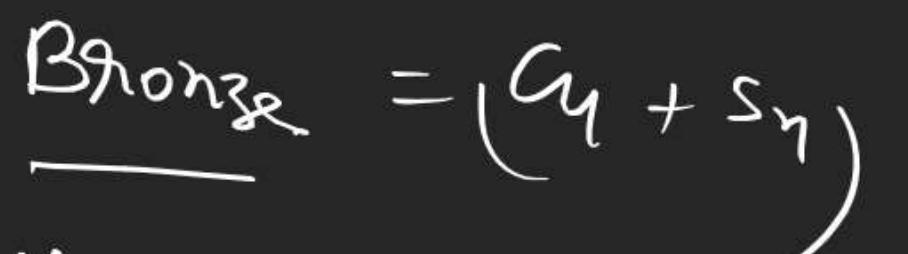


d-block element have higher tendency
to form alloy due to their similar size

Mg can form alloy with many metals
except Fe Pt W

Note \Rightarrow for alloy formation 15% diff of size between element

* German silver = Ag not present

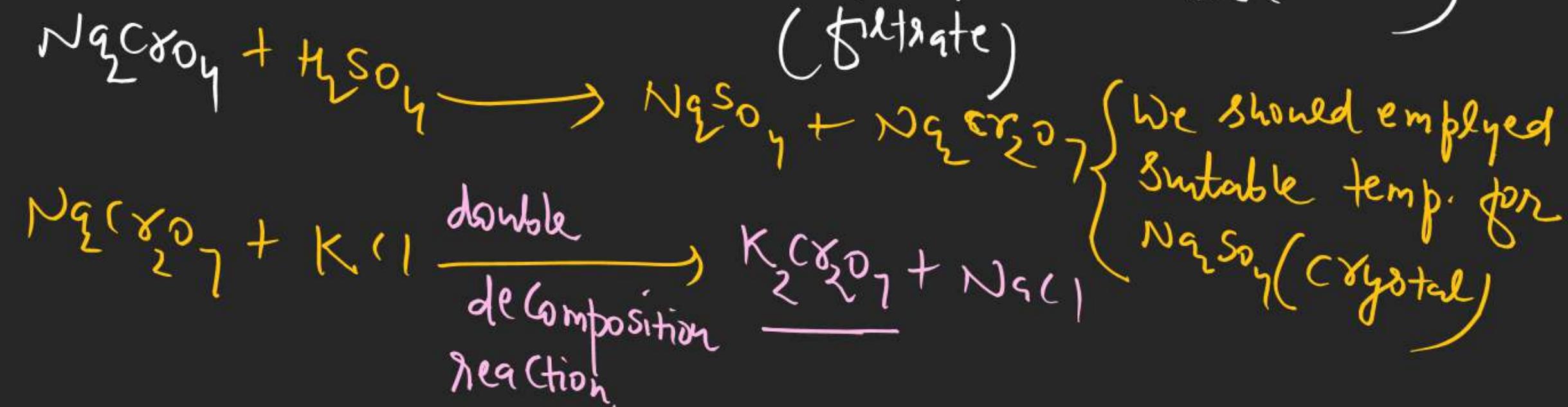
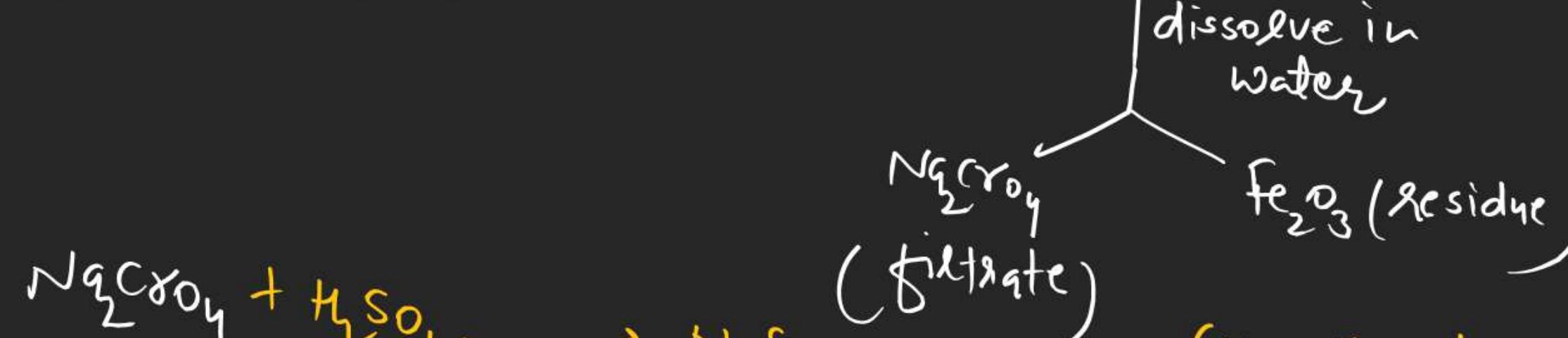
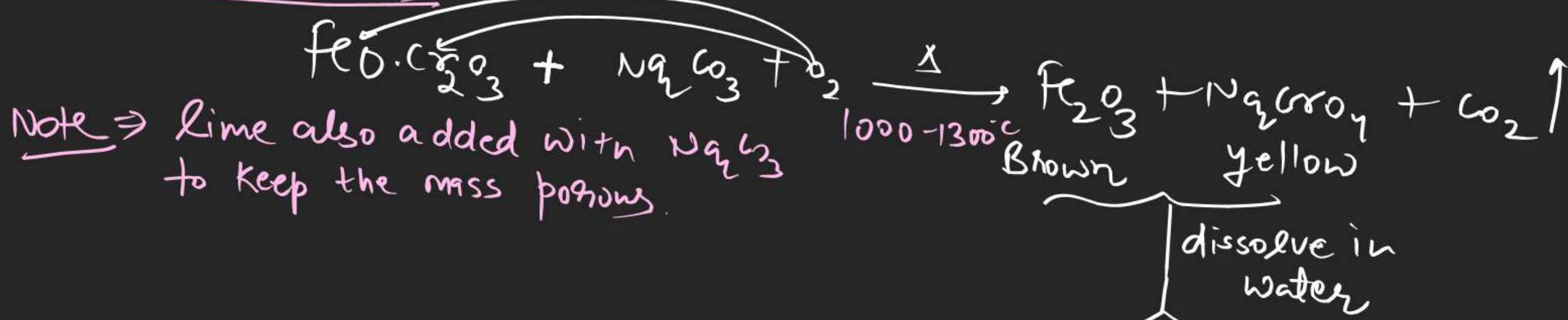


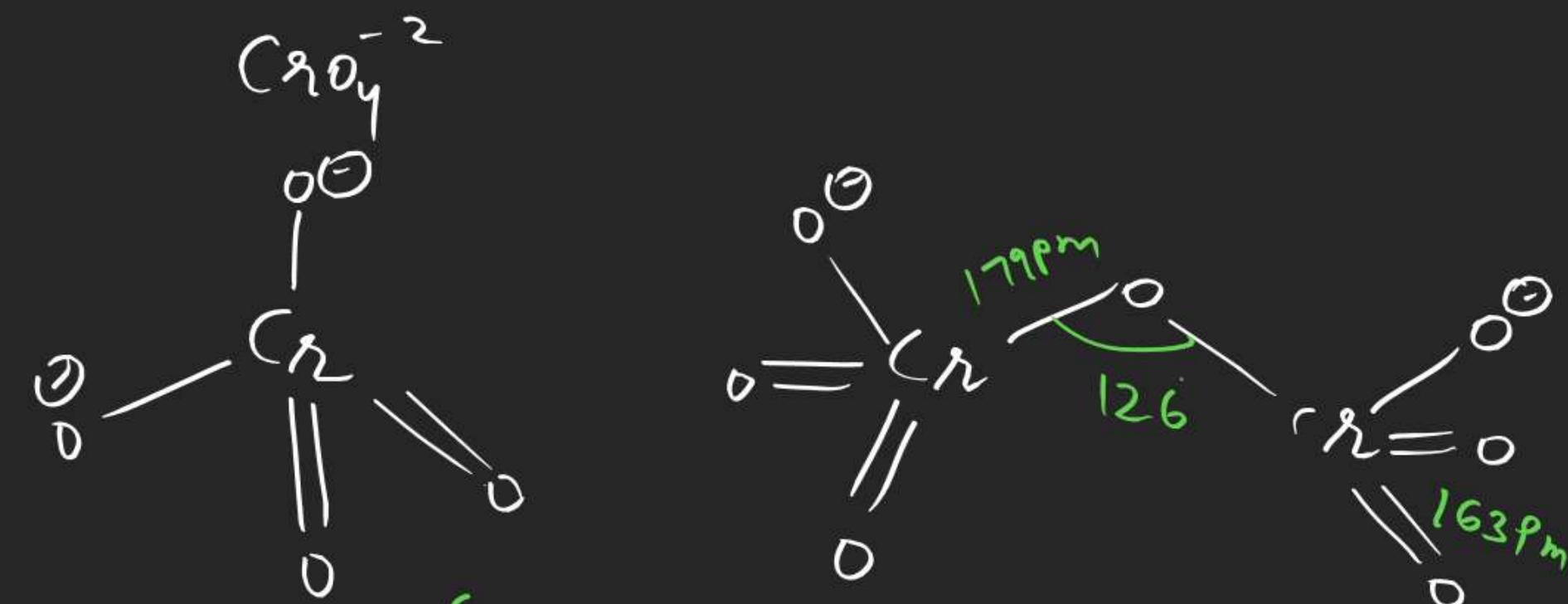
alloy Homogeneous
Mixture

Note \Rightarrow alloy are Hard and Have higher M.p

Prep. of $K_2Cr_2O_7$

(Chromite ore)

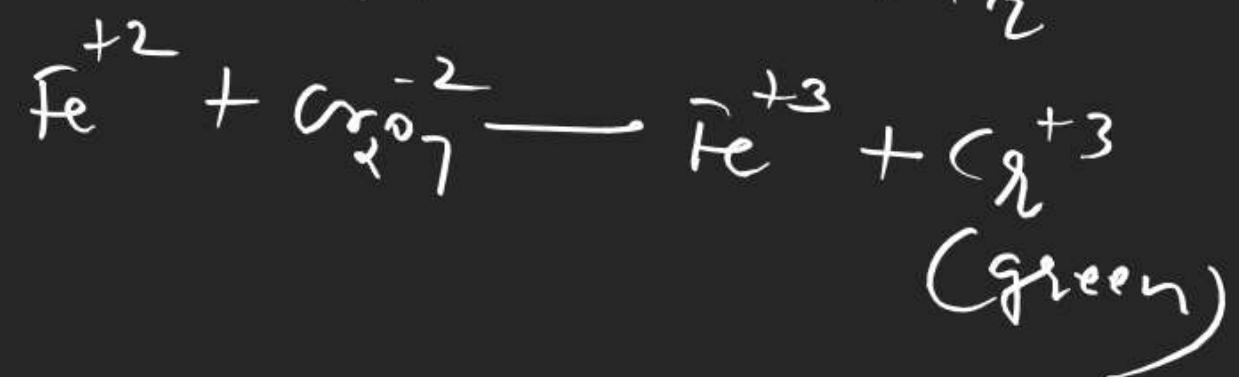




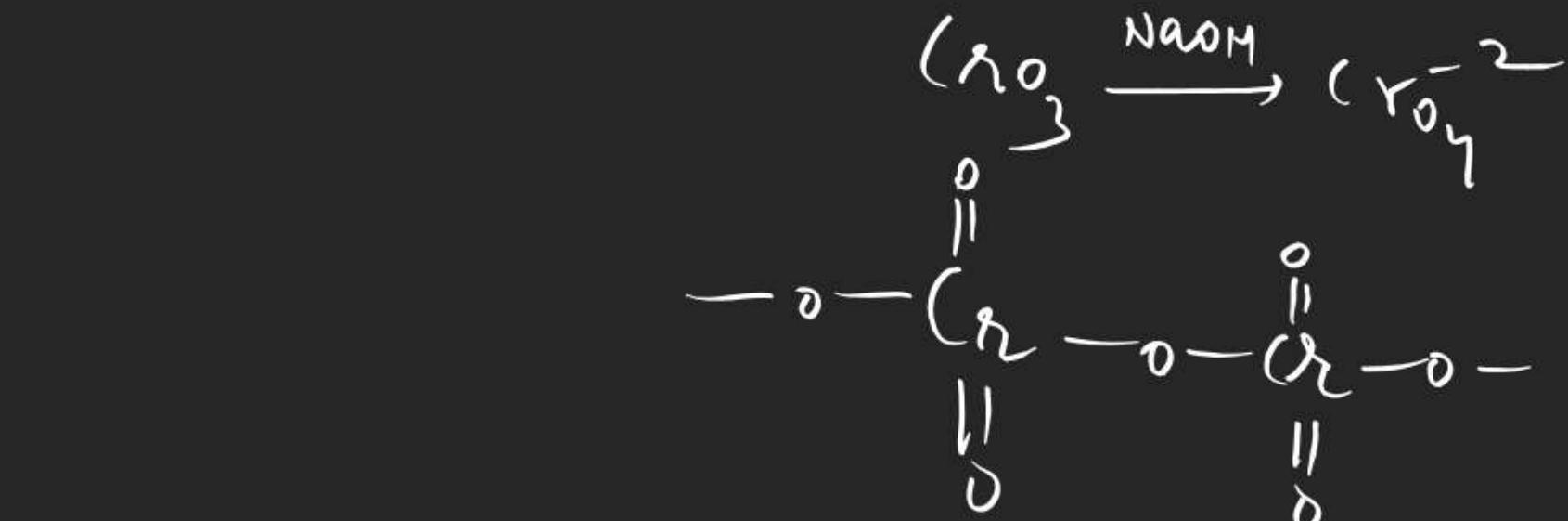
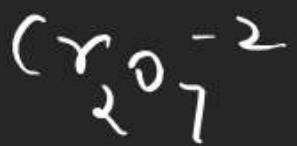
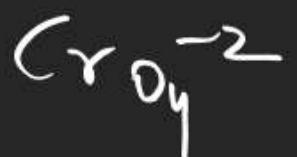
find the identical $\text{Cr}-\text{O}$ bond = ?

$$\text{Ans} = \underline{6}$$

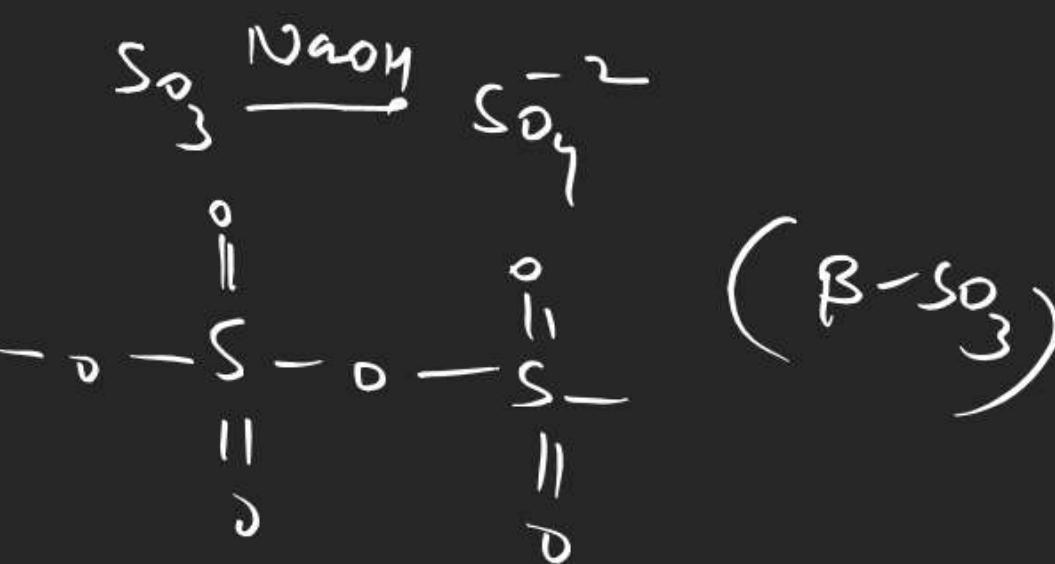
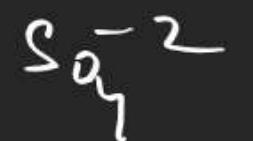
$\text{Cr}_2\text{O}_7^{2-}$ is good oxidising

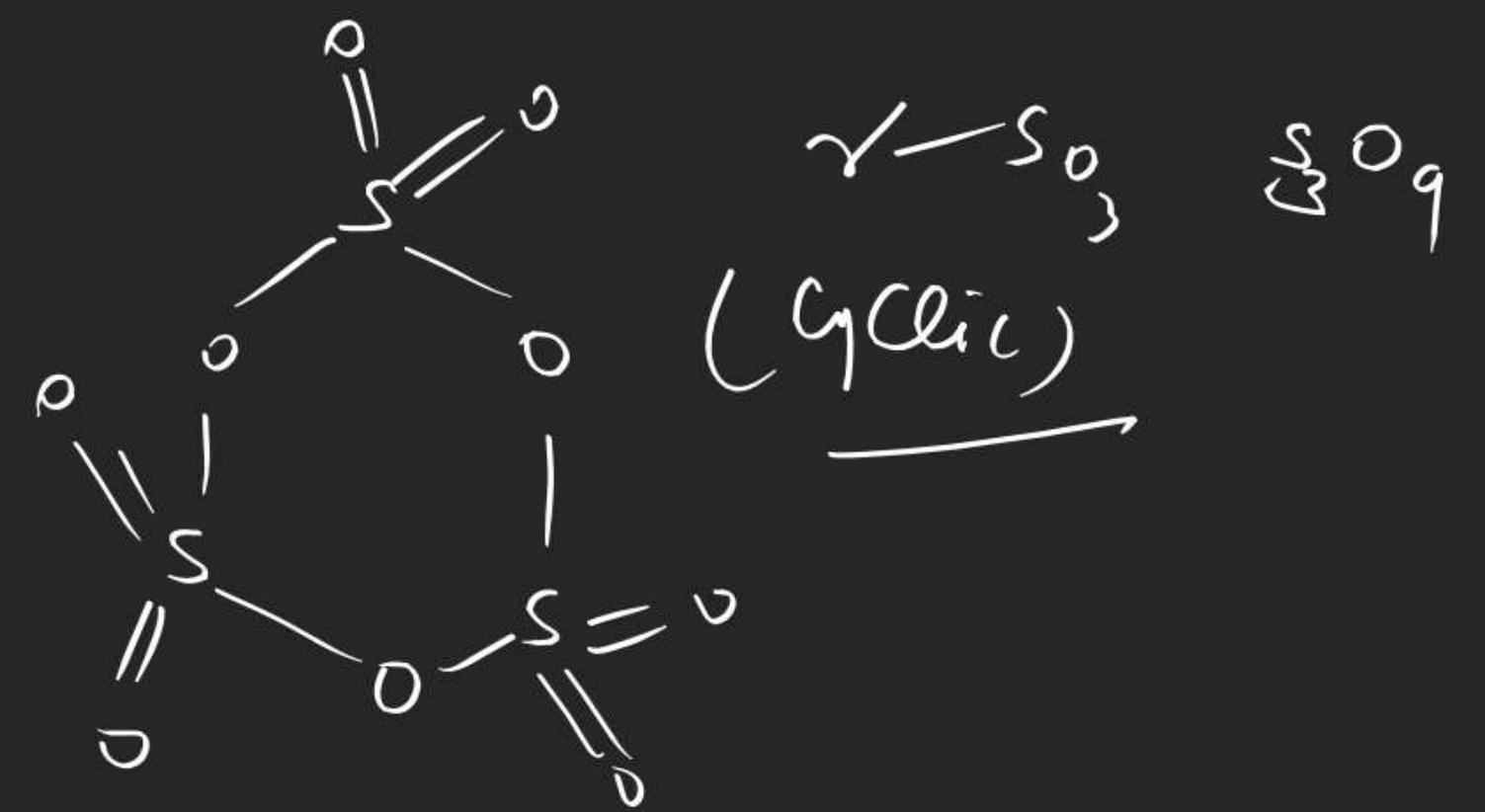


VI B



VI A

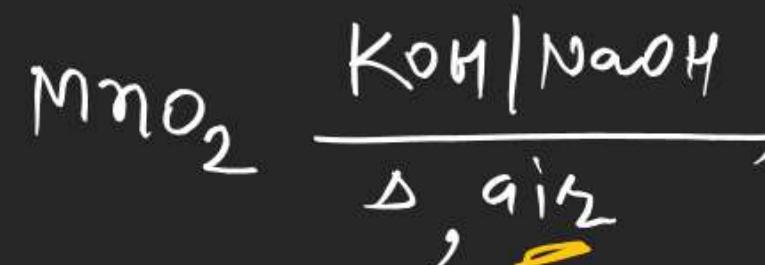




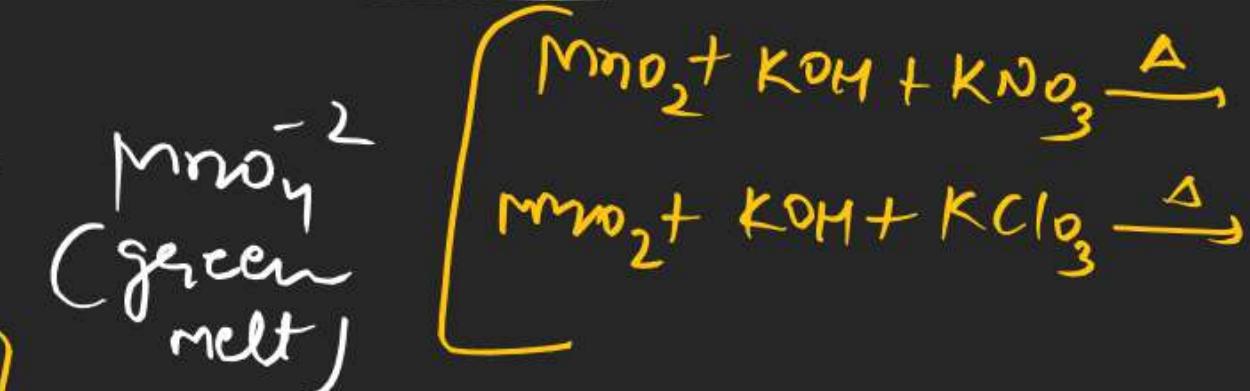
Ques K_2CrO_7 is used as primary standard
not Na_2CrO_7 Why?

Ans \Rightarrow

Prep of K_2MnO_4



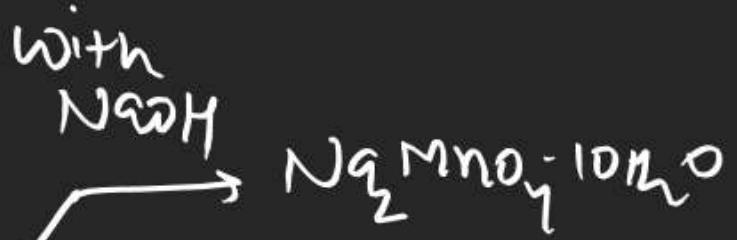
Note \Rightarrow [we can use $KClO_3$ or KNO_3 for fast reaction in place of air]



Cold water
+ little alkali

MnO_4^{-2}
(green solution)

evaporate



$Na_2MnO_4 \cdot 10H_2O$ isomorphous with $Na_2SO_4 \cdot 10H_2O$

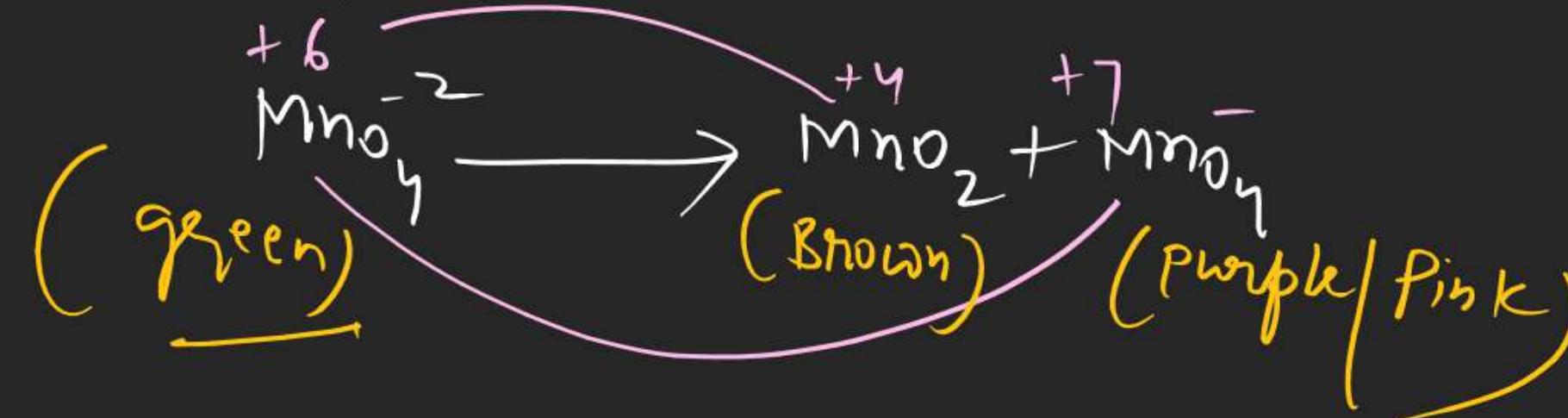
K_2MnO_4 isomorphous with K_2SO_4

With
KOH

MnO_4^{-2} → exist in only strong alkaline solution.

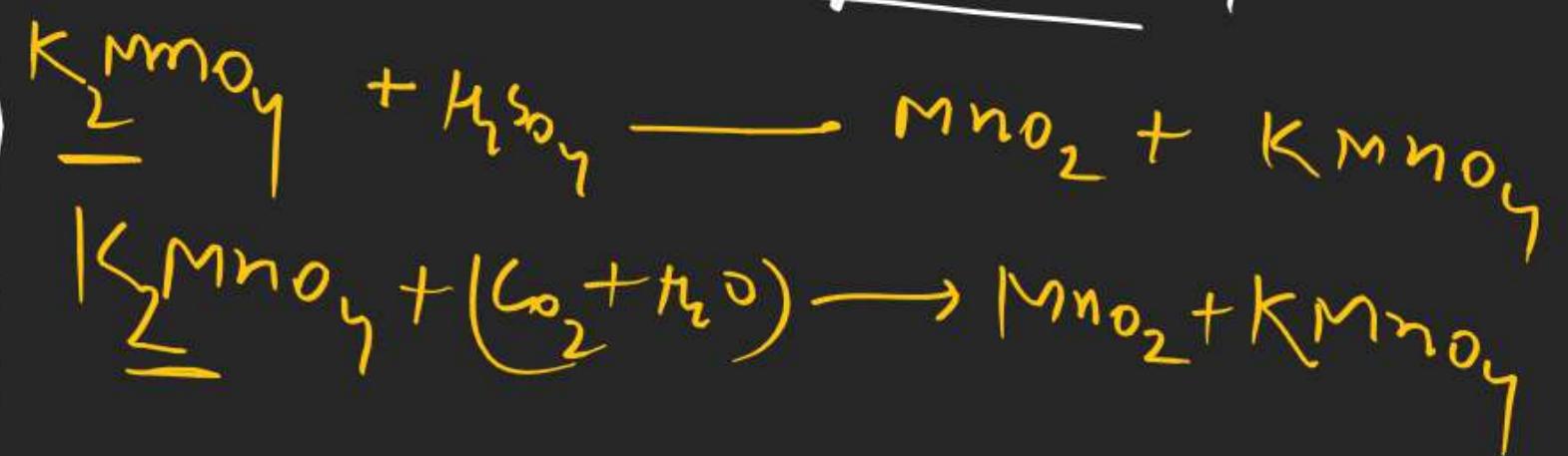
In acidic medium | neutral | aq. medium | light basic

MnO_4^{-2} will disprop.

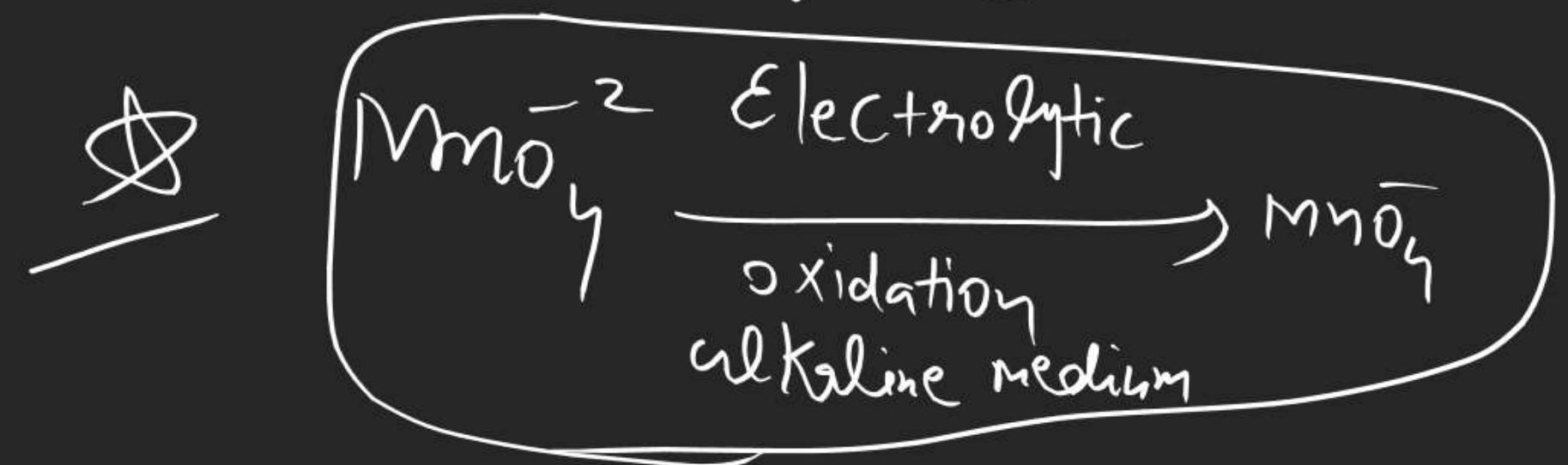
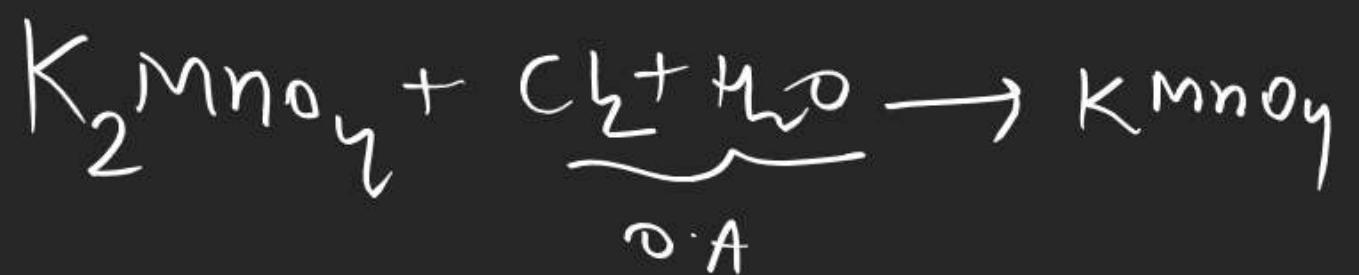


Lab.

Formation of KMnO_4 through K_2MnO_4



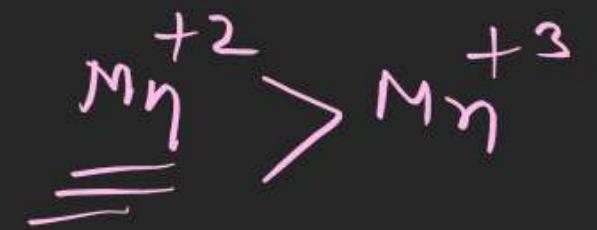
$\frac{1}{3}$ Mn lose due to formation of MnO_2





$$\begin{array}{c} (\text{Cr}^{+3} | \text{Cr}^{+2}) = -0.41 \\ \text{Mn}^{+3} | \text{Mn}^{+2} = +1.51 \end{array}$$

Stability of Ion

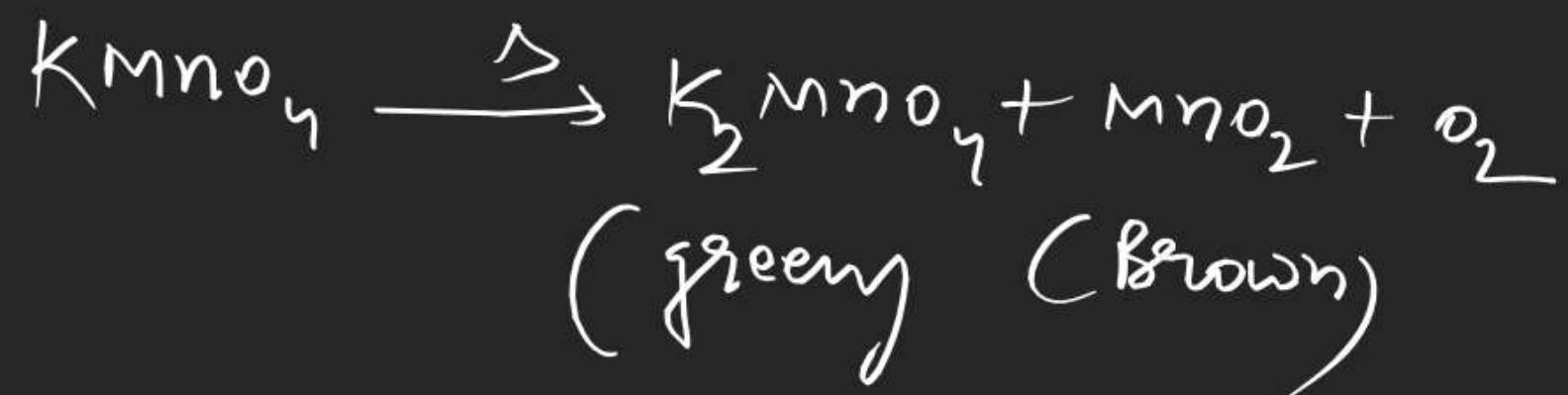


$$\boxed{\Delta G = -\gamma F E^\circ}$$

$$\sqrt{(\text{Co}^{+3} | \text{Co}^{+2})_0} \Rightarrow +1.98$$

KMnO₄ is not used as primary standard because it is difficult to get it in high purity, it traces of MnO₂

it will decompose by light and acid so it is kept in dark brown bottles

Heating effect

Photography

it is based on photo sensitivity of Silver Halides,

Mainly AgBr

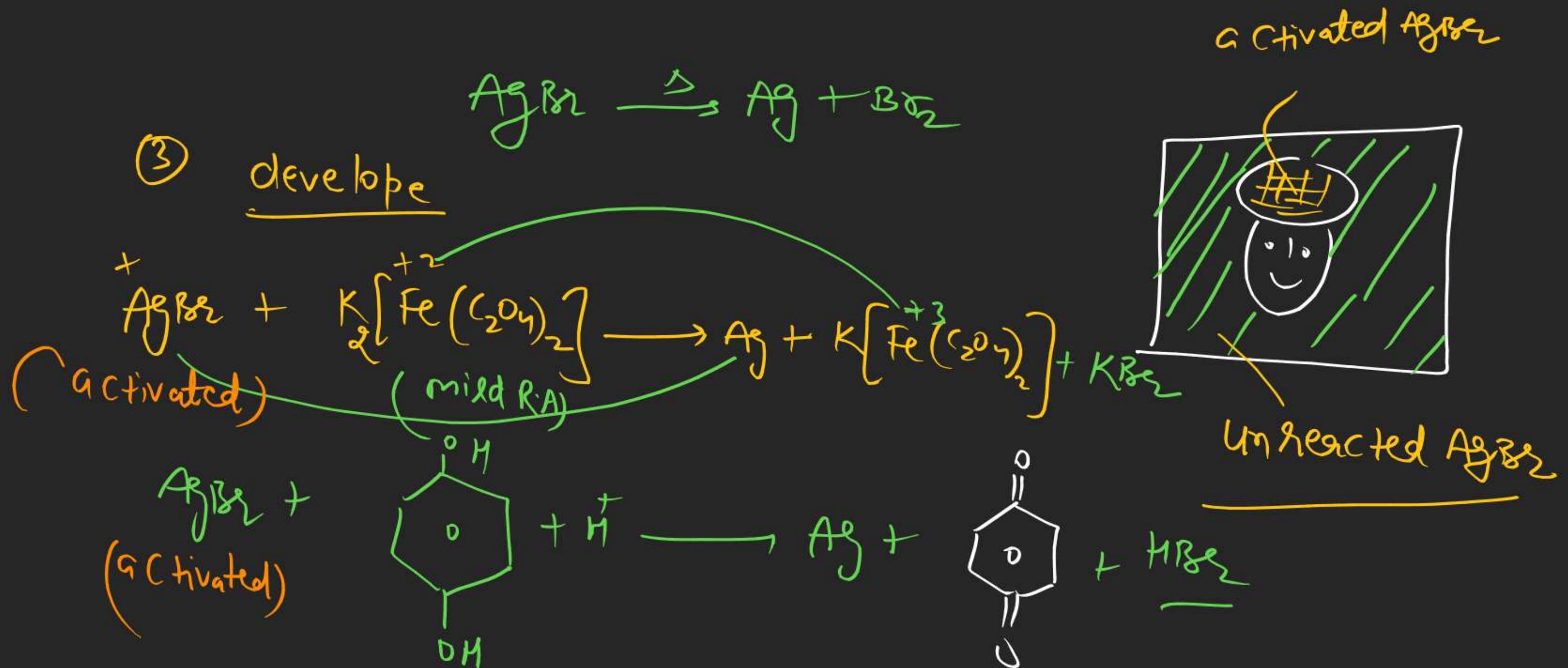
① Prep of film :-



AgBr + dye — Paste

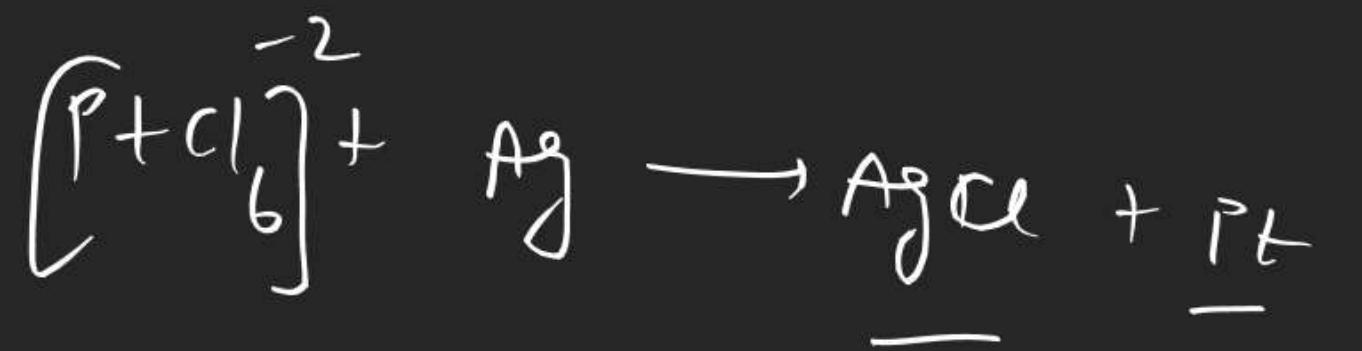
Paste is coated on Cellulose strip and dried in dark.

② Exposure to light



Paint on paper

Toning



Note \Rightarrow golden and grey tint impart on photograph by using AgCl and $[\text{PtCl}_6]$ respectively

Note :- unreacted AgBr

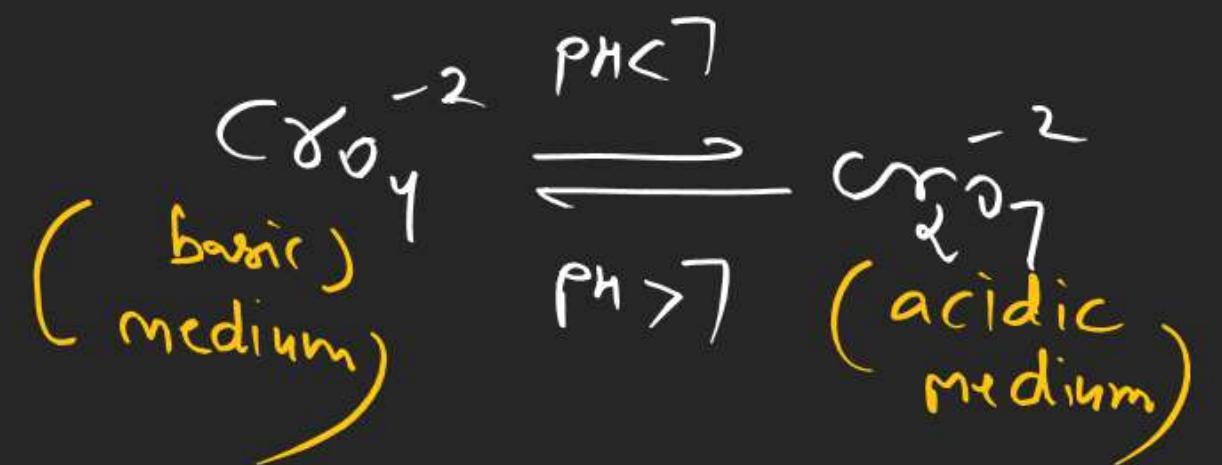
Can be removed by treating it with
thyro solution ($\text{Na}_2\text{S}_2\text{O}_3$)



Isomorphous \rightarrow same crystalline structure
but diff. physical and
chemical prop.

$\text{Na}_2\text{SO}_4 \text{ soln}$





Note \Rightarrow Chromate and dichromate exist in eq-condition in aq-solution depending on the pH of the solution.