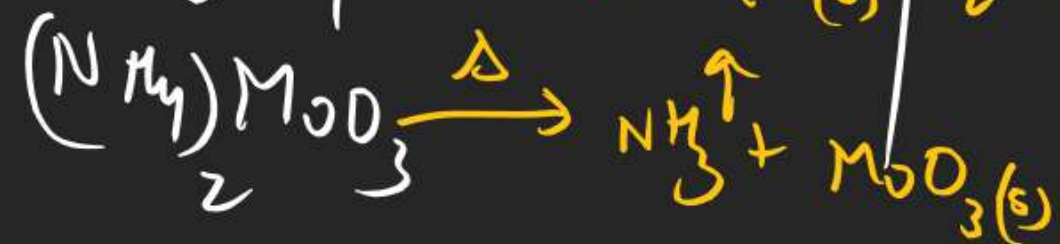
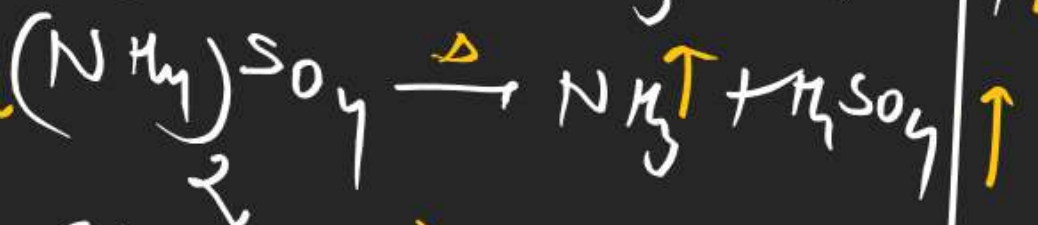


# Heating effect of ammonium salt

leaves  
no Residue



If anionic part of ammonium salt is non oxidising agent or weak oxidising agent then it will not oxidised N atom of ammonium cation and a volatile product +  $\text{NH}_3$  is formed.

avg. Rule  $\Rightarrow$

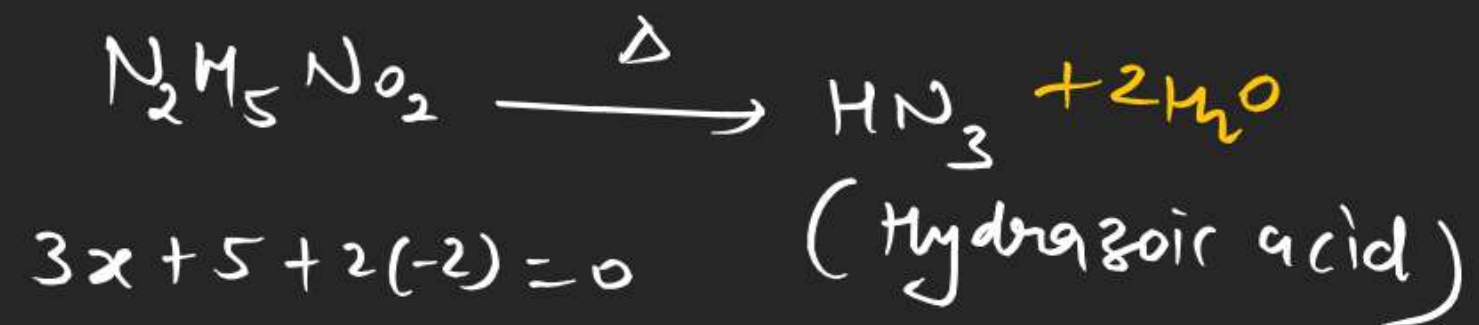


$$\begin{array}{ll} \text{NH}_4^+ & \text{NO}_3^- \\ x+4=1 & x+3(-2)=-1 \\ x=-3 & x=+5 \end{array}$$

$$\begin{aligned} \text{avg O.S.} &= \frac{-3+5}{2} \\ &= +1 \end{aligned}$$

$$\begin{array}{ll} \text{NH}_4^+ & \text{NO}_2^- \\ x+4=1 & x+2(-2)=-1 \\ x=-3 & x=+3 \end{array}$$

$$\text{avg O.S.} = \frac{-3+3}{2} = 0$$



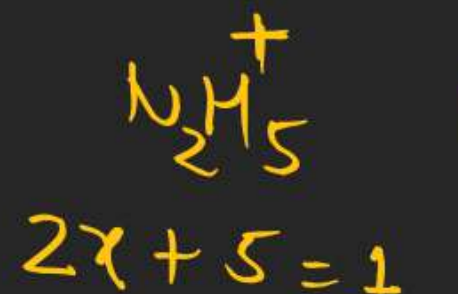
$$3x + 5 + 2(-2) = 0$$

$$3x = -1$$

$$x = -1/3$$

$$\text{avg} = \frac{-2 \times 2 + 3}{3}$$

$$= -1/3$$



$$2x = -4$$

$$x = \frac{-4}{2} = -2$$



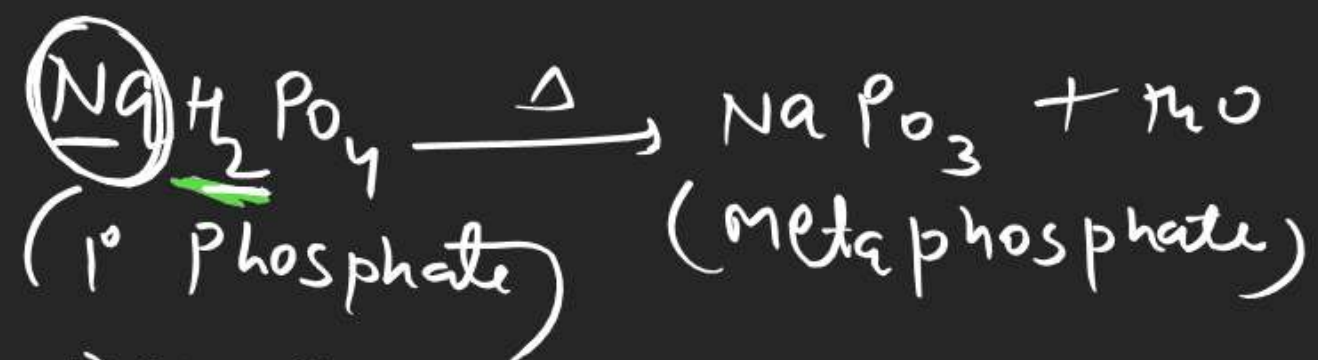
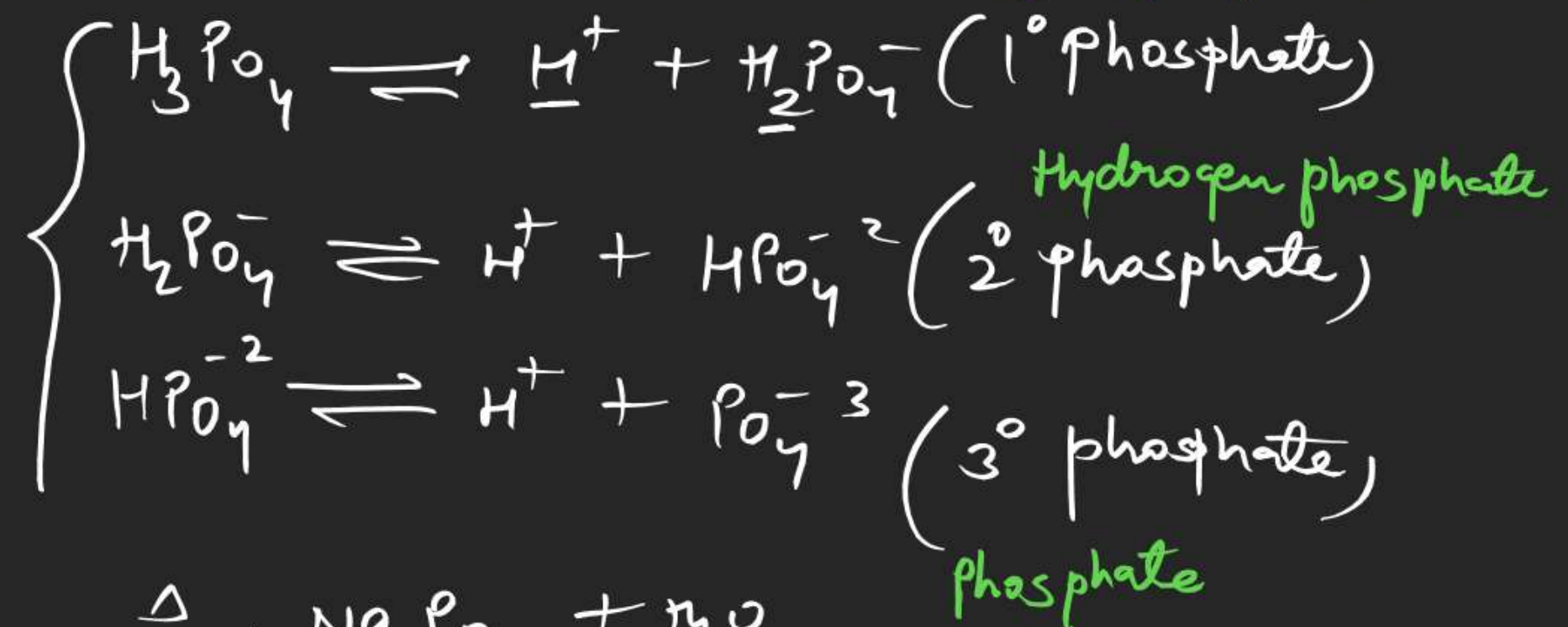
$$x + 2(-2) = -1$$

$$x = +3$$



## Heating effect of phosphate salt

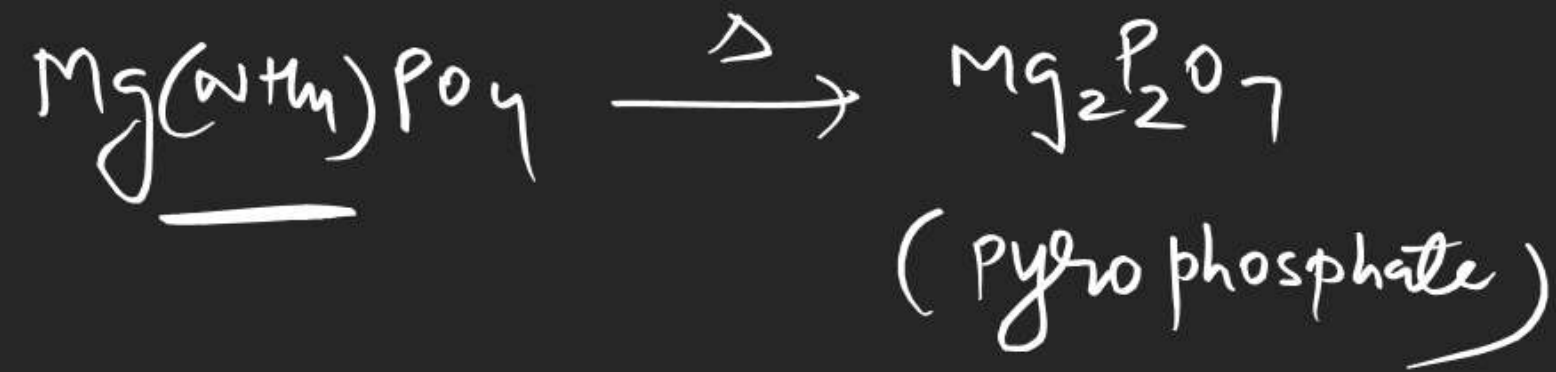
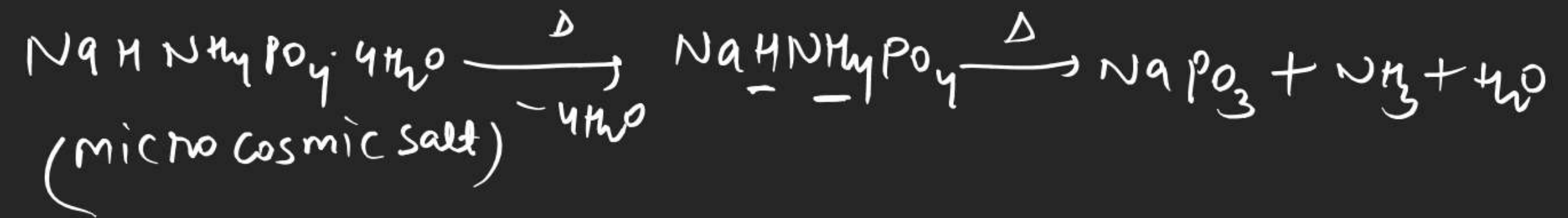
dihydrogen phosphate

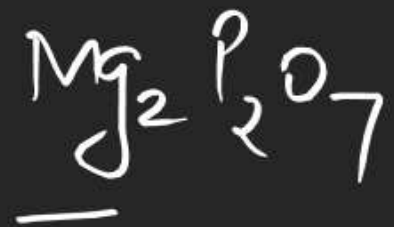


If phosphate salt contain even number of ionisable hydrogen then metaphosphate salt form.

if phosphate salt contain odd number of ionisable hydrogen then pyrophosphate salt form.

Note  $\Rightarrow$   $NH_4^+$  cation treated as a one ionisable hydrogen in heating effect of phosphate salt.









① Test with acid



$\text{CO}_2$  passed in lime water / Barium water  
then water turbidity appear



excess of  $\text{CO}_2$  passed then

disappear due to

formation of  
Bicarbonate

White turbidity  
formation of

White turbidity / milky sol.



Test based on ppt.

① Test with  $\text{BaCl}_2/\text{CaCl}_2$



White ppt.

Soluble in

$\text{dil HCl}/\text{dil HNO}_3/\text{CH}_3\text{COOH}$

and soda water

$(\text{CO}_2 + \text{H}_2\text{O})$

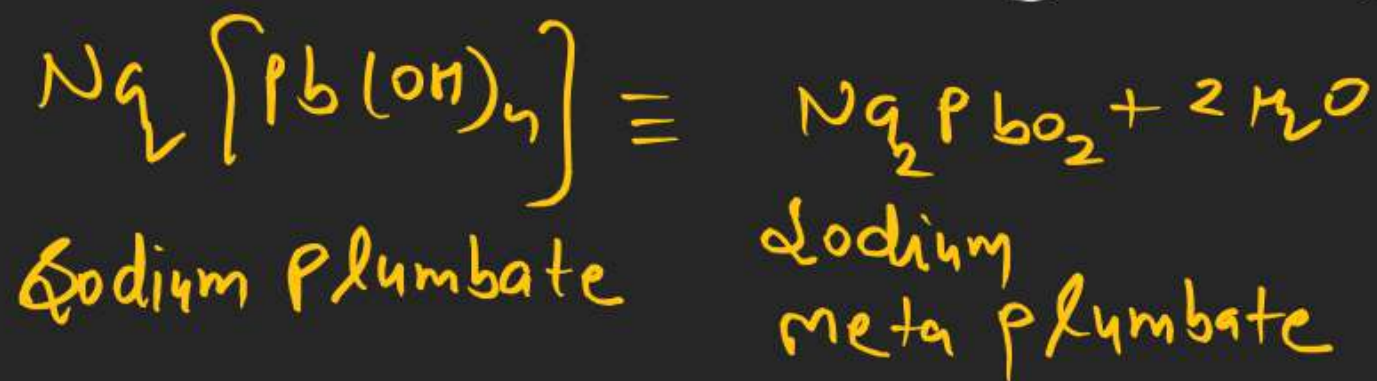
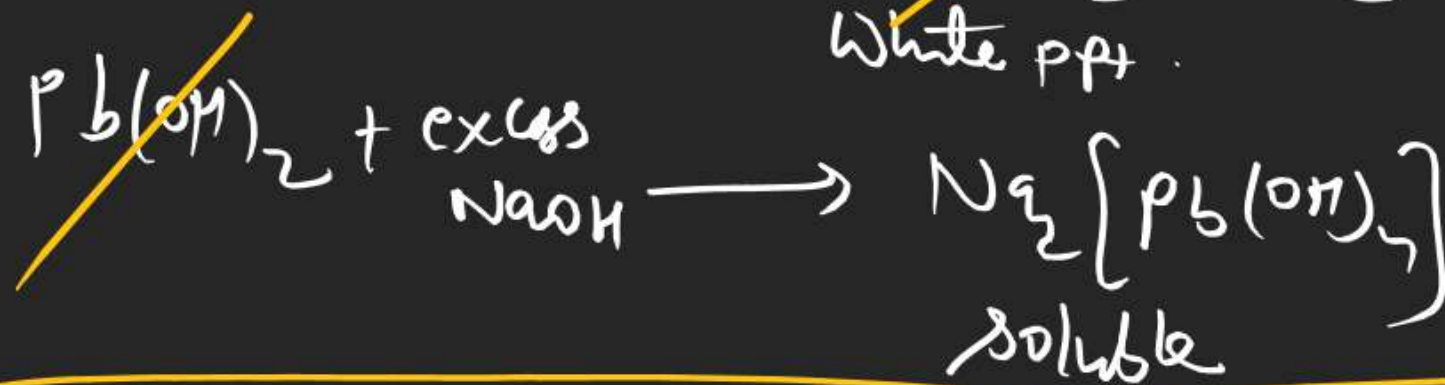
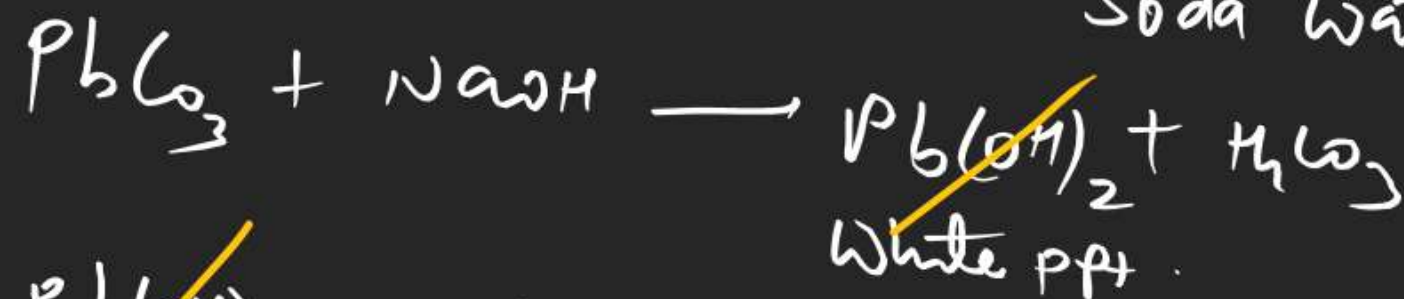
Test with  $Pb(NO_3)_2$  /  $Pb(CH_3COO)_2$



Soluble in

$dil HNO_3 / CH_3COOH$

soda water and excess  $NaOH$



Key point  $\Rightarrow$  Generally silver salts are  
soluble in  $\text{dil HNO}_3$  and  $\text{NH}_3$  solution

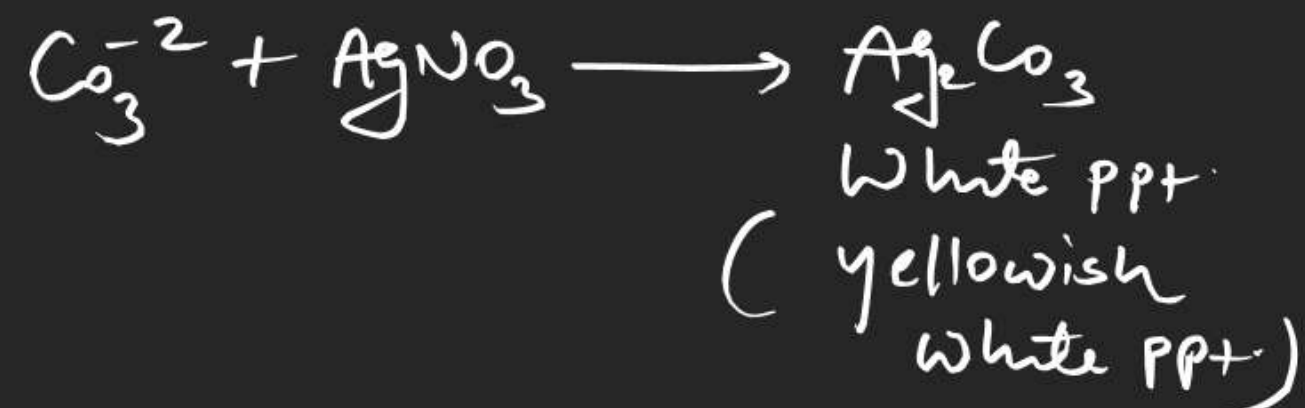
except

$\text{Ag}_2\text{S} \Rightarrow$  soluble in hot and  $\text{dil HNO}_3$   
but insoluble in  $\text{NH}_3$  solution

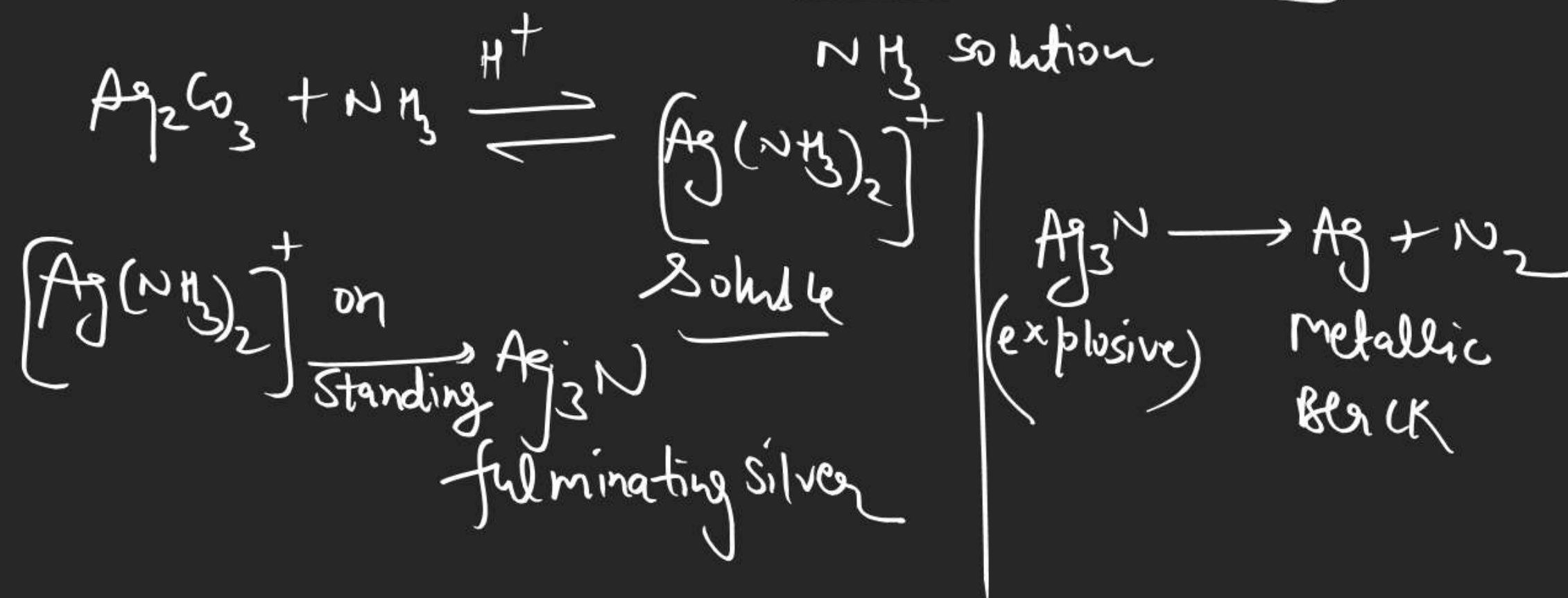
$\text{AgCl} / \text{AgBr} \Rightarrow$  soluble in  $\text{NH}_3$  solution  
but insoluble in  $\text{dil HNO}_3$

$\text{AgI} =$  Insoluble in  $\text{dil HNO}_3$  and  
 $\text{NH}_3$  solution

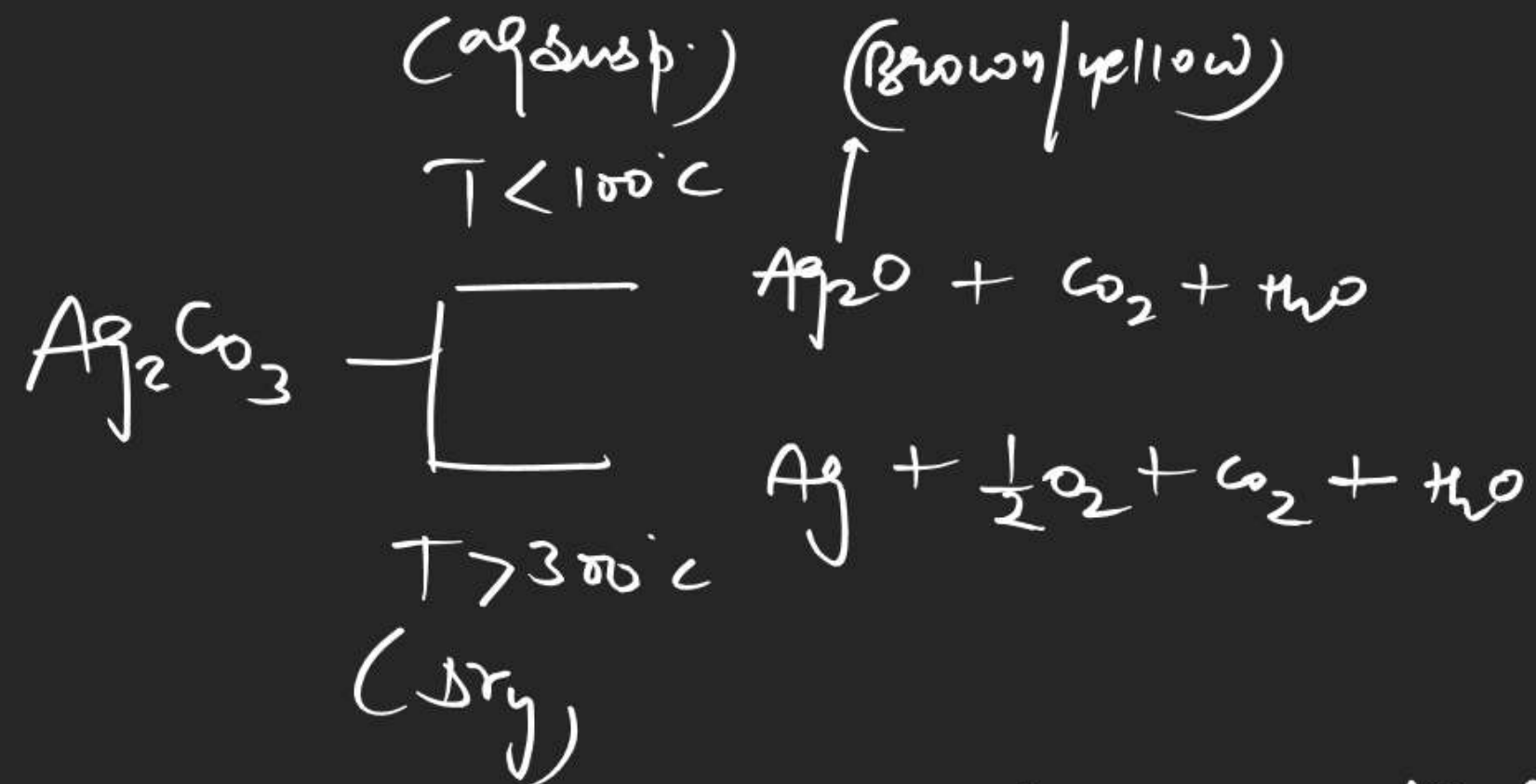
# ① Test with $\text{AgNO}_3$



Soluble in dil  $\text{HNO}_3$



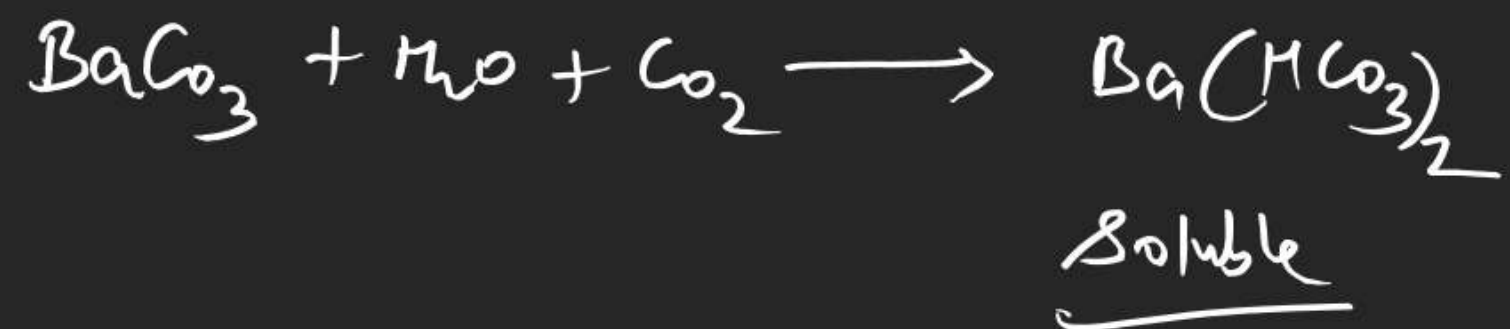




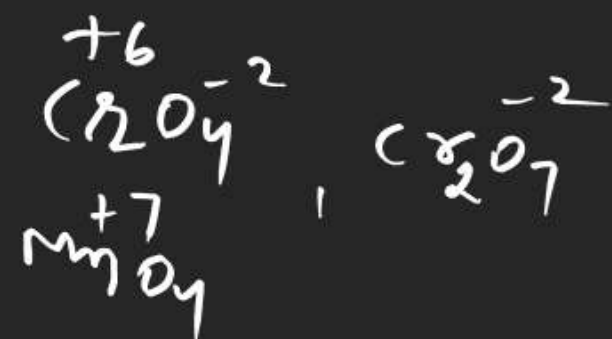
me

Thermal decomposition temp. of  $\text{Ag}_2\text{CO}_3$

- ☒ (1)  $T < 100^\circ\text{C}$ 
☐ (2)  $T > 300^\circ\text{C}$ 
☐ (3) both
 ☐ (4) none



Note  $\Rightarrow$  all  $\text{HCO}_3^-$  are water soluble except  $\text{NaHCO}_3$   
(sparingly soluble)



$$\text{O.S. Rang} = (\underline{n-8}) \text{ to } n$$

$$n = \text{no of Val. } e^-$$

$$\left. \begin{array}{l} \text{Cl} = -1 \text{ to } +7 \\ \text{S} = -2 \text{ to } +6 \\ \text{P} = -3 \text{ to } +5 \end{array} \right\}$$

$$\text{Mn} = -1 \text{ to } +7$$

$$\text{Cr} = \underline{-2 \text{ to } +6}$$

