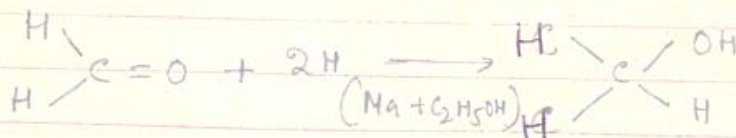


1. Preparation  $\rightarrow$  When Formaldehyde is reduced we get Methyl alcohol.



2. From Pyroligneous acid  $\rightarrow$   
Pyroligneous acid is a mixture of  $\text{CH}_3\text{COOH}$ ,  
 $\text{CH}_3\text{COCH}_3$  &  $\text{CH}_3\text{OH}$ .

The vapour of Pyro. acid is passed through hot lime water to absorb only acetic acid forming Calcium acetate. The unreacted vapour of  $\text{CH}_3\text{COCH}_3$  &  $\text{CH}_3\text{OH}$  is condensed to get the mixture of two. The B.P of Acetone  $56^\circ\text{C}$  and that of  $\text{CH}_3\text{OH}$  is  $65^\circ\text{C}$  So they are separated by fractional distillation. So this is considered the industrial preparation of  $\text{CH}_3\text{OH}$  (Methanol).

Properties  $\rightarrow$  It is highly poisonous if taken orally. It causes blindness even death. It is highly soluble in water. Its smell is similar to ethyl alcohol.



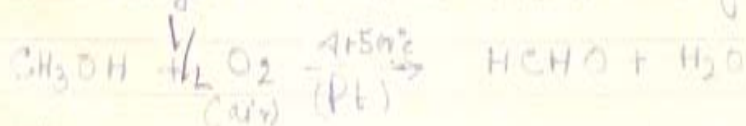
## CHEM

- (1) Oxidation / Burning ( $\text{CH}_3\text{OH} + \text{O}_2$ ) It forms  $\text{CO}_2$  and water and a green light is observed formed.



- (2) With  $\text{Cl}_2 \rightarrow$  Chlorine water oxidises Methyl alcohol into formaldehyde the same reaction is with  $\text{KMnO}_4$ ,  $\text{K}_2\text{Cr}_2\text{O}_7$
- $$\text{CH}_3\text{OH} + \frac{1}{2}\text{O}_2 \xrightarrow{\substack{\text{Chlorine water / KMnO}_4 \\ \text{or K}_2\text{Cr}_2\text{O}_7}} \text{HCHO} + \text{H}_2\text{O}$$
- Chlorine water  
 $\text{HCl} + \text{HOCl}$   
 $\text{HOCl} \rightarrow \text{HCl} + \text{O}$

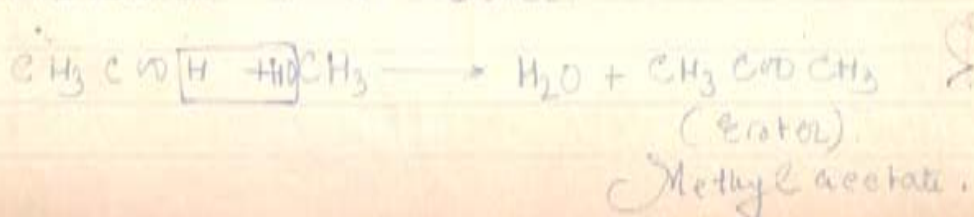
- (3) With Platinum Spring  $\rightarrow$  When a mixture of vapour of  $\text{CH}_3\text{OH}$  and air is passed over heated Pt Spring as a catalyst at about  $500^\circ\text{C}$  we get Formaldehyde

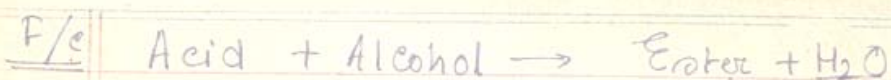


- (4) With Na  $\rightarrow$  It reacts with Na, giving Sodium methoxide and hydrogen

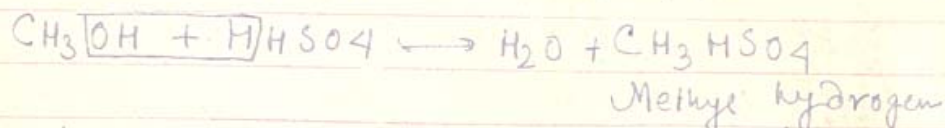


- (5) With Acetic acid  $\rightarrow$  When a mixture of  $\text{CH}_3\text{OH}$  &  $\text{CH}_3\text{COOH}$  is heated with a few drops of conc.  $\text{H}_2\text{SO}_4$  (Catalyst), we get good odour of Methyl acetate which is a ester.



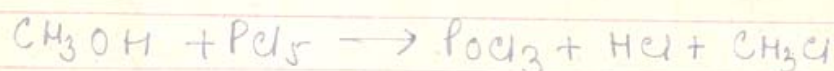


(6) With  $H_2SO_4 \rightarrow$  When  $CH_3OH$  is heated with Conc.  $H_2SO_4$  it gives Methyl hydrogen sulphate



N:B However at  $140^\circ C$  similar to Ethyl alcohol it gives  $CH_3OCH_3$ .

(7) With  $PCl_5 \rightarrow$  It gives  $POCl_3$ ,  $HCl$  and  $CH_3Cl$



### Uses of Methyl alcohol

1. It is used as a solvent for gum, varnish, lacquer ()
2. To prepare Formaldehyde
3. As a fuel.
4. To prepare perfumes.