

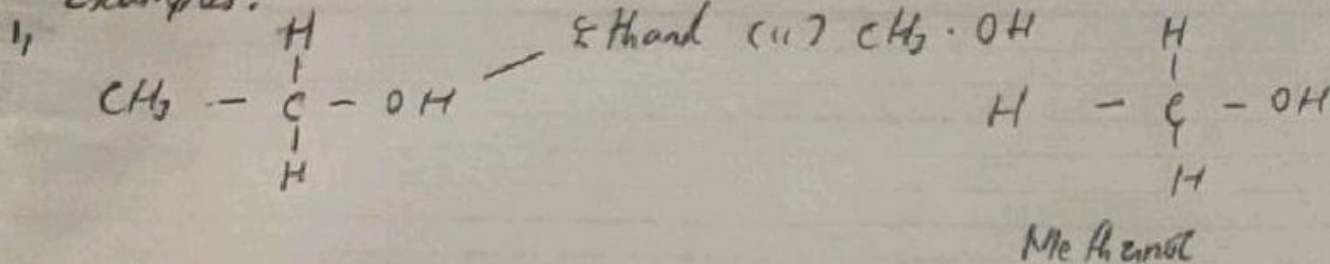
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① Primary Alkanol

In a primary alkanol, the hydroxyl group is attached to a primary (terminal) carbon atom in the molecule.

If it is characterized by  $-CH_2OH$

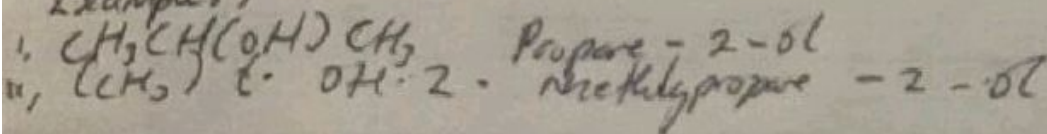
Examples:



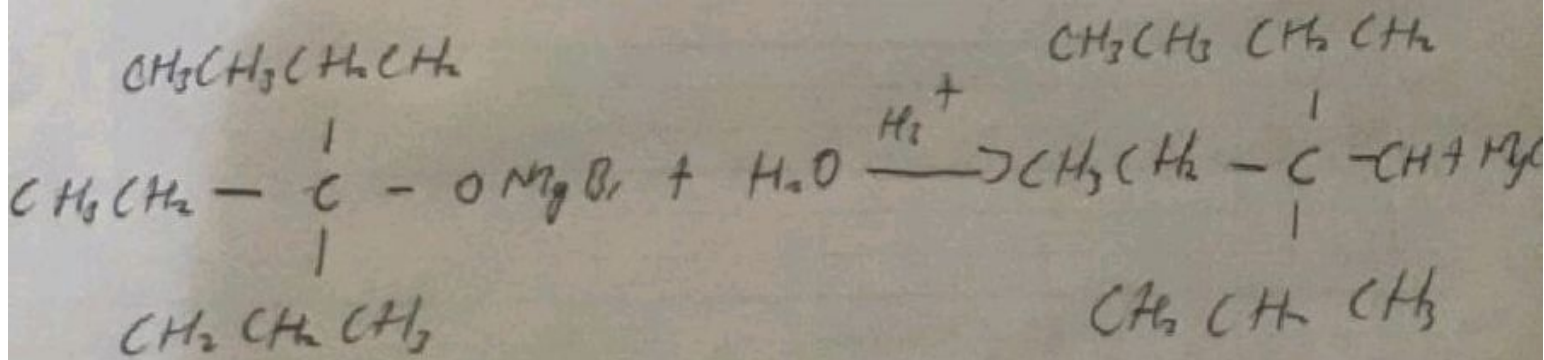
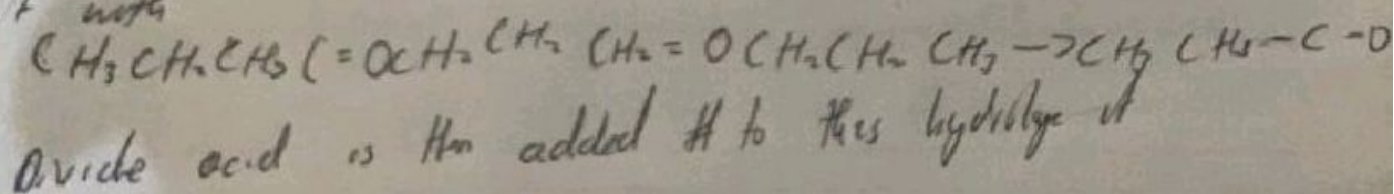
ii, Secondary Alkanol

In a secondary alkanol the OH group is on a secondary carbon atom characterized by  $>CHOH$

Examples:



② In the Grignard synthesis of Alkanols, reacts a normal Grignard reagent with



## No 2 Continuation

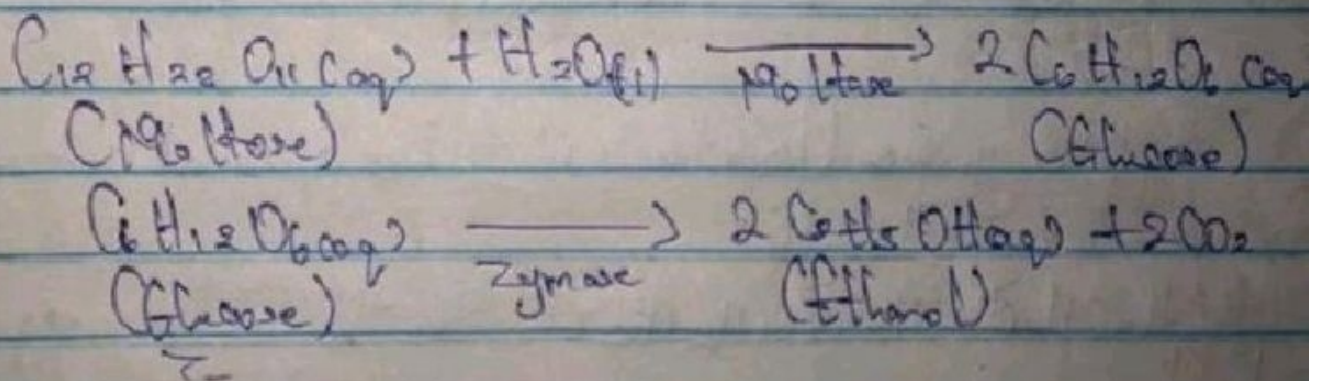
An alcohol is formed. The key use of Grignard reagent is the ability to make complicated alcohols easily.

## No 3

### 3) Industrial Preparation of Ethanol

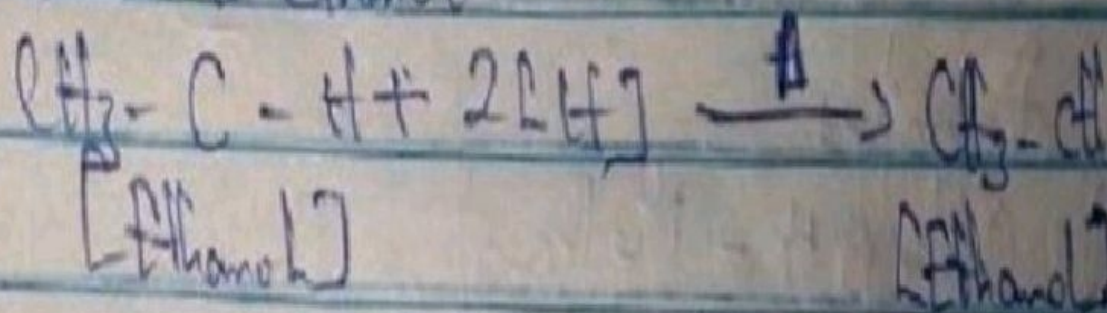
- The starch containing crop, such as cereals are peeled, crushed and steeped in water at a pressure cooked to release with water to obtain a mash.
- The mash is heated with malthouse, and vacuumed at  $50^{\circ}\text{C}$  for two hours. Enzyme diastase in the malt hydrolyses starch for maltose.  
$$2 \text{ (C}_6\text{H}_{10}\text{O}_5) + n \text{ H}_2\text{O} \xrightarrow{\text{Diastase}} n \text{ (C}_6\text{H}_{12}\text{O}_6) + (n-2) \text{ (C}_6\text{H}_{12}\text{O}_6)$$

(Starch)  (Maltose)
- Yeast containing enzymes maltase and zymase is added to mixture and kept at room temperature (about  $27^{\circ}\text{C}$ ) for about three days. During this period, enzyme zymase ferments glucose to ethanol with the evolution of carbon (iv) oxide. The reaction is exothermic.

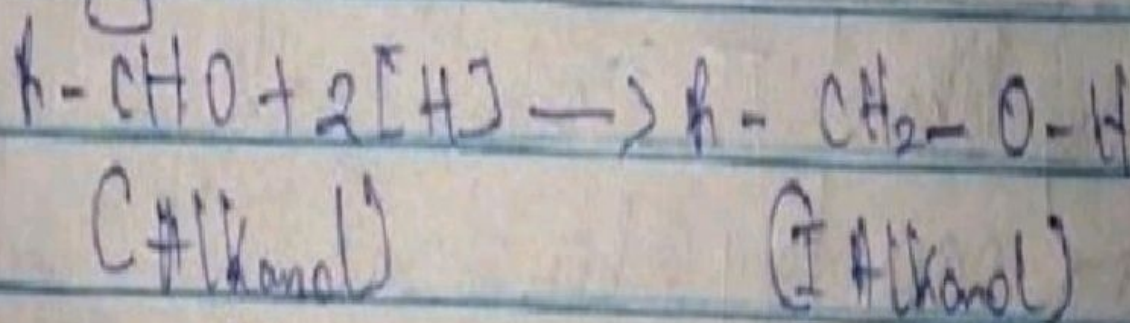


The mixture is distilled to obtain 95% ethanol that boils at  $78^{\circ}\text{C}$ .

1) Ethanal is reduced to ethanol



2) Generally



This reaction shows that aldehydes are oxidizing agents.

Aldehydes are reduced to the corresponding secondary

