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191EN404/002

Electrical/Electronics

CHM 102.

## Classification of Alcohols -

(1)

1. This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group.

- i) Primary Alcohol: Three or two hydrogen atoms are attached e.g.  $\text{CH}_3\text{OH}$  (Methanol)
- ii) Secondary Alcohol: One hydrogen atom is attached e.g.  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  (Propan-2-ol)
- iii) Tertiary Alcohol: No hydrogen atom is attached e.g.  $(\text{CH}_3)_3\text{C}-\text{OH}$  (2-methyl propan-2-ol)

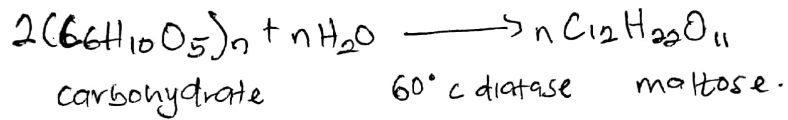
2. This is based on the number of hydroxyl groups they possess.

- 1) Monohydric alcohol: One hydroxyl group present e.g.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  (Propanol)
- 2) Dihydric alcohol: Two hydroxyl groups present e.g.  $\text{HOCH}_2\text{CH}_2\text{OH}$  (Ethane 1,2-diol)
- 3) Trihydric alcohol: Three hydroxyl groups present e.g.  $\text{OHCH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$  (Propane-1,2,3-triol)
- 4) Polyhydric alcohol: more than 3 hydroxyl groups present e.g.  $\text{CH}_3\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}_3$   
(Heptane-2,3,4,5,6-pentaol)

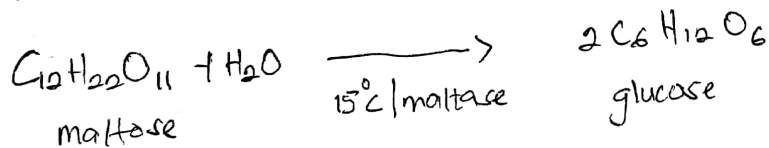
## 2) Solubility in Organic Solvent

Alcohols are soluble in water. This is due to ~~the~~ the hydroxyl group in the alcohol which is able to form hydrogen bonds with water molecules. Alcohols with a smaller hydrocarbon chain are very soluble. As the length of the hydrocarbon chain increases, the solubility in water decreases.

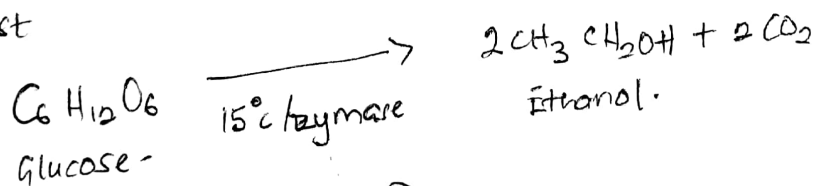
The starch containing material (rice, cereals) on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.

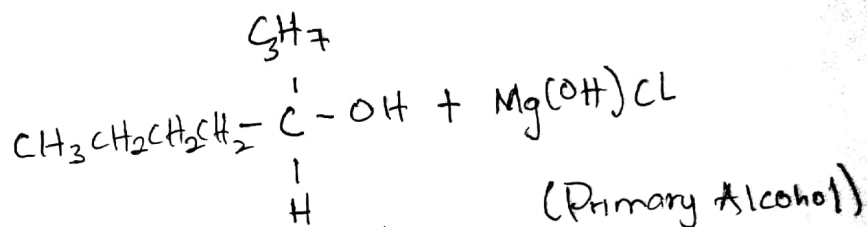
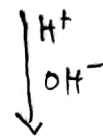
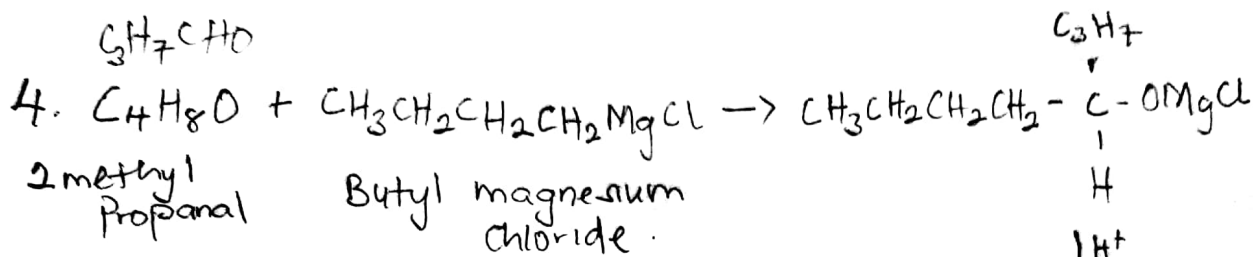


The maltose is broken down on addition of yeast which contains the enzyme maltase and at a temperature of 15°C

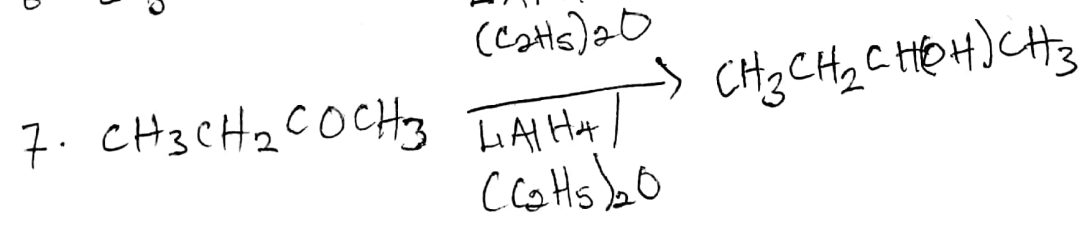
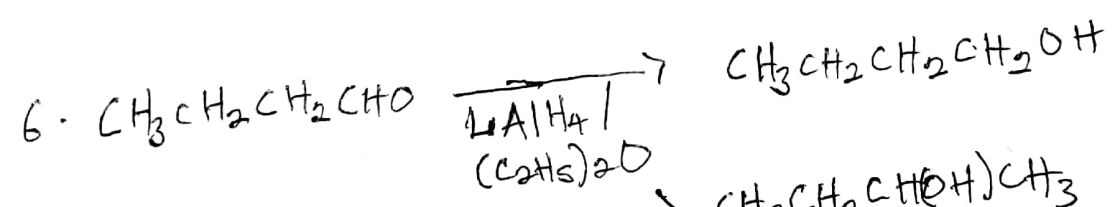
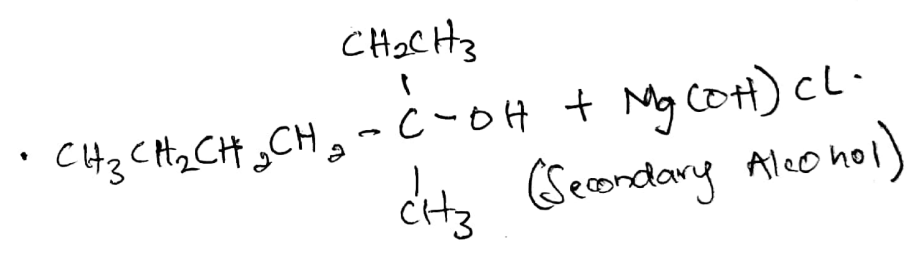
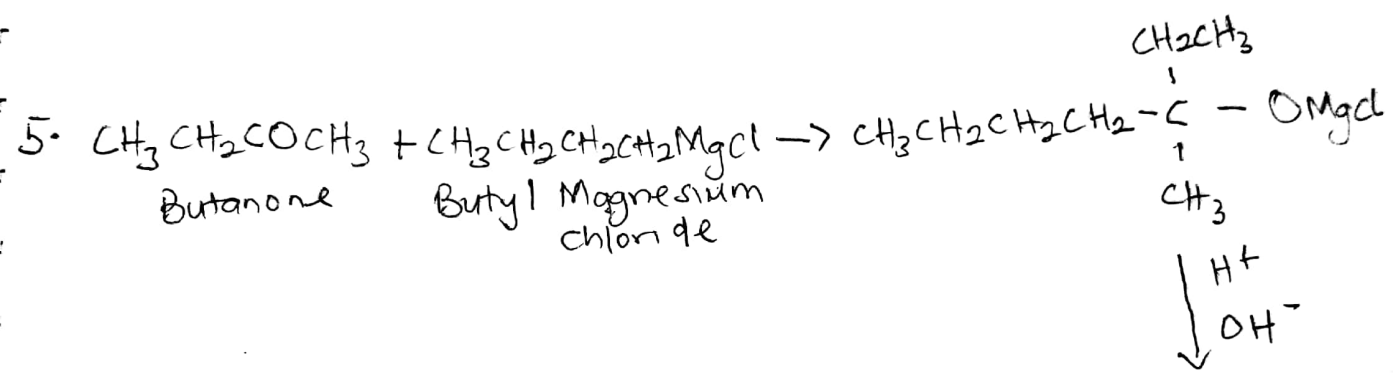


The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme zymase contained also in yeast





Please Note:  $\rightarrow$  Such a compound like 2-methyl propanone is structurally not possible (reference: Brainly.in) - I therefore used Butanone ( $\text{C}_4\text{H}_8\text{O}$  |  $\text{CH}_3\text{CH}_2\text{COCH}_3$ ) in 5 and 7. Thank you.



8) Conversion of primary alcohol to secondary alcohol  
Propan-1-ol to propan-2-ol

