

IBE CASSANDRA EZINNE
MBBS 19/MHS01/185
CHEM 102

1. Classification of Alcohols.

a) Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group.

i) Primary Alcohol (1°) - the carbon atom bearing the hydroxyl group has two or three hydrogen atoms attached to it.

eg: CH_3OH - Methanol.

ii) Secondary Alcohol (2°) - the carbon atom bearing the hydroxyl group has one hydrogen atom attached to it eg. $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$ - Propan-2-ol

iii) Tertiary Alcohol (3°) - the carbon atom bearing the hydroxyl group has no hydrogen atom attached to it. eg

eg: $(\text{CH}_3)_3\text{C-OH}$ - 2-methyl propan-2-ol

b Classification based on the number of hydroxyl groups they possess.

i) Monohydric alcohols: have one hydroxyl group present in the alcohol structure.
eg: $\text{CH}_3\text{CH}_2\text{OH}$ Ethanol.

ii) Dihydric alcohols / Glycols: have two hydroxyl groups present in.

iii) Dihydric alcohols / Glycols: have two hydroxyl groups present in the alcohol structure.
eg: $\text{HOCH}_2\text{CH}_2\text{OH}$ Ethan-1,2-diol

iii) Trihydric alcohol alcohols / triols: have 3 hydroxyl groups present in the alcohol structure.
eg: $\text{OH}(\text{CH}_2\text{CH}(\text{OH}))\text{CH}_2\text{OH}$ propan-1,2,3-triol.

Polyhydric alcohols / polyols: have more than 3 hydroxyl groups present in the alcohol structure.
eg: $\text{C}_6\text{H}_{12}\text{O}_6$ - Glucose.

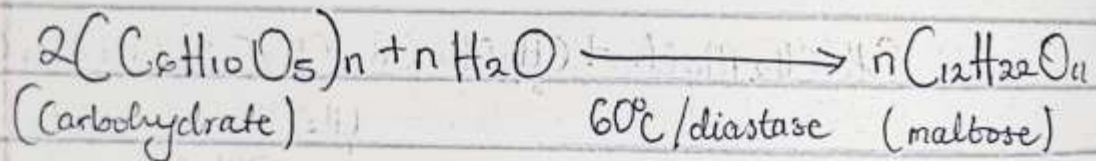
2. Solubility of Alcohols: Lower alcohols with up to three carbon atoms in their molecules are soluble in water, ~~they~~ they can form hydrogen bond bonds with water.

Solubility in water decreases with increasing relative molecular mass of alcohols.

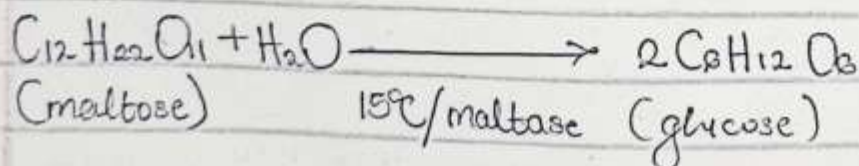
All monohydric alcohols are soluble in organic solvents.

Industrial Preparation of Ethanol

- ③ Fermentation of Starch: The biological catalysts enzymes found in yeast break down the carbohydrate molecules into ethanol to give a yield of 95%. The starch containing ~~mae~~ materials on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme ~~the~~ diastase contained in the malt.



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

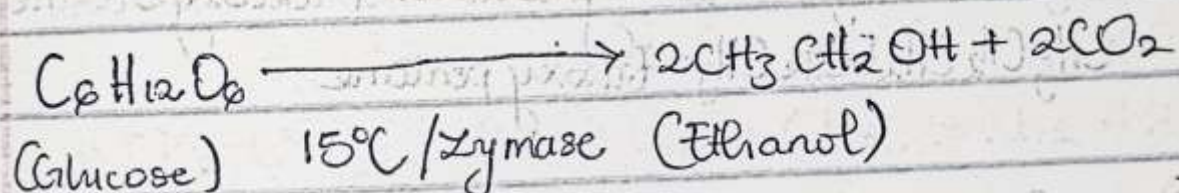


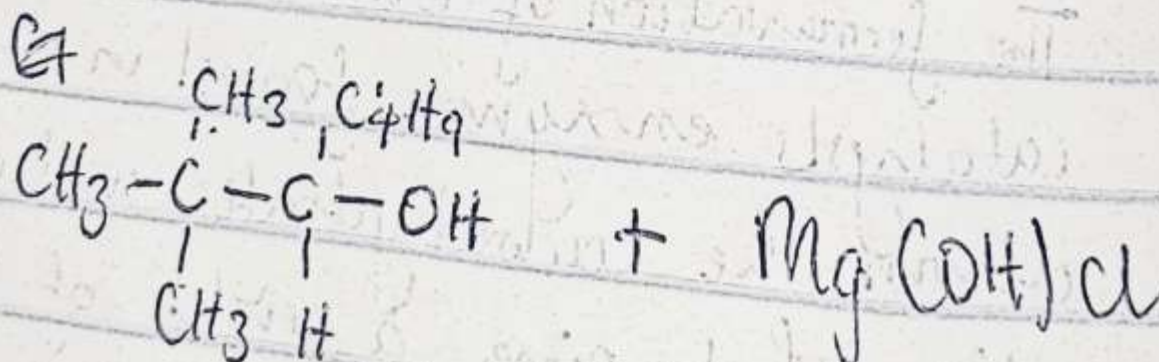
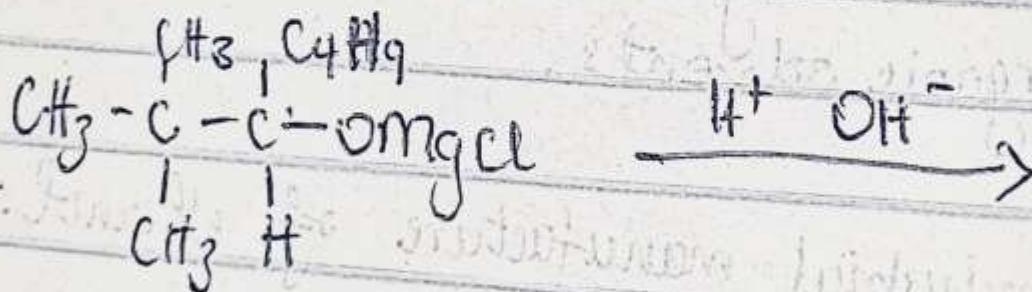
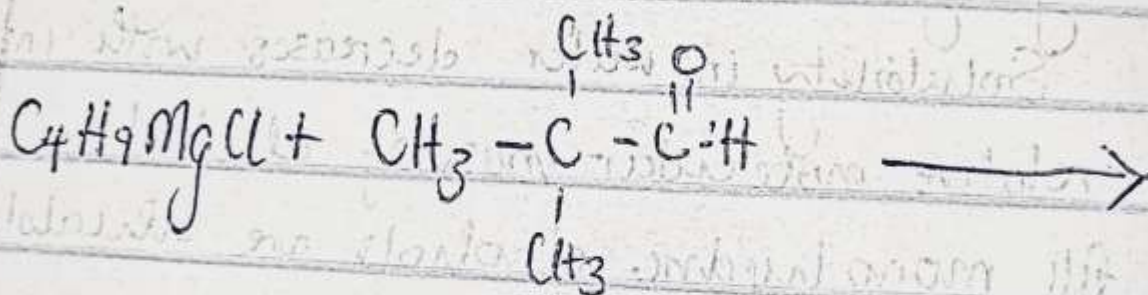
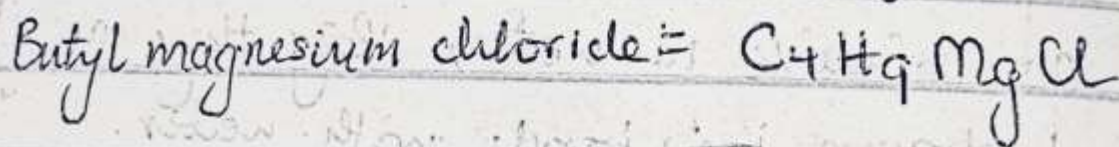
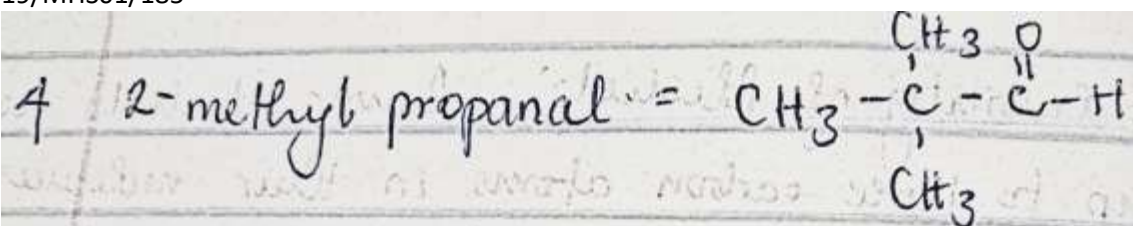
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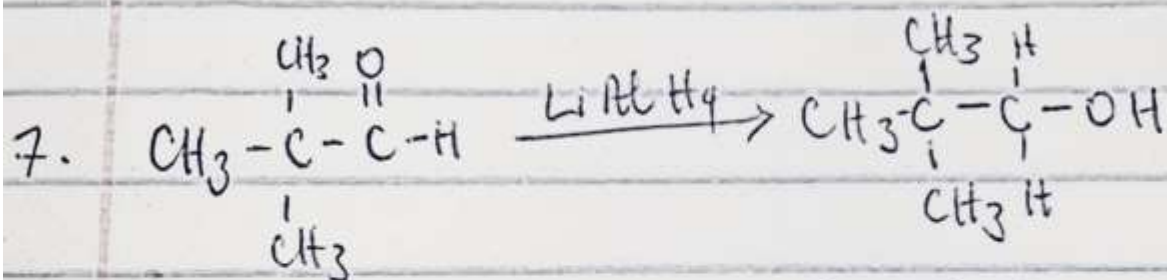
The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme Zymase contained also in yeast.





5. 2-methyl propanone = is not a possible structure
Butylmagnesium chloride. $\therefore C_4H_9MgCl$

6. 2-methyl propanone = is not possible



2-methyl propanal

2-methyl propanol

8. Dehydration of propan-1-ol to propene
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow{\text{Conc H}_2\text{SO}_4} \text{CH}_2=\text{CH}-\text{CH}_3$

Hydrolysis of propene to propan-2-ol

