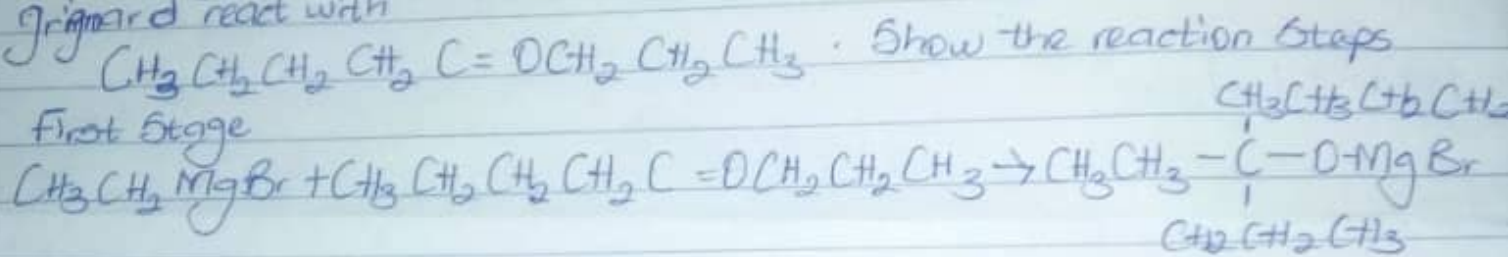


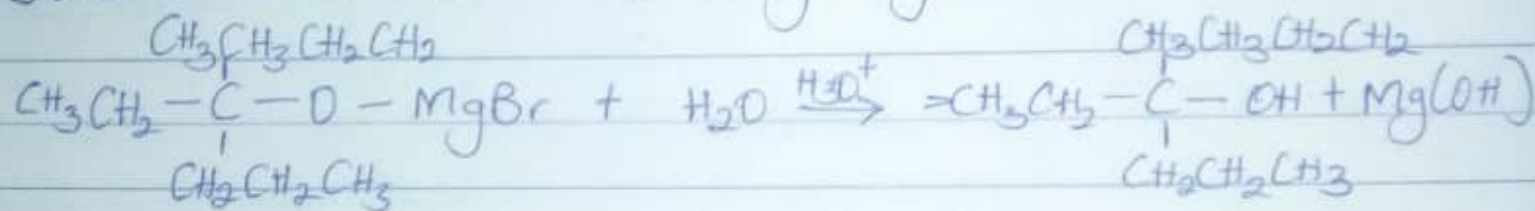
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 MATAIC NUMBER: 19/MHS06/007
 COURSE CODE: CHM 102

- a) Primary Alcohol: The hydroxyl group is attached to a primary Carbon atom in the molecule. It is characterized by $-CH_2OH$. Examples are,
 i) CH_3OH Methanol ii) CH_3CH_2OH Ethanol
- b) Secondary Alcohol: The $-OH$ group is on a Secondary Carbon atom, characterized by $>CHOH$. Examples are $i) (CH_3)_2CH-OH$ 2-Methylpropan-2-ol
 (ii) $CH_3CH(OH)CH_3$ Propan-2-ol

2) In the Grignard synthesis of Alcohols, reactants named Grignard react with



Dilute acid is then added to this to hydrolyze it



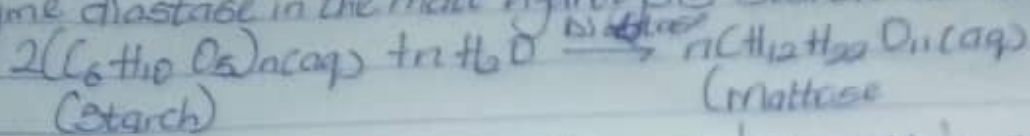
An alcohol is formed. The main use of Grignard reagent is the ability to make complicated alcohols easily.

1

3) Industrial Preparation of Ethanol

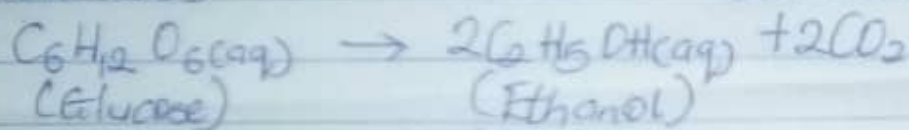
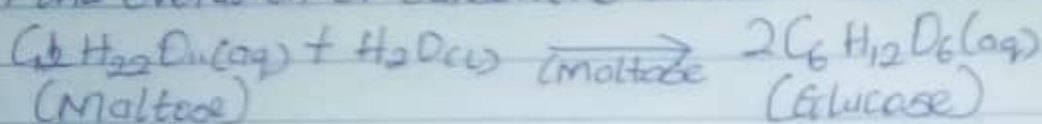
a) The Starch Containing Crop, Such as Cassava, is peeled, Crushed and Steam-heated or pressure-cooked to release with water to obtain a mash.

b) The mash is treated with malt yeast, and warmed at 50°C for 2 hours. Enzyme diastase in the malt hydrolyses starch for maltose.



c) Yeast Containing enzymes maltase and zymase is added to mixture, and kept at room temperature (about 27°C) for about three days.

During this period, enzyme Zymase ferments glucose to ethanol with the evolution of Carbon(IV) dioxide. The reaction is exothermic.

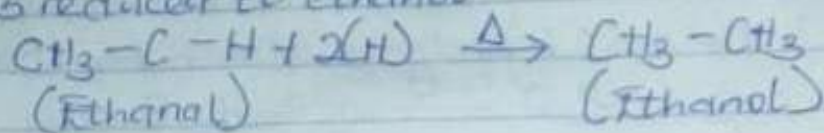


The mixture is distilled, to obtain 95% ethanol the boils at 78°C

2

4) Alkanals are reduced to the corresponding primary alkanols by reducing agents such as lithium tetrahydridoaluminate (LiAlH_4), that provides the nascent hydrogen $[\text{H}]$, which causes reduction,

a) Ethanal is reduced to ethanol



b) Generally



This reaction shows that alkanals are oxidizing agents

Alkanones are reduced to the corresponding secondary alkanol; LiAlH_4 reduced propanone $\text{CH}_3\text{-CO-CH}_3 + \text{CH}_3 + 2[\text{H}] \rightarrow \text{CH}_3\text{-CH(OH)-CH}_3$ to propan-2-ol. The reducing agent provides the nascent hydrogen atom as $[\text{H}]$

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