

b Secondary alkanols: Secondary alcohols are those where the Carbon atom of the hydroxyl group is attached to two alkyl groups on either side. The alkyl group present may be either Structurally identical or even different.

Examples;

* Propan-2-ol.

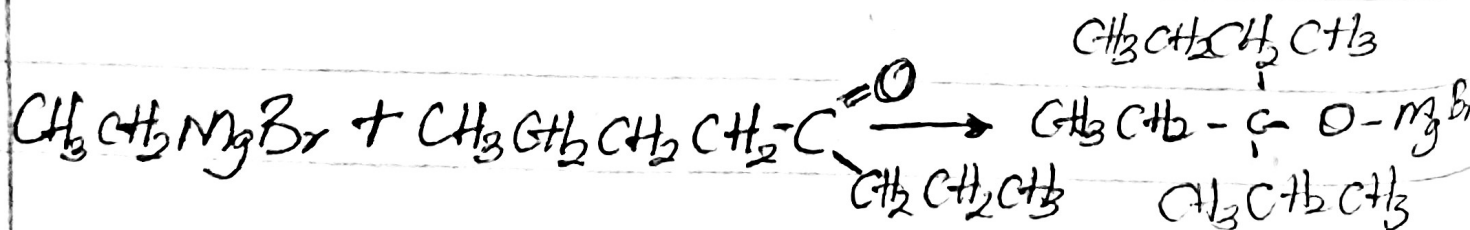
* Butan-2-ol.

c Tertiary alkanol:

→ 2 methyl propan-2-ol

→ 3 methyl pentan-3-ol.

2 In the Grignard synthesis of alkanols, react a named Grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}(=\text{O})\text{CH}_2\text{CH}_3$



Dilute acid is then added to this to hydrolyse it

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CHEM 102.

19/ENG05/033

1. Discuss the two major classifications of alkanols. Give two examples each for each class.

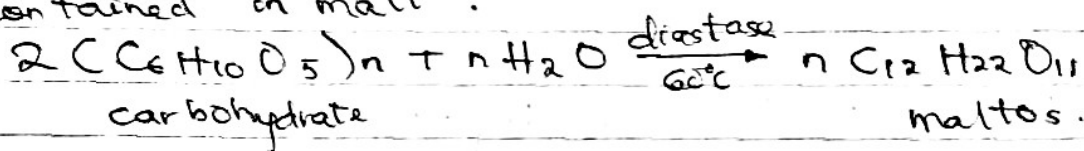
* Primary Alkanols: Primary alcohols are those alcohols where the carbon atom of the hydroxyl group (OH) is attached to only one alkyl group. The complexity of the alkyl chain is unrelated to the classification of any alcohol considered as primary. The existence of only one linkage among -OH group and an alkyl group and things that qualify alcohol as primary.

Examples

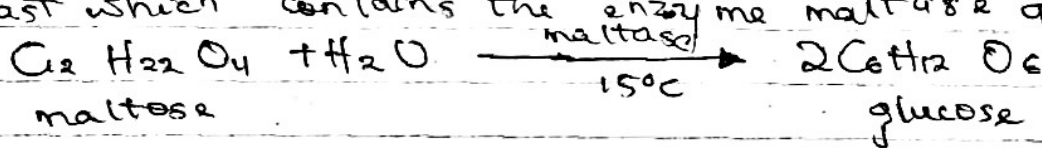
i) Ethanol; $\text{CH}_3\text{CH}_2\text{-OH}$ ii) Propan-1-ol;
 $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{OH}$

5. Discuss the industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature of reaction.

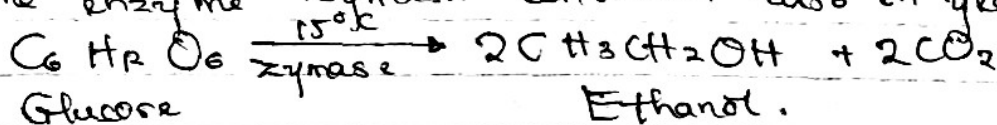
Firstly, the starch containing materials e.g. potatoes are warmed with malt to 60°C for a specific time. The starch is converted into maltose by the enzyme diastase contained in malt.



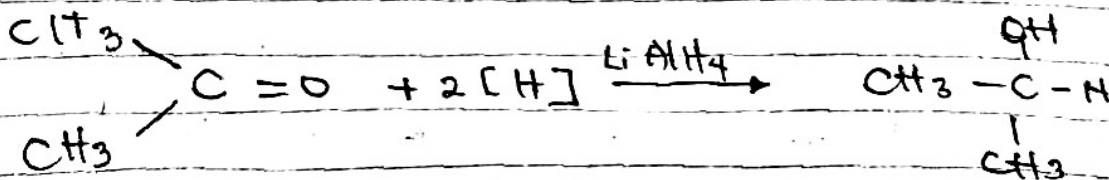
The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase at 15°C .



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



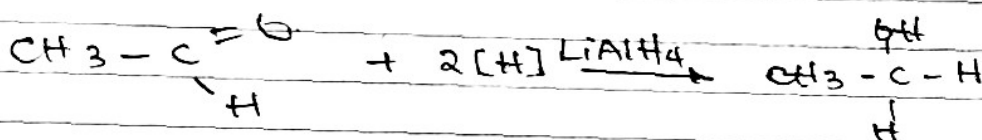
4. Reduction of Alkanone.



Secondary alcohol.

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Reduction of Alkanal



primary alcohol.