

Ezeamama Adaeze Christabel

19/mhs02/052

Nursing

### Chemistry assignment

The two major classification of Alkanols:

#### 1a) Classification based on number of hydroxyl groups

They possess monohydric alcohols; they have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called Glycols have two hydroxyl groups present in the alcohol structure while trihydric alcohols or triols have three hydroxyl groups present in the structure of the alcohol. Polyhydric alcohols or polyols have more than three hydroxyl groups.

Examples are;  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  propanol (Monohydric alcohol)

$\text{HOCH}_2\text{CH}_2\text{OH}$  Ethane-1-2-diol (Dihydric alcohol)

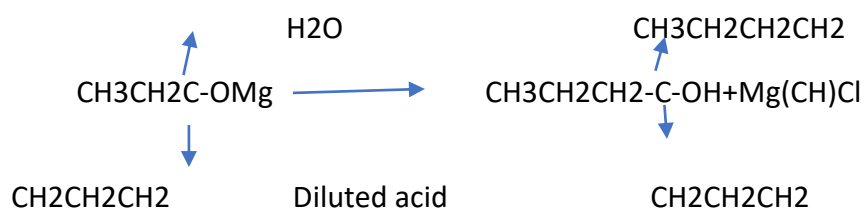
b) Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group are three or two, it is called a primary alcohol (1). If it is one hydrogen atom, it is called secondary alcohol (2) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called a tertiary alcohol (3)

Examples are;

$\text{CH}_3\text{OH}$  Methanol (1)       $\text{CH}_3\text{CH}_2\text{OH}$  (1)     $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  Propan-2-ol (2)

$(\text{CH}_3)_3\text{C-OH}$  2-Methylpropan-2-ol (3).

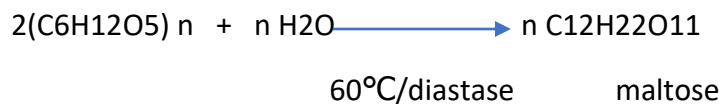
#### 2) $\text{CH}_3\text{CH}_2\text{CH}_2\text{MgCl} + \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{OCH}_2\text{CH}_2\text{CH}_3$



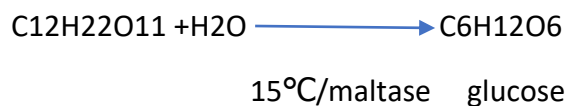
4propyloctan-4-ol

#### 3) Industrial manufacture of ethanol

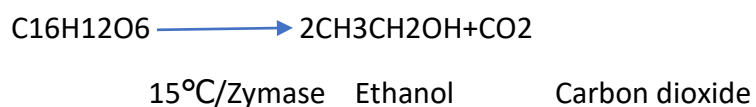
Carbohydrate is converted into maltose at a temperature of  $60^\circ\text{C}$  and by the enzyme diastase .



Maltose is broken down into glucose or addition of yeast which contains the enzyme maltase 15°C.



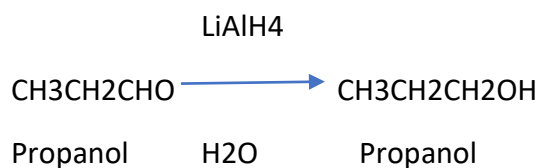
Glucose at constant temp 15°C is converted into alcohol with zymase contained also in yeast



#### 4) Reduction of Alkanone- Secondary alcohol

Reduction of alkanal-Primary alcohol

Reduction alkanal



Reduction of Alkanone      LiAlH<sub>4</sub>

