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Nursing

ASSIGNMENT (CHEMISTRY)

The two major classification of Alkanols: They are said to be; primary Alkanols and secondary or classifications based on hydroxyl group or classification based on the number of hydrogen atoms attached to the carbon atoms.

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; CH3CH2-OH which is ethanol and CH3-CH2-CH2-OH which is propan-1-ol

CH3-CHCH3-CH2-OH which is 2-methylpropan-1-ol.

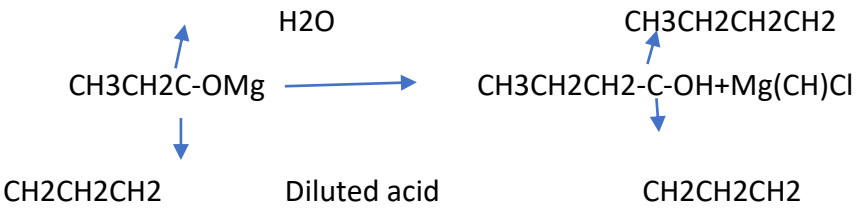
b) Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group are three or two, it is called a primary alcohol (1). If it is one hydrogen atom, it is called secondary alcohol (2) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl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

Examples are;

CH3OHMethanol (1) CH3CH2OH (1) CH3CH(OH)CH3 Propan-2-ol (2)

(CH3)3C-OH 2-Methylpropan-2-ol (3).

2) CH3CH2CH2MgCL +CH3CH2CH2CH2C=OCH2CH2CH3



4propyloctan-4-ol

3)Industrial manufacture of ethanol

Carbohydrate is converted into maltose at a temperature of 60℃ and by the enzyme diastase.

$2(C_6H_{12}O_5)_n + n\,H_2O \xrightarrow{60℃/\text{diastase}} n\,C_{12}H_{22}O_{11}$

maltose

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

$C_{12}H_{22}O_{11} + H_2O \xrightarrow{15℃/\text{maltase}} C_6H_{12}O_6$

glucose

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

$C_{16}H_{12}O_6 \xrightarrow{15℃/\text{Zymase}} 2CH_3CH_2OH + CO_2$

Ethanol Carbon dioxide

4)Reduction of Alkanone- Secondary alcohol

Reduction of alkanal-Primary alcohol

Reduction alkanal

$CH_3CH_2CHO \xrightarrow{LiAlH_4} CH_3CH_2CH_2OH$

Propanol H_2O Propanol

Reduction of Alkanone $LiAlH_4$

$CH_3COH_3 \longrightarrow (CH_3)_2CHOH$

H_2O propan-2-ol