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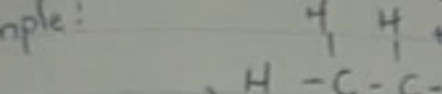
Assignment

i) Alcohols are classified in two ways:

ii) Based on the number of hydrogens attached to the hydroxyl carbon

Example:



(Propanol) (Primary alkanol)

- 1-methyl propan-1-ol ($CH_3CH_2\underset{CH_3}{\underset{|}{C}}H-OH$): Secondary alkanol

- $H_3C-\underset{CH_2}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-OH$: Tertiary alkanol

1, 1-dimethylethanol

iii) Based on the number of hydroxyl groups. Examples are.

- Butanol ($CH_3CH_2CH_2CH_2(OH)$: Monhydric alkanol

- Propan-1,3-diol ($CH_2(OH)CH_2CH_2(OH)$) : Dihydric alkanol

- 2-methyl Butan-1,3,4,-triol

$CH_2OH-\underset{CH_3}{\underset{|}{CH}}-CH(OH)-CH_2(OH)$ -> Trihydric alkanol

2) Solubility in water

Alkanols are soluble in water because they can form hydrogen bonds with water but their solubility decreases with increasing relative molecular mass.

i) Solubility in Organic solvent

All monohydric alkanols are soluble in organic solvent

Then, breakdown maltose to glucose using maltase under temperature of 15°C

$$C_{12}H_{22}O_{11} + H_2O \xrightarrow[15^\circ C]{\text{maltase}} 2C_6H_{12}O_6$$

maltose — Glucose

Convert glucose to ethanol using zymase under a temperature of 15°C

$$C_6H_{12}O_6 + H_2O \xrightarrow[15^\circ C]{\text{Zymase}} 2C_2H_5OH + CO_2$$

Glucose — Ethanol

4) $CH_3-CH(CH_3)-\overset{H}{\underset{|}{C}}=O + C_4H_9MgCl \rightarrow CH_3-CH(CH_3)-\overset{H}{\underset{|}{C}}-OMgCl$

2-methylpropanal — Butylmagnessiumchloride — C_4H_9

Hydrolysis: H^+ OH^-

$CH_3-CH(CH)-\underset{|}{C}-OH + Mg(OH)Cl$

C_4H_9

1-butyl-2-methyl propan-1-ol

7) $CH_3-CH(CH_3)-\overset{H}{\underset{|}{C}}=O \xrightarrow{LiAlH_4/(C_2H_5)_2O} CH_3-CH(CH_3)-CH_2-OH$

2-methylpropanol