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MATRIC NO: 19/MHS11/069

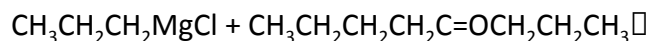
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CHM 102 ASSIGNMENT

1. Major classification of Alcohols and examples

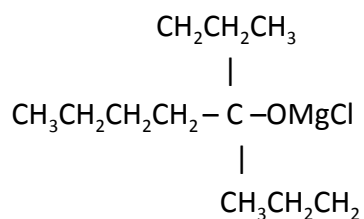
- a) Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the numbers of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two, it is called a primary alcohol (1°). If it is one hydrogen atom, it is called a secondary alcohol (2°) and if there is no hydrogen atom, it is tertiary alcohol (3°). Examples are; CH_3OH -methanol (1°), $\text{CH}_3\text{CH}_2\text{OH}$ (ethanol) 1° .
- b) Classification based on the number of hydroxyl group they possess. Monohydric alcohols have one hydroxyl group present. Dihydric alcohols or glycols have two hydroxyl groups present while trihydric alcohols or triols have three hydroxyl groups present in the alcohol structure. Polyhydric alcohols or polyols have more than three hydroxyl groups present. Examples are; $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$ hexane-2,4-diol (Dihydric alcohol) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ propanol(monohydric alcohol).

2. Grignard synthesis of alcohol.



(Grignard reagent;

Propyl magnesium chloride)



React with water (H^+OH^-) and dilute acid \square

$\text{CH}_3\text{CH}_2\text{CHO}$ $\xrightarrow[\text{or LiAlH}_4]{\text{H}_2(\text{Ni or Pt) cat.}}$ $\text{CH}_3\text{CH}_2\text{OH}$
propanal Propanol

$(\text{CH}_3)_2\text{CO}$ $\xrightarrow[\text{or LiAlH}_4]{\text{H}_2(\text{Ni or Pt) cat.}}$ $(\text{CH}_3)_2\text{CHOH}$
propan-2-one propan-2-ol