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DEPARTMENT: NURSING

COURSE: CHEM 102

MATRIC NO: 19/MHS02/066

1. HCOOH- Methanoic acid

$\text{HOOCCH}_2\text{CH}_2\text{CH}_2\text{COOH}$ -pentan-1, 5-dioic acid

$\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ - Butanoic acid

$\text{HO}_2\text{C}-\text{CO}_2\text{H}$ - Ethandioic acid

$\text{CH}_3(\text{CH}_2)_4\text{COOH}$ - Hexanoic acid

$\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_2\text{COOH}$ - Hex-4-eneoic acid

2. Physical appearance

All simple aliphatic carboxylic acids up to C_{10} are liquids in temperature.

Boiling points

Boiling points increases with increasing relative molecular mass.

Solubility

Lower molecular mass carboxylic acids with up to four carbon atoms in their molecules are soluble in water this largely due to their ability to form hydrogen bonds with water molecules.

3. Two industrial preparations of carboxylic acids

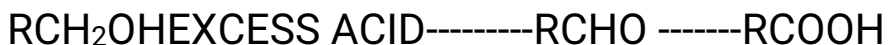
. From carbon(II)oxide

From ethanol

4. Synthetic preparations

.Oxidation of primary alcohols and aldehydes

Oxidation of primary alcohols and aldehydes can be used to prepare carboxylic acids using the usual oxidizing agents in acidic solution



. Carbonation of grignard reagent

Aliphatic carboxylic acids are obtained by bubbling carbon(IV)oxide into the grignard reagent and then hydrolyzed with dilute acid



. Hydrolysis of nitriles(cyanides) or esters

