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19/11/2018

CHM 402

CARBOXYLIC ACID

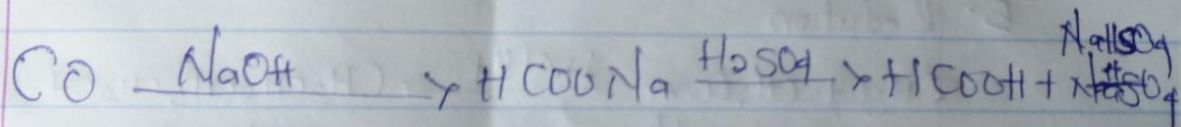
- $\text{HCOOH} \rightarrow$ methanoic acid
 $\text{HOOCCH}_2\text{CH}_2\text{CH}_2\text{COOH} \rightarrow$ pent-1,5-dioic acid
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH} \rightarrow$ Butanoic acid
 $\text{HO}_2\text{C}-\text{CO}_2\text{H} \rightarrow$ ethanedioic acid
 $\text{CH}_3(\text{CH}_2)_4\text{COOH} \rightarrow$ Hexanoic acid
 $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_2\text{COOH} \rightarrow$ Hex-4-enoic acid

2. Physical appearance: Carboxylic acid with up to 10 carbons are liquid at room temperature while those above 10 carbons are solid at room temperature although ^{anhydrous} carboxylic acid freezes to an ice like solid below the room temperature.

Boiling point: It increases with increase in relative molecular mass. aromatic carboxylic acid are crystalline solids and have higher melting points than their aliphatic counterparts of comparable relative molecular mass.

Solubility: lower molecular mass carboxylic acid with up to four carbon atoms in their molecules are soluble in water which is due to ability to form hydrogen bonds with water molecules.

3 From Carbon(II) oxide: Carboxylic acid can be formed by the addition of carbon(II) oxide to a solution of hot aqueous sodium hydroxide under pressure and the free carboxylic acid is liberated carefully with the use of conc H_2SO_4



From ethanal: it can be produced by the liquid phase air oxidation of 5% solution of ethanal to ethanoic acid using manganate(II) ethanoate catalyst to produce ethanoic acid. and ethanal itself is obtained from ethylene

