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ronautics Engineering
Formic Acid - $HCOOH$
butyric Acid - $CH_3CH_2CH_2COOH$
Caproic Acid - $CH_3(CH_2)_4COOH$
Valeric Acid - $HOOCH_2CH_2CH_2COOH$

Phyical appearance Of Carboxylic acids
The molecules Of Carboxylic acids are Polar
ue to the Presence Of Of two electronegative
xygen atoms. They also Participate in
ydrogen bonding due to the Presence of
e Carbonyl group (C=O) and the hydroxyl
oup

) Boiling Point Of carboxylic acids
arboxylic acids have high boiling point

... because of the hydrogen bond which ... in a different way. In a Pure ... acid, hydrogen bonding can occur ... two molecules of acid to Produce a ...

Solubility of Carboxylic acids

... Carboxylic acids with up to four carbons ... will mix with water in any Proportion ... you mix the two together, the energy ... when the new hydrogen bond form is ... the same as is needed to break ... hydrogen bonds in the Pure liquids.

... of Acid Chloride

Preparation from Amides

... undergoes hydrolysis in the Presence ... catalyst H^+ or OH^- to form Carboxylic ... acid

$$CH_3CONH_2 \xrightarrow[\Delta]{H_3O^+} CH_3COOH + NH_3$$

Ethanamide — Ethanoic Acid

Preparation from Esters

Acidic hydrolysis of esters leads to the formation of carboxylic acids. However, hydrolysis of the ester produces carboxylates followed by acidification leads to the formation of corresponding carboxylic acids.

$CH_3CH_2CH_2COOC_2H_5 \xrightleftharpoons{NaOH} CH_3CH_2CH_2COO^-Na^+$

$\downarrow H_3O^+$

$C_2H_5OH \qquad CH_3CH_2CH_2COOH$

Reduction of carboxylic Acids

$CH_3CH_2CH_2COOH \xrightarrow[H_3O^+]{LiAlH_4} CH_3CH_2CH_2CH_2OH$

decarboxylation of carboxlic acid

$CH_2=CH-CH_2-CO_2H \xrightarrow{>200^\circ} CH_2=CH-CH_3\uparrow CO_2$

esterification of carboxylic acids

$CH_3-COOH + CH_3CH_2OH \rightleftharpoons CH_3COOCH_2CH_3 + H_2O$