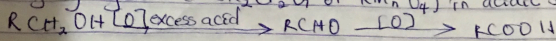


ASSIGNMENT ON CARBOXYLIC ACID

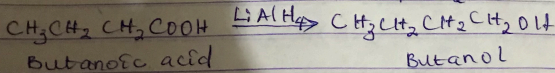
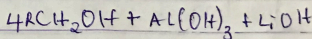
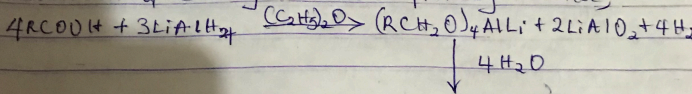
1. Chemical formula	IUPAC Names	3. INDUSTRIAL PREPARATIONS
a. HCOOH	Methanoic acid	a) From Carbon(II) oxide
b. $\text{HOOCCH}_2\text{CH}_2\text{COOH}$	Pentan-1,5-dioic acid	Methanoic acid (formic acid) is manufactured by adding carbon dioxide under pressure to hot aqueous solution of sodium hydroxide. The free carboxylic acid is liberated by careful reaction with tetraoxosulphate(VI) acid (H_2SO_4)
c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$	Butanoic acid	
d. $\text{HO}_2\text{C}-\text{CO}_2\text{H}$	Ethanedioic acid	
e. $\text{CH}_3(\text{CH}_2)_4\text{COOH}$	Hexanoic acid	
f. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{COOH}$	Hex-4-enoic acid	
2. Physical Properties		
a. <u>Physical appearance</u> : All simple aliphatic carboxylic acids up to C_{10} are liquids at room temperature.		
Most other carboxylic acids are solids at room temperature although anhydrous carboxylic acid freezes below room temperature.		
b. <u>Boiling points</u> : Boiling point increases with increasing relative molecular mass.		
Aromatic carboxylic acids are crystalline solids and have higher melting points than their aliphatic counterparts of comparable relative molecular mass.		
c. <u>Solubility</u> : Lower molecular mass carboxylic acids with up to four carbon atoms in their molecules are soluble in water.		
		b. From Ethanol; Ethanoic acid is obtained commercially by the liquid phase air-oxidation of solution of ethanal to ethanoic acid using manganese(II) ethanoate catalyst. Ethanal itself is obtained from ethylene:
		$\text{HC}\equiv\text{CH} \xrightarrow{\text{dil. H}_2\text{SO}_4} \text{CH}_3\text{CHO}$ $\xrightarrow{\text{O}/(\text{CH}_3\text{CO})_2\text{Mg}} \text{CH}_3\text{COOH}$

4. Synthetic Preparation of Carboxylic Acid

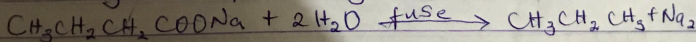
By Oxidation of primary alcohols and aldehydes; Oxidation of primary alcohols and aldehydes can be used to prepare carboxylic acids using the usual oxidizing agents (i.e. $K_2Cr_2O_7$ or $KMnO_4$) in acidic solution.



5. Reduction of Carboxylic acid to primary alcohol;



ii. Decarboxylation of carboxylic acid



iii. Esterification of carboxylic acid

