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Matrix no: 19/mhs01/100

1)HCOOH-Methanoic acid

HOOCCH2CH2CH2COOH-1,5dioic acid

CH3CH2CH2COOH-Butanoic acid

HO2C-CO2H-Ethanedioic acid

CH3(CH2)4COOH-Hexanoic acid

CH3CH=CHCH2CH2COOH-Hex-4-eneoic acid

2a)PHYSICAL PROPERTIES OF CARBOXLIC ACIDS UNDER PHYSICAL APPERANCE:All simple aliphatic carboxylic acid are liquid at room temprature. Most other carboxylic acid are solid at room temprature. Although anhydrous carboxylic acid also known as glacial ethanoic acid freezes to an ice like solid below room temprature.

B)Boiling point: 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)Solubility: however molecular mass carboxylic acids with up to four carbon atoms in their molecules are soluble in water;this is largely due to their ability to form hydrogen bonds with water molecules. All carboxylic acids are soluble in organic solvents.

3)Two industrial preparation of carboxylic acids are;

a)From carbon2oxide

b)from ethanal

4)Synthetic preparation of carboxylic acids;

a)Oxidation of primary alcohols and aldehyde;they can be used to prepare carboxylic acids using to prepare carboxylic acids using the usual oxidating agents (I.e k2Cr2O7 or kmnO4 )in acidic solution.RCH2OH +excess acid= RCHO[O]+RCOOH

b)carbonation of grignard reagent;aliphatic carboxylic acids are obtained by bubbling carbon4oxide into the grignard reagent and the hydrolyze with dilute acids

RMgBr+Co2(C2H5)2O

RCOOMgBr_h2o____dilute acid___RCOOH+

MgBrOH.

c)hydrolysis of nitriles or esters ;RCN+2H2o_H+___RCOOH+NH4+

5)REDUCTION OF CARBOXYLIC ACIDS:

4RCOOH+3LiAlH4___(c2H5)2o___(RCH2O)4AlLi+2LiAlO2+4H2_H2O____4RCH2OH+AL(OH)3+LiOH

CH3CH2CH2COOH(butanoic acid)_LIALH4__CH3CH2CH2CH2OH(BUTANOL)

b)Decarboxylation;CH3CH2CH2COONa+Naoh_fuse__Ch3Ch2ch3+Naco3

C)ESTERIFICATION;

CH3CH2CH2COOH+CH3CH2CH2OH_H+___CH3CH2CH2COOH2CH2CH3+H2O