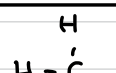
Functional group: $-\overset{\overset{O}{\|}}{C}-O-H$

Source:
1) Oxidation of Alcohols
2) Hydrolysis of Esters

Name formula & Physical state of the ~~following~~ acids:

	Methanoic Acid	Butanoic Acid
M.F	H_2CO_2	$C_4H_8O_2$
E.F	H_2CO_2	C_2H_4O
D.F		
C.F	$H \cdot CO_2 \cdot H$	$CH_3 \cdot CH_2 \cdot CH_2 \cdot CO_2 \cdot H$
State	(	(

Physical Properties of Ethanoic Acid:

- Colourless liquid
- Soluble in water

- Sour tast
- Aq solution conducts electricity
- Sharp pungent odour. (Vinegar Smell)
- pH value less than 7

All Carbonylic Acids are
a) weak Acids (because of low degree of dissociation)
b) All monobasic acid - 1 molecule can only produce $1H^+$

$$CH_3COOH \rightleftharpoons CH_3COO^-_{(aq)} + H^+_{(aq)}$$

Chemical Properties of Carbonylic Acids

1) Reaction with Na, K, Ca, Mg

$$2HCOOH + Ca \longrightarrow (HCOO)_2Ca + H_{2(g)}$$

Calcium Methanoate

$$2C_3H_7COOH + Mg \longrightarrow (C_3H_7COO)_2Mg + H_{2(g)}$$

Magnesium Butanoate

2) Reaction with Base

$$HCOOH + NaOH \longrightarrow HCOONa_{(aq)} + H_2O_{(l)}$$

$$2HCOOH + CaO \longrightarrow (HCOO)_2Ca + H_2O_{(l)}$$

$$2C_3H_7COOH + PbO \longrightarrow (C_3H_7COO)_2Pb + H_2O$$

3) Reaction with Carbonate

Acid + Carbonate → Salt + CO_2 + H_2O

$2HCOOH + MgCO_3 \rightarrow CO_2 + H_2O + (HCOO)_2Mg$

$2C_3H_7COOH + CaCO_3 \longrightarrow (C_3H_7COO)_2Ca + CO_2 + H_2O$

Q Write down the formula of the following:

1) Magnesium Propanoate – $(C_2H_5COO)_2Mg$
2) Potassium Methanoate – $HCOOK$

1) Condensation Reaction:

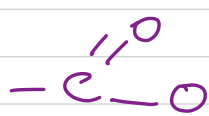
A reaction in which 2 organic molecules join together with the elimination of a small molecule such as water.

2) Condensation Polymerisation:

A reaction where 2 organic molecules called Monomers join together in a condensation reaction to form the repeating units of a polymer with the elimination of a small molecule like water.

Linkage:

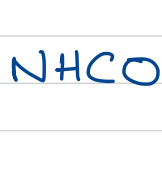
1) Ester Linkage:



E.g: P.E.T (several ester linkages)

∴ A polyester. synthetic means its man made.

2) Amide Linkage:



E.g: Nylon, Protein ∴ Polyamides.