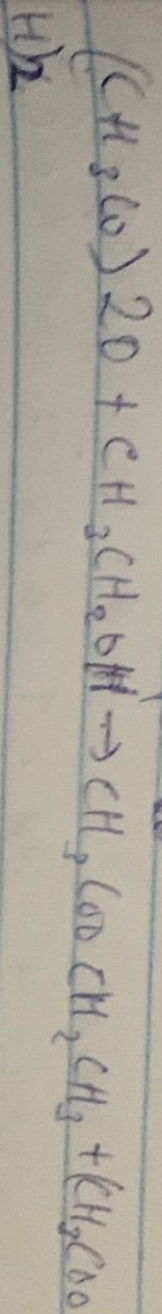


~~then~~ and ethanoic acid is formed



The reaction with phenol is similar, but will be slower. Phenyl ethanoate is formed together with ethanoic acid.

If the phenol is first converted into sodium phenoxide by adding sodium hydroxide solution the reaction is faster. Phenyl ethanoate is formed but the time is formed the other product is sodium ethanoate rather than ethanoic acid.

35) Making esters from carboxylic acids

This method can be used for converting alcohols into esters, but it doesn't work with phenols - ~~some~~ compounds where the -OH group is attached directly to a benzene ring. Phenols react with carboxylic acids so slowly that the reaction is unusable for preparation.

Purposes

Esters are produced when carboxylic acid are heated with alcohols in the presence

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- 1) Methoxymethane
- 2) Ethoxyethane
- 3) Pentanamide
- 4) methoxyethane
- 5) Ethoxypropane

2) Physical Properties of ethers

- i) The miscibility of ethers with water resembles those of alcohols
 - ii) Ether molecules are miscible in water
 - iii) An ether molecule has a net dipole moment due to the polarity of C-O bonds
 - iv) Boiling point of ethers is comparable to the alkanes
- 3) Chemical Properties of ethers
- i) Doesn't react with bases active metals, oxidizing agents and reducing agents
 - ii) Strong acids will cleave ethers at elevated temperatures

of an acid catalyst. The catalyst is usually concentrated sulphuric acid. Dry hydrogen chloride gas is used in some cases, but these tend to involve aromatic esters (ones where the carbonyl group contains a benzene ring). The esterification reaction is both ~~slow~~ slow and reversible.

iii) When stored in presence of oxygen they form explosive peroxides such as diethyl ether peroxide

iv) Sterilization of medical equipments

ii) Production of other chemicals used for manufacture products such as clothes, fabrics etc.

iii) Ethylene glycol which is derived from ethylene oxide is used to manufacture fiber glass

3a) Making esters with acid anhydrides

This reaction can again be used to make esters from both alcohols and phenols. The reactions are slower than the corresponding reactions with acyl chlorides and you usually need to warm the mixture. In the case of a phenol, you can react the phenol with sodium hydroxide solution first and using the more reactive phenoxide ion.

Taking ethanol reacting with ethanoic anhydride as a typical reaction involving an alcohol. There is a slow reaction at room temperature (or faster on warming). There is no visible change in the colourless liquids, but a mixture of ethyl ethanoate (ether