**Esterification Reactions**

**General properties of esters**

Esters are produced through interactions between acid and alcohol with the removal of water. An example of this is the addition of acetic acid to an alcohol, which yields an acetic ester and water. Esters are named as if the alkyl chain from the alcohol is a substituent. This alkyl chain is not assigned a number. This is accompanied by the name of the parent chain of the carboxylic acid part of the ester with –e removed and replaced by –oate. Most esters are compounds with a rather pleasant scent and are responsible for the taste and aroma of many fruits and flowers. Pentyl acetate (bananas), octyl acetate (oranges), ethyl butanoate (pineapples), and pentyl butanoate (apricots) are amongst the most popular.

**Preparation of esters**

1. **Fischer esterification**

If carboxylic acid and alcohol are heated in the presence of an acid catalyst (usually HCl or H2SO4), an ester and water equilibrium is formed.



The method works well with the use of primary alcohols. Tertiary alcohol is not functioning very well, although secondary alcohol is working fine. The reaction is an equilibrium reaction. Sulfuric acid, hydrochloric acid and, ideally, p-toluenesulfonic acid, which are strong inorganic acids, are used to maintain the equilibrium. The azeotropic distillation method is particularly useful in preparing esters of high boiling alcohols.

1. **Schotten-Baumann reaction**

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