

Esters of Carboxylic Acids

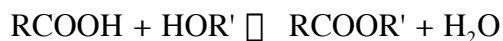
Carboxylic acids are used to synthesize two important derivatives, esters and amides. In esters, the OH of the carboxyl group is replaced by OR. To name esters, first have the name of the alkyl group attached to the O, followed by the name of the parent carboxylic acid with its name altered by changing -ic acid to -oate. For example:



Esters are responsible for or mimic many pleasant fragrances in nature.

| Ester | Similar aroma |
|--|---------------|
| $\text{HCOOCH}_2\text{CH}_3$ | Rum |
| $\text{HCOOCH}_2\text{CH}(\text{CH}_3)_2$ | Raspberries |
| $\text{CH}_3\text{COO}(\text{CH}_2)_4\text{CH}_3$ | Bananas |
| $\text{CH}_3\text{COO}(\text{CH}_2)_2\text{CH}(\text{CH}_3)_2$ | Pears |
| $\text{CH}_3\text{COO}(\text{CH}_2)_7\text{CH}_3$ | Oranges |
| $\text{CH}_3(\text{CH}_2)_2\text{COOCH}_2\text{CH}_3$ | Pineapples |
| $\text{CH}_3(\text{CH}_2)_2\text{COO}(\text{CH}_2)_4\text{CH}_3$ | Apricots |

In a mixture with carboxylic acid and alcohol, an equilibrium reaction forms ester and water in the presence of heat and a strong acid catalyst.



For example:

