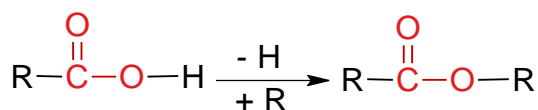


Organic compounds derived from carboxylic acids

Esters

Amide

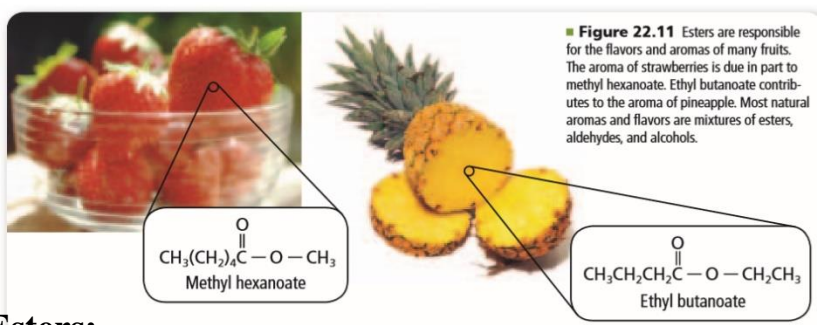
A - Esters: an organic compound containing a carboxyl group, in which the hydrogen atom has been replaced by an alkyl group.





General formula : $\text{*}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{R}$

Naming : by writing the name of the **alkyl group** followed by the name of the **acid** with the **-ic** acid ending replaced by **-ate**.

[Alkyl + alkan + oate]



Q: Name the following Esters:

$\text{CH}_3(\text{CH}_2)_4-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_3$  <p>Methyl hexanoate (Responsible for the taste of fruits)</p>	$\text{CH}_3-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2-\text{CH}_3$  <p>Ethyl butanoate (Pineapple taste)</p>
$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_3$ <p>Methyl methanoate</p>	$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2-\text{CH}_3$ <p>Ethyl ethanoate</p>
$\text{CH}_3-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_3$	$\text{CH}_3-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2-\text{CH}_3$
$\text{CH}_3\text{COOCH}_3$	$\text{CH}_3(\text{CH}_2)_3\text{COOCH}_2\text{CH}_3$
$\text{CH}_3(\text{CH}_2)_3\text{COO}(\text{CH}_2)_3\text{CH}_3$	$\text{CH}_3-\text{CO}_2-\text{CH}_2-\text{CH}_2-\text{CH}_3$

Q: Write condensed formulas for:

Butyl methanoate	Propyl ethanoate
Propyl Butanoate	Butyl ethanoate
ethyl methanoate	Methyl butanoate

Note: Most aromatic scents and natural flavors are a **mixture** of *esters*, *aldehydes* and *alcohols*.

Ester properties:

1 - **Polar** Molecules $\text{R}-\overset{\delta-}{\underset{\delta+}{\text{C}}}(\text{O})-\overset{\delta-}{\text{O}}-\text{R}$ 2- Many of them are *volatile* and have a *pleasant aroma*.

3 - There are many of them in the natural *scents* and *flavors of flowers and fruits*.

4 - *Natural flavors such as bananas and apples* are caused by a mixture of molecules of organic compounds, including esters

5 - **Some flavors** may be due to installing one Aster

So esters are used for: *flavors, drinks, perfumes, scented candles* and other *scented items*