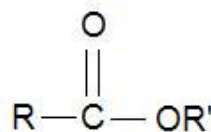


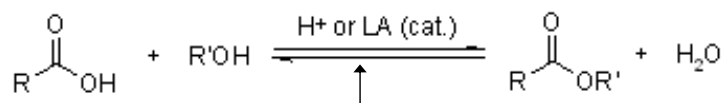
# Esters

- Esters are formed when an organic acid reacts with an alcohol
- General formula:



– Simplified version: RCOOR'

- R is from the acid
- R' is from the alcohol
- One method of preparing an ester is known as Fischer esterification

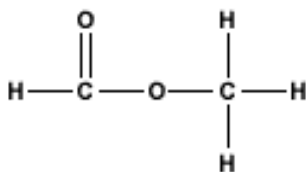


Combined in an acid catalyst

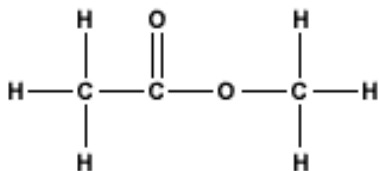
## Naming Esters

- Esters are named as alkyl derivatives of carboxylic acids
- The alkyl (R') group is named first (this is from the alcohol)
- The R-CO-O part is then named as a separate word based on the carboxylic acid name, with the ending changed from "*oic acid*" to "*oate*"

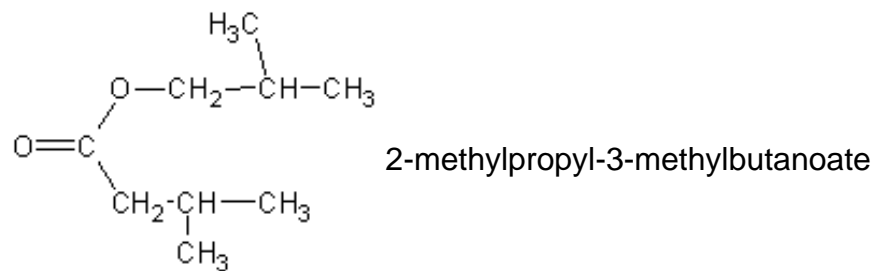
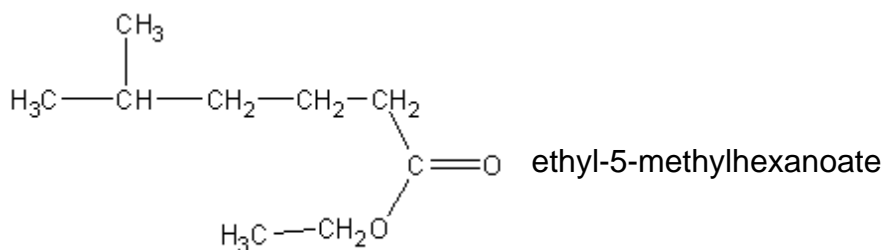
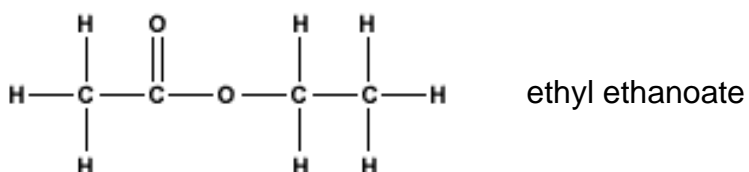
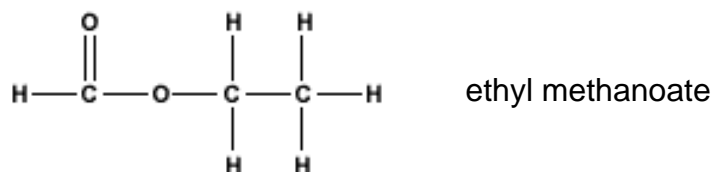
## Examples



methyl methanoate



methyl ethanoate



## Uses of Esters

- Esters have a very fruity sweet smell and are used as artificial perfumes or scents
- Naturally occurring esters are found in fruits and pheromones of animals
- Making artificial food flavors
- Industrial solvents for making cellulose, fats, paints and varnishes
- Solvents in pharmaceutical industries
- Softeners in plastic industries and molding industries

## Some Esters

- isoamyl acetate (banana)
- ethyl acetate (fingernail polish remover)
- methyl salicylate (wintergreen)
- ethyl butyrate (pineapple)
- benzyl butyrate (cherry)
- ethyl propionate (rum)
- ethyl benzoate (fruity)
- benzyl acetate (peach)
- methyl butyrate (apple)
- octyl acetate (orange)
- n-propyl acetate (pear)
- ethyl phenylacetate (honey)