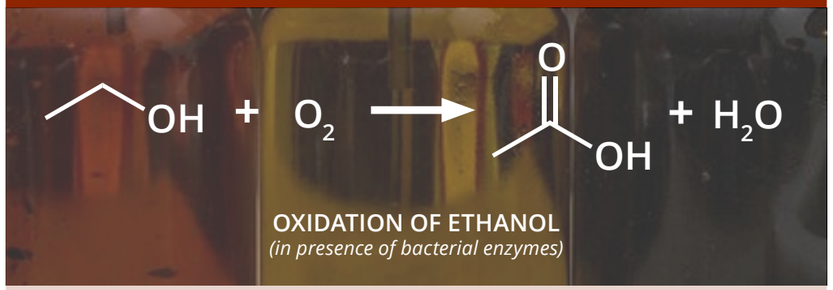
# EVERYDAY CHEMICALS: ACETIC ACID

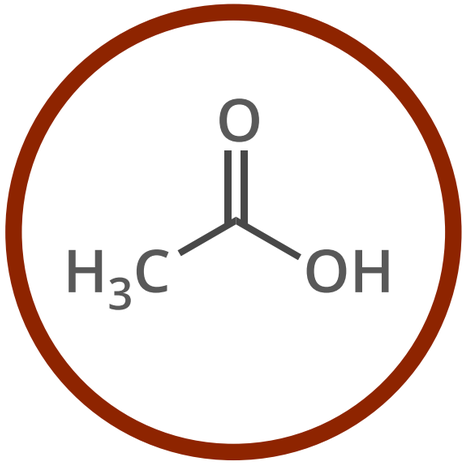
Acetic acid, also referred to as 'ethanoic acid', is well known as the acidic component of vinegar. However, it also has a range of applications, particularly as a precursor to a number of other important substances, outside of its normal household use. Here, we take a look at some of these common applications.

## IN VINEGAR & FOOD




OXIDATION OF ETHANOL
*(in presence of bacterial enzymes)*

Acetic acid is best known for its presence in vinegar, produced by fermentation & oxidation of ethanol. Table vinegar is a solution of 4-8% acetic acid in water. Trace molecules contribute colour and nuances of flavour to different types of vinegars. Acetic acid is also used in foods as an acidity regulator, with the E number E260.

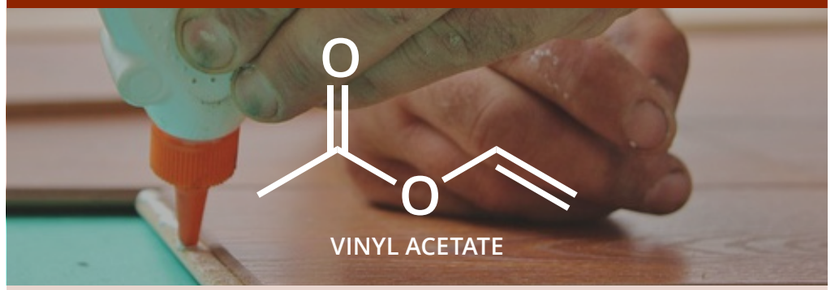



## ACETIC ACID

Colourless liquid

$CH_3COOH$

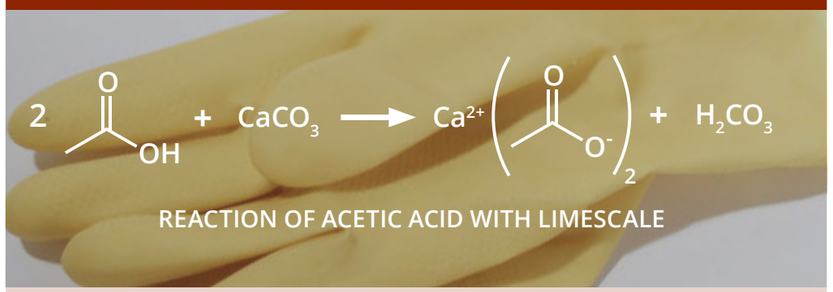
## MAKING GLUE & OTHER CHEMICALS




VINYL ACETATE

Approximately one third of all acetic acid is used in the production of vinyl acetate. Polymerisation of vinyl acetate monomer produces the polymer polyvinyl acetate (PVA), the main component in PVA glue. Acetic acid is also used as a solvent, and as a precursor to photographic film, inks & dyes, and synthetic fibres.

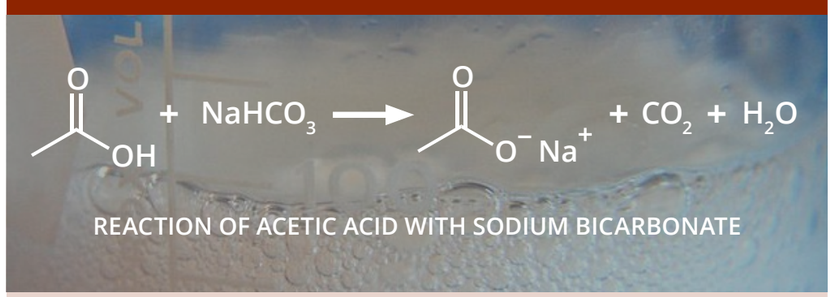
## AS A HOUSEHOLD CLEANER




REACTION OF ACETIC ACID WITH LIMESCALE

Vinegar is often recommended as a household cleaner, for removing smears and streaks from windows and mirrors. It's found in some descalers for removing limescale, as it reacts with the calcium carbonate that limescale is primarily composed of. Studies have also shown acetic acid to have a good antibacterial effect.

## VINEGAR & BICARBONATE VOLCANO




REACTION OF ACETIC ACID WITH SODIUM BICARBONATE

Acetic acid in the form of vinegar can also be used in a common household science experiment. It can be reacted with baking powder (sodium bicarbonate) to produce a volcano-like effect. The acid reacts with the bicarbonate in a neutralisation reaction, which also produces carbon dioxide, causing a frothing effect.