

THE CHEMISTRY OF CIDER



PICKING

Apples are picked, then left to mature for a week



PULPED

The apples are crushed and then pulped



PRESSED

The apple pulp is pressed to extract the juice



FERMENTING

Wild or added yeasts make alcohol from sugars



MATURING

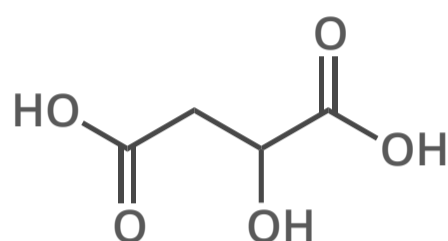
Cider is matured in barrels for several months



BOTTLING

Cider is bottled and ready for drinking

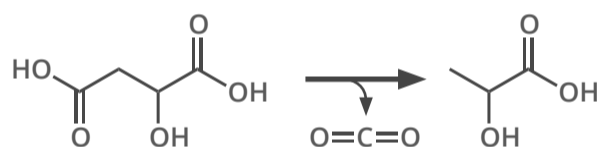
FRUIT ACIDS



MALIC ACID

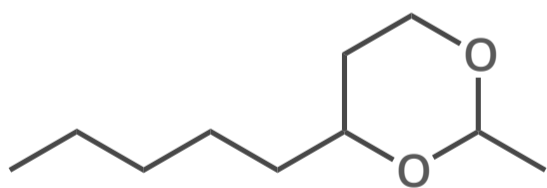
The main acid present in apples is malic acid. During malo-lactic fermentation, this malic acid is converted into lactic acid, and carbon dioxide gas is also produced. This rounds the flavour and reduces the acidity of the cider.

In some cider manufacture, this fermentation is often discouraged. Malic acid can also be added after fermentation to increase acidity.



MALO-LACTIC FERMENTATION

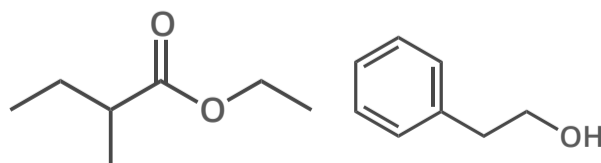
AROMA CHEMICALS



2-METHYL-4-PENTYL-1,3-DIOXANE

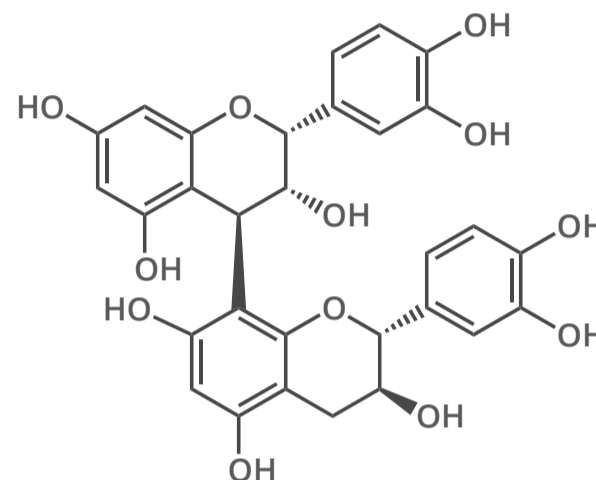
Many compounds contribute to the aroma of cider. 2-methyl-4-pentyl-1,3-dioxane is the most odour active compound, and is generated when acetaldehyde from fermentation reacts with 1,3-octanediol, an alcohol found naturally in apples.

Other contributing compounds include ethyl 2-methylbutanoate, which has a fruity aroma, and 2-phenylethanol, which has a floral aroma.



ETHYL 2-METHYLBUTANOATE (L) & 2-PHENYLETHANOL (R)

TANNINS

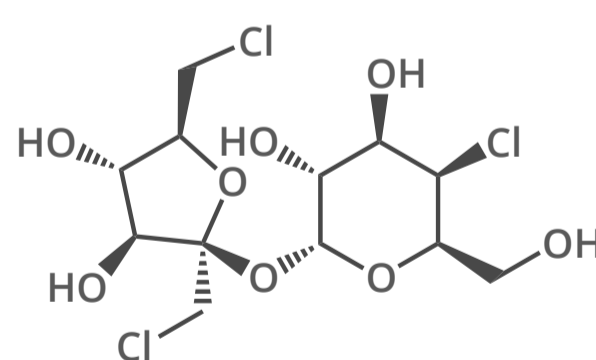


PROCYANIDIN B2

Tannins are naturally occurring polyphenol compounds, well known for their presence in wine, but also found in cider apples. They add an astringency and bitterness to the cider.

Many mainstream ciders have relatively low tannin levels, but more traditional ciders will contain more. Different types of cider apples will contain different levels of tannins.

SWEETENERS



SUCRALOSE (ARTIFICIAL SWEETENER)

All of the sugars contained within apples are fermentable, so ciders are naturally dry if the fermentation goes to completion. They can, however, be 'back-sweetened' to produce a sweeter tasting cider.

Sugar can be used for this, but it can kick-start fermentation again. Some ciders get around this problem by using artificial sweeteners, which are non-fermentable; however, some of these, such as saccharine, leave an aftertaste.

