How is alcohol-free beer made?

COMPOUND INTEREST

Alcohol-free beer

Alcohol-free beer varies in alcohol content, as the definition of "alcohol-free" varies in different countries.

≤0.05% ≤0.5%

Low alcohol beers are also common. In the UK beers with an alcohol percentage above 0.5% but below 1.2% can be termed low alcohol.

Fermentation-free

Brewers can eliminate the alcohol-producing fermentation stage by not adding yeast to the wort. This means that they must add flavour compounds usually produced during fermentation using additives, often resulting in dull flavour.

Dilution

Brewers use extra malt and hops during brewing to produce a concentrated beer.

After fermentation, brewers add water to dilute the beer to the required concentration.

Brewers adjust the acidity of the beer by adding organic acids then carbonate it.

Lactic acid

Dealcoholisation

Brewers can brew beers as normal, then remove the alcohol after. There are several ways of doing this.

Distillation

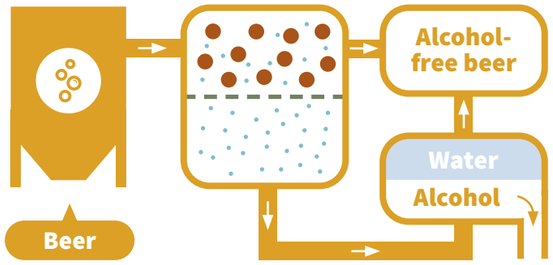
Heating beer removes alcohol which boils at a lower temperature than water. But this also removes flavour. Vacuum distillation reduces the temperature at which alcohol boils, preserving more flavours.

Water — Boils at 100˚C

Ethanol — Boils at 78.4˚C

Membrane filtration

Some brewers use membranes that let water and alcohol through but not flavour compounds. They then add the water back in to the beer.



Limiting fermentation

Other brewers modify fermentation to reduce the alcohol content of the resulting beer.

Special yeasts

Some brewers use particular strains of yeast which cannot ferment maltose, the principal sugar in wort, and produce little alcohol.

Maltose

Cold contact fermentation

Fermentation at low temperature produces little ethanol but does produce some flavour compounds.

Other methods

Other methods include limiting fermentable sugars in wort or removing yeast before too much alcohol has been produced.