



Home Distilling

Legal ways of distilling booze in Germany

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Why consider producing alcohol?

- You don't need it for production of liqueurs.
- You don't need it for production of flavoured neutral spirits, like vodka or gin.
- It's far cheaper to buy high quality booze.
- In actually useful sizes, stills operation is regulated and needs licences (except e.g. NZ).
- It's messy. It stinks. It's gross. Micro organisms ferment stuff.
- It's dangerous. People get blown up regularly.

Types of liquor

LIQUEURS

- Some Gin, some Vodka
- Flavoured Neutral Grain Spirit
- NOT distilled
- LEGAL

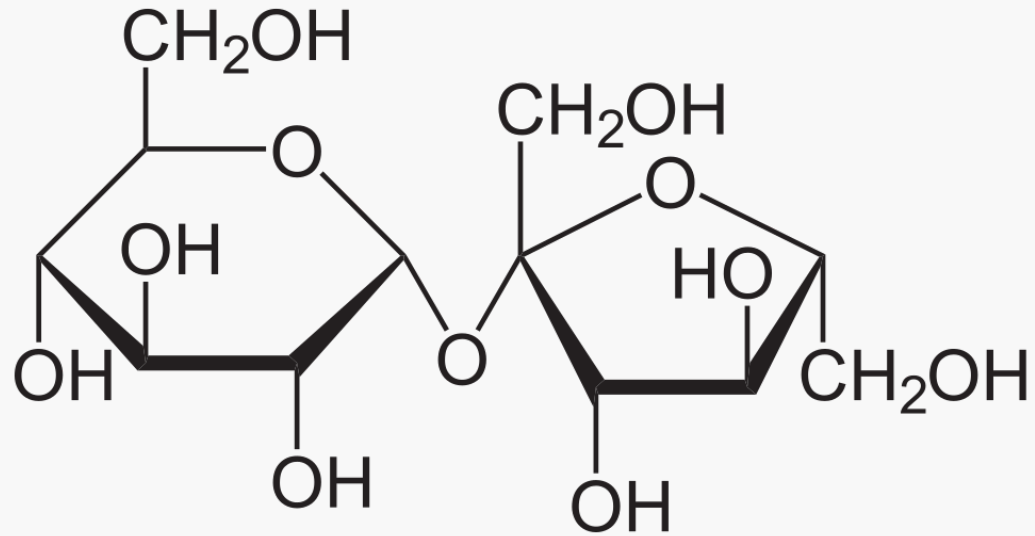
SPIRITS

- most Gin, most Vodka
- Flavoured Neutral Grain Spirit
- Distilled
- LEGAL, with registered still

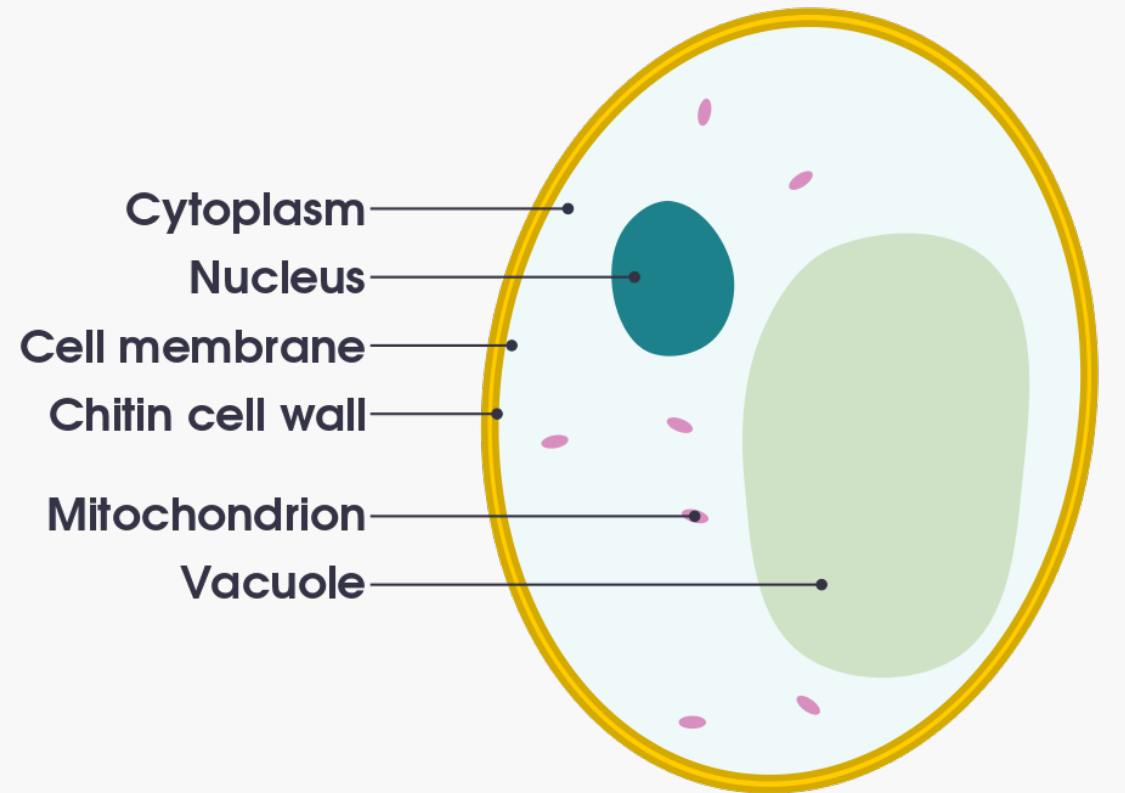
BRANDIES

- Production of alcohol by fermentation
- Distilled
- LICENSE necessary, otherwise
- ILLEGAL

How to produce alcohol



Sugar
(from fruit or grain)



Yeast
(Distillers yeast)

Preparing a mash

- Sugar is what we need: Fruit juice or **smoothie**
- You can't cheat nature: Use **best quality** fruit!
- Start with apples and pears, later stone fruit
- Check your science: **Acidity** between 3 and 3.4
- If over pH 3.4: Use citric acid to lower pH!
- Treat your yeast right: Buy designated **distiller's yeast**, follow instructions!

Fermentation of mash

- Put prepared mash in fermentation tanks
- Add yeast to prepared mash
- Controlled temperature: 15-22 °C
- Check airlock! Carbon dioxide needs to get out, no oxygen should get back in
- Double check airlock (because reasons)
- Ferment for ~two weeks (until no more yeast activity, e.g. bubbles)
- Distill soon after fermentation ends (few days)

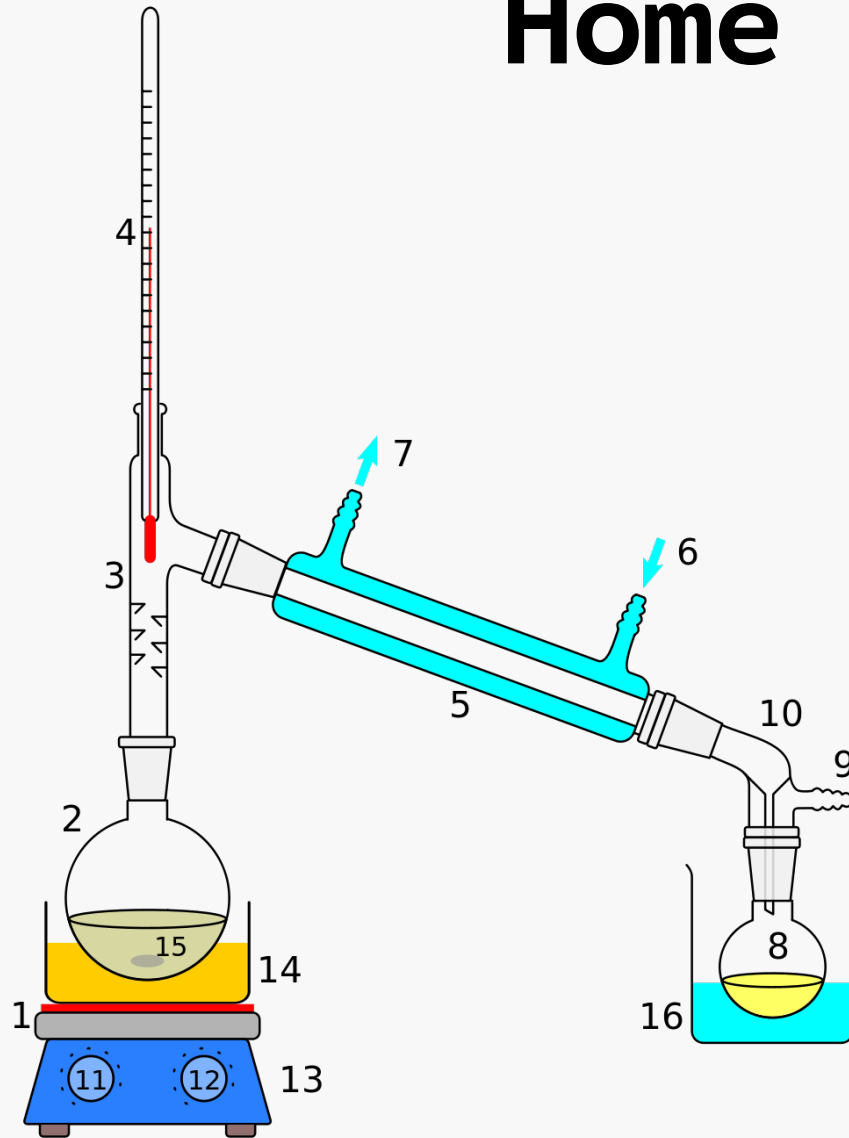


Distillation

- Physical way of separation and concentration
- Boiling point of alcohol < Boiling point of water
- Fill the mash in the still, start heating
- At $\sim 70^{\circ}\text{C}$, alcohol starts to **evaporate**, taking aromatic molecules with it (essential oils, aldehydes, esters, ketones etc.)
- Alcohol vapor **liquifies** at condenser
- Cut off **heads** (slightly toxic, tastes like solvent) and **tails** (tastes foul), keep **hearts**
- Collect hearts and **re-distill** those once



Home Distillation



From 2018 on, ALL home stills are illegal in Germany!

Exception: Stills under the size of 2 litres to produce essential oils or water

Don't buy stills! Vendors are required to report your data.

Go Semi-Pro: Craft Distilling

- From 2018 on, a lot of things change with the
- Introduction of Alkoholsteuergesetz!
- If you fulfill the requirements, a compensation distilling licence **must** be issued to you!
- This is called "**Abfindungsbrennen**" in German
- Now in the whole of Germany (not just South)
- BG: If you're a farmer (even part-time), the state allows you to distill a certain amount of mash if you compensate the tax for it



Abfindungsbrennerei

- 300 litres of pure alcohol (LPA) per year!
- This equals around 1500 bottles (btl.) of product
 $300\text{l} / 0.4 \text{ (40\% vol)} / 0.5 \text{ (l/btl.)} = 1500 \text{ btl.}$
- Allotment: 900 litres LPA within 3 years
- Only fruit or grain, no molasses!
- You need to be a farmer or part-time farmer:
3 hectares of orchard (mixed fruit trees) or
1.5 hectares intensively farmed fruit orchard
- **Cheat code 1:** Rent or lease, within 10 years, and show it once to customs to have license forever!



Cheat Code 2: Jerusalem artichoke or
“Topinambur” could be planted anywhere!

Abfindungsbrennerei (2)

- Have a **clean sheet** in all things regarding taxation! (“Steuerrechtlich einwandfreier Leumund”)
- And have an economical interest in distilling (“wirtschaftliches Bedürfnis”)
- Taxation rate: 10.22 Euros per LPA, calculated on a defined list of fruits and plant materials (“Ausbeutesatz”)
- Example: 3.6 LPA for 100 litres of apple mash

<http://www.kleinbrenner-baden.de/brenner/ausbeutesaetze-fuer-abfindungsbrenner>

Abfindungsbrennerei (3)

- The location of your still is to be accessible to **customs agents** at **all times**
- The location of your still is to be accessible to **food inspectors** at **business hours**
- You need to enter a **professionals association** („Berufsgenossenschaft“) for social and accident insurance, either in agriculture or in food and service („LBG“ or „BGN“)

Safety first!

- Alcoholic vapor is (low grade) **explosive!**
- **Stills will be checked** by technical control board or TÜV, by Berufsgenossenschaft and by customs agents prior to first use
- First and most important safety mechanism: Constantly control the water flow, hence the **functionality, of the condenser**
- Second: Have a good **ventilation** of fresh air, don't put stills or fermenters in cellar
- Third: Use no or only **ATEX-specified** electrical equipment near still (around <1m)

Economics of running a still

- New still from a brand name coppersmith (Adrian, CARL, Holstein, Kothe, Müller, Wengert) sets you back 25-40 kEUR
- Used or refurbished still, 5-20 kEUR
- Buy from Alibaba (seriously?), 2-5 kEUR
- Build one yourself! (No US style still plz :)
- Energy costs: ~15 EUR per 100l mash
- Tax: ~40 EUR alcohol tax per 100l mash
- You will need to charge >20 EUR per bottle to reach a break even, or you cut ye own throat!

How to start

- Don't panic!
- Check online resources at zoll.de
- Call your customs agent, meet with her or him
- Check details on what still you want (to build)
- Officially apply for Abfindungsbrennrecht
- Check with your Berufsgenossenschaft
- Check with your local (organic?) farmers clubs for courses on distilling

Basic Mate liqueur recipe

- 50g Acorus root (“Kalmuswurzel”)
- 24g Coriander seeds
- 15g Mate tea leaves
- 8g Galanga root (“Galgant”, “Thai Ingwer”)
- 2g Cinnamon
- 2g Cardamom seeds
- Mix with 200ml vodka @ 50% vol. for 10 days
- Filter through tea filter, then
- Mix with 1.4l of vodka, 0.5l water, 500g sugar

Cheers !



BLUTWURZ
Ein Rezept, ein Ereignis

Handwritten text on electrical panel: *Handwritten text*

BLUTWURZ
Handwritten text on glass