

## How to brew and bottle beer from kits.

**Stage One:** Instructions for putting your beer or lager on to ferment.

**The process can be summarised into these steps;**

- ☑ **Clean & prepare your equipment and soften the malt extract**
- ☑ **Add malt extract and sugars to the fermenter, stir and add water**
- ☑ **Test temperature, take a hydrometer reading and then pitch the yeast**
- ☑ **Seal fermenting bin with lid and airlock and let it ferment**

First, get all your equipment unpacked and put the kettle on. Read the instructions in your ingredient kit, check to see if you need any additional brewing sugar, if so, use granulated sugar/ a beer enhancer or spray malt. A kit that says it is 'all malt', which more often than not comes in two tins, does not need any additional sugar or enhancer.

Take the paper label from the outside of the malt extract ingredients can and keep it aside. Open the can of malt extract and place it in a container of boiled water to heat for **15 minutes to soften the malt**.

Whilst you're waiting for that, **sterilise your equipment;**

Put two teaspoons of steriliser (known as VWP, steriliser or metabisulphite powder) into your fermenting bin add a little hot water to dissolve the powder and top up to the top of the fermentation bin with cold water.

Then put your airlock, thermometer, hydrometer, spoon and lid - basically all your equipment that comes into contact with your beer into the fermenting bin making sure the sterilising solution covers everything and leave it to **sterilise for 15 minutes**.

After 15 minutes, empty the steriliser solution out (you can siphon the solution into your barrel or bottles now to sterilise them, before you throw the solution away) and thoroughly **rinse** all the sterilised equipment with cold **tap water**.

Now **add the contents of the malt tin into the clean sterilised fermenting bin**. Be careful, it's hot and the edges are sharp, use a cloth to lift it. If your kit requires additional sugar or malt add that in now, and give it a good stir.

Take your kettle of hot water and fill the emptied malt can to let the water rinse out the remains of the malt from the can and add that to the fermenting bin. Fill the can with hot kettle water a second time and add it to the bin, making sure you get all the malt extract out of the can and into your fermenting bin.

Give everything in the bin a really **good stir**, and dissolve all sugar or malt extract. Now top up the fermenting bin to 5 gallons with cold water to the level as indicated by your kit instructions, and stir well again for a couple of minutes – you are aerating your wort here, which assists the fermentation.

Take a **temperature** reading with your thermometer. You want the wort (which is what unfermented beer solution is called) to be around 17-22C. Too hot and you will kill the yeast, so let it cool with the lid on, if necessary.

Take a **hydrometer reading**. A hydrometer tells you the specific gravity or density (SG) of a liquid in respect to water. Water has an SG of 1000. The hydrometer will float in liquid. Put it into your wort and read the number which is level with the surface of the liquid. Write down and keep the reading. Prior to fermentation, your wort is full of sugar and is therefore more dense and the hydrometer will read around 1044 – depending on the kit and the sugars used (check with your kit instructions for SG and FG readings).

There is more detailed info on hydrometers in the hydrometer section, and we will come back to taking your final reading later when you want to check your beer is finished fermenting.

**Pitch the yeast** – These means adding the contents of the yeast sachet to the wort and give it all a good stir.

**Put the lid onto the fermenting bin.** Take the airlock - which is the little clear plastic contraption and fill it two thirds full with tap water, pop the red cap onto it, put the rubber washer (or bung) into the hole in the lid and put the airlock into the hole. The function of the airlock is to allow CO<sub>2</sub> which the yeast will give off whilst fermenting to escape, without letting air into your beer. Air contains germs which can cause your beer to go off.

Keep your fermenting bin somewhere that the temperature is fairly constant, ideally around 20C for beer, but cooler for a lager which prefers around 15C. Hotter, and it may ferment quicker, colder and it will take longer. Too cold and the yeast might stop altogether. Above 30C will probably kill the yeast. A constant is best. A cupboard or room where it can sit undisturbed is ideal. You can buy heat pads to sit the brew onto if necessary.

As the yeast becomes active it will multiply and start to eat the sugars in the wort, alcohol and CO<sub>2</sub> are the by products of fermentation. The CO<sub>2</sub> comes out through the airlock, so you should see air bubbling through the water in the airlock as your beer ferments. After the first few hours it will bubble quite violently, it will slow down as the yeast eats up the sugars and the alcohol produced will start to kill off the yeast. The top of the beer should also become covered in a foamy substance (a yeast head), which forms a barrier between the beer and the outside air. Dead yeast will sink to the bottom as a sediment.

Refer to your own kit for instructions on fermentation times, as they do differ by beer style.

After which time, you should find the airlock stops bubbling. If you haven't seen bubbles in 8 hours, this generally means fermentation is complete.

Now **take another hydrometer reading.** The temperature of your beer should be around 20C for an accurate hydrometer reading, if it is vastly different you will need to adjust the hydrometer reading. See the section on hydrometers for this. The yeast should have eaten all the sugar whilst fermenting, and this makes the liquid thinner, which means the hydrometer will float lower than it did at the start of fermentation, and **a finished beer or lager should give a FG (final gravity) reading of about 1006**, but again, refer to your kit for specific readings for each beer. You can use the before and after reading to work out the alcohol by vol. content of your beer – see the section on hydrometers.

If you have a reading of around 1006, and the airlock hasn't bubbled in 8 hours, it's fairly safe to assume **your beer is ready to bottle or put into a barrel.** However, if you are not sure, put the lid back on the fermenter and come back to it in 24 hours, take another hydrometer reading, and if it is exactly the same as the day before, the fermentation is complete, if not, leave it another couple of days and repeat the reading process until you get two hydrometer readings the same. Once you have completed the initial fermentation, your beer or lager is ready to bottle (or keg in a pressure barrel.)

Note there are slightly different instructions to beers such as Brewers Choice kits which contain dried spray malts (not liquid) and have a hop and grain sachets which need pre soaking – follow the instructions on your kit, but the fermentation and bottling advice here is the same.

Your kit may also have a hop sachet for you to add your own aroma hops – add as per your kits instructions.

At any point – if you aren't sure and you have read this guide and the instructions on the kit and want more advice, please get in touch, we're happy to go through it with you by phone or email. Call any of our staff at Brewstore (we all brew) or email [shop@brewstore.co.uk](mailto:shop@brewstore.co.uk)

**Stage two:** Instructions for bottling or barrelling your fermented beer/lager;

**The bottling process is as follows;**

- ☑ **Clean and sterilise your bottling / siphon equipment or barrel**
- ☑ **Prepare your bottles or barrel with priming sugar**
- ☑ **Siphon your beer from the fermentation bin**
- ☑ **Cap the bottles or seal the barrel**
- ☑ **Leave to secondary ferment / condition the beer**

Sterilise your siphon and bottling equipment or barrel- use two teaspoons of steriliser, add some hot water to dissolve the powder, fill a vessel with cold water, enough to fill all the bottles or inside of the barrel. Sterilise for 15 minutes and then rinse with cold water.

If you are **reusing old bottles, wash them first** before sterilising them, and sterilise them overnight. Never use cracked or chipped glass bottles. If using plastic bottles, only ever use those which are designed for the purpose which have previously contained carbonated liquids in them. Most experienced brewers prefer coloured glass as it is the best for protecting your beer from sunlight which can affect the flavour of the beer. It is not a big problem if you use clear ones, just don't leave the beer lying around uncovered in the daylight.

Your beer or lager has finished primary fermentation, and you are now going to make use of the little bit of yeast that will remain from the fermentation process in the beer to carbonate your beer.

If you are using a barrel, it is a good idea to check the tap is on correctly and that it is closed when it is filled with steriliser before you fill it with beer!

Place your fermenting bin onto a surface above the height of your barrel, or bottles but where you can still reach into it to place the siphon tube in. If your siphon tube has a U bend, extend the hard plastic tube (the U-bend) till it's long enough to reach the bottom of the fermentation bin just above the sediment layer, and the tube comes out over the top. The little plastic foot of the U bend should sit onto the bottom of the fermentation bin, but **try not to disturb any sediment** at the bottom which is made up of dead yeast and proteins from the fermentation. (If you don't have a U bend, try to position your siphon just above the sediment). The foot acts as a cap on the bottom of the plastic tube to stop you siphoning up the sediment whilst siphoning out the beer. If whilst moving your fermenting bin about you have disturbed the sediment, let it settle again before siphoning. Your siphon tube may also have a hygiene straw to attach to the other end of the tubing, use this to put into your mouth when drawing the liquid into the tube. You may also have a clip on the tube which helps control the flow. Suck the beer through the tubing and siphon into your bottles or barrel. If you have an auto syphon, follow the instructions, but basically you pump the tube.

Once you have siphoned the contents of the fermenting bin into your bottles or barrel, leaving the sediment layer behind:

Add a **level teaspoon of granulated sugar per pint of beer (check your kit instructions– quantities may vary depending on the beer style, some kits have their own bag of priming sugar)** to each bottle or the barrel.

Use a **crown capper** to put crown caps onto your glass bottles. You can also use flip top/swing tops bottles or plastic bottles with screw caps. Never bottle carbonated drinks in bottles not designed for carbonated drink (ie wine bottles).

When you have filled your barrel, screw the lid onto the top and place the barrel ideally somewhere you won't have to move it from again, and can let the beer condition and then serve it from, without disturbing any sediment. You will need to be able to reach the top of the barrel to use the CO2 bulbs or canister when you need to re pressurise the barrel, and if it has a tap at the bottom, you'll need clearance to get your glass under the tap.

You are now going to **Carbonate and then Condition your beer**. This is the time in the bottle or barrel which allows the yeast a secondary fermentation to carbonate the contents, and the flavours to develop and mature.

For the first week of conditioning, keep the bottles or barrel somewhere warm for the first week to 10 days to let the fermentation happen and the beer to carbonate.

For the next week move the bottles to somewhere cooler to allow the beer to clear. After that - store it anywhere it is convenient for you, it should be fizzy and clear at this point. It's ready to drink now, but it will improve in flavour if you can leave it for a month in total. (Longer for some Belgian beers – check the instructions on your kit.) Bottled beers keep for a couple of years, beers in a barrel keep for a few months, but once you have started to pour from the barrel you have introduced air, and this means the beer will only be good for a month or so after 'opening' the barrel.

Clean your fermenting bin and equipment as soon as they are emptied. Dried sediment is unhygienic and difficult to clean. Never scour your brewing equipment, scratches harbour germs.

If you have stubborn deposits a good soak in VWP will clean and sterilise. All sterilisers need to be well rinsed off in cold water, with the exception of those which specify that they are no rinse such as Chemipro.

If storing your beer in a barrel, you will find the pressure will be high immediately after conditioning but as you pour it about half way down, the pressure inside the barrel will start to fall. Use the CO2 bulbs with the holder or a CO2 refillable canister to re pressurise the barrel as required, increasing the pressure inside to help the beer pour more easily. Your barrel has a pressure release valve, so it can't be over gassed. If using a big CO2 canister a few short burst of gas will do, the small gas bulbs are disposable, the contents of one is enough to re pressurise a barrel.

Bottled beers are more portable and easier to chill and store over time, but there is a bit more work in the bottling process. You may get a little sediment at the bottom of each bottle, this is natural in a bottle conditioned real ale or lager. Store the bottle upright to let it settle to the bottom.

You may find as you brew again you prefer some beers bottled, and others kegged. To maintain your supply of quality homebrewed beer, you should aim to have a beer fermenting, whilst one is conditioning and another one in bottles or a barrel for drinking.

We hope you enjoy your beer.

If after reading this guide you still aren't sure or have unanswered questions, we are happy to go over it with you on the phone or by email. Call Brewstore (we all brew) T: 0131 667 1296, or email : [shop@brewstore.co.uk](mailto:shop@brewstore.co.uk)