

Coopers

MICRO•BREW KIT



INSTRUCTIONS



Congratulations on purchasing your own Coopers Brewery Micro-Brew Kit!

You will now be able to brew your own high quality, completely natural, great tasting beers in the tradition of Thomas Cooper, our Brewery's founder.

Enjoy the satisfaction of creating your own special beer variety, free from additives and preservatives. You choose the flavour (from our range of varieties) and you control the outcome. We hope this is the beginning of years of pleasure as you discover the joys of micro-brewing.

Thank you once again for your purchase and from us here at Coopers Brewery, "welcome to the world of brewing"!
Cheers!!

A handwritten signature in black ink that reads "Cooper".

Tim Cooper
Master Brewer

Please read all of this instruction booklet thoroughly before starting your brew. By strictly following the instructions success is guaranteed.

**Contact us on our Home Brew Hotline
1300 654 455 (Australia only)
or visit our Website - www.coopers.com.au**

ABOUT THE CONTENTS



Airlock and Rubber Grommet

The rubber grommet fits in the hole in the lid of the fermenter and holds the airlock in place. The airlock is half filled with water and allows CO₂ (formed during fermentation) to escape whilst preventing any outside contaminants from entering.



Plastic Fermenter and Lid

Your beer will be brewed in this fermenter. It is specially designed to ensure an airtight seal with the lid fitted.

Adhesive Thermometer Strip

The middle of the three illuminated numbers indicates the current temperature in °C. Affix the strip midway up the outer wall of the fermenter (the yeast does it's work in the middle of the brew).

Plastic Tap and Sediment Reducer:

The sediment reducer is made of white plastic and looks like a top hat with a slot cut in it. The sediment reducer is fitted to the threaded end of the tap. Then the tap is screwed into the fermenter. The sediment reducer draws liquid from the top minimising the amount of yeast sediment transferred when filling your bottles.





Little Bottler

This is used to assist you when filling the bottles. It contains a valve which allows you to fill bottles quickly without having to continuously turn the tap on and off.

Bottles and Caps

30 x 740ml reusable PET with screw on caps for storing your beer.



Carbonation Drops

Used to give an accurate dosage of sugar required to prime the bottles for secondary fermentation.

Use 1 for 345-375ml and 2 for 740-750ml bottles.



Brewing Sugar

Specifically designed to use with Coopers concentrates, Brewing Sugar is readily available in retail stores.

Coopers Lager Concentrate

This contains 100% pure natural ingredients (finest two row barley malt and specially selected hops). The style is a light coloured beer with subtle hop aroma. One can will make 23 litres of beer.



Hydrometer

Used for checking the progress of fermentation. Has a graduated scale for measuring the specific gravity (density) of your brew. Brewers ignore the decimal point so a reading of 1.040 is said to be 1040.

1. MIX

CLEANING

A major cause of failure when brewing is infection due to poor cleaning or sanitising.

All equipment that will come in contact with your beer must firstly be cleaned then sanitised.

Avoid any forms of detergent or soap.



To clean:

- Soak equipment in water until caked on residue is softened.
- Remove residue with a soft cloth and rinse thoroughly.
- Pay attention to 'hard to get at' areas such as the tap thread.

NOTE: Do not use any cleaning aid that may scratch the plastic.

To sanitise:

- Place $\frac{1}{2}$ cup of unscented household bleach in fermenter.
- Fill with cool water.
- Place all equipment in fermenter and let soak for at least $\frac{1}{2}$ hour.
- Rinse with hot water to remove all traces of chlorine smell.
- The fermenter lid need only be cleaned then rinsed with hot water.

PREPARING THE MALT

Take your can of Coopers Lager and remove the plastic lid, instructions and yeast sachet. Place the can inverted in a sink (or bucket) of hot water for 10 minutes. (This will allow the contents to soften and pour more easily).



MIXING



ADDING THE YEAST

Check the temperature on the adhesive thermometer and ensure that it is between 21°C-27°C. Open the yeast sachet and sprinkle the yeast evenly over the wort surface. Seal immediately.

NOTE: The supplied yeast can ferment at 18°C-32°C. However, the yeast will perform at it's best when the temperature is between 21°C-27°C. If the temperature is allowed to drop too low fermentation activity will stop.

Using a can opener, open the can of Coopers Lager from the bottom and pour contents into fermenter. Rinse out residual concentrate with some warm to hot water. Then add 1 kg of Brewing Sugar and 2 litres of boiling water. Stir until thoroughly mixed. Place the fermenter in a raised position, to make bottling easier (see page 9), in an area which will maintain the temperature at 21°C-27°C.

Note: When filled the fermenter is heavy and awkward to move. Fill the fermenter with cold tap water to the 23 litre mark and mix. (If water quality is in doubt use cooled boiled water. See page 10). You now have wort (pronounced wurt).



SEALING

Screw the lid on loosely being careful not to cross thread (run a finger around the gap between the lid and fermenter to check it is secured squarely). Insert the airlock through the grommet in the lid (wetting the airlock with boiled water may assist with insertion). Pour some cooled boiled water into the airlock until the bulbs are half full (see photo page2).



CORRECT



INCORRECT

To check for a good seal, push the sides of the fermenter until the airlock bubbles and causes a different water level in each bulb. Observe the bulbs maintain a different water level for at least 30 seconds. If not, tighten the lid and repeat the process (do not over tighten). A food safe lubricant (not petroleum based) may be applied to the 'O' ring to assist with sealing.

2. BREW

After several hours the airlock will begin to bubble, confirming that fermentation has begun. The brew will continue to bubble, slowing down towards the end of fermentation. Provided the temperature is kept between 21°C-27°C, fermentation will be complete in 4-7 days.

MEASURING SPECIFIC GRAVITY

To check if your beer is ready to bottle, use your hydrometer to measure the specific gravity of the beer by carefully drawing some brew from the tap, filling the tube with enough beer to make the hydrometer float. Read on the graduated scale where it cuts the level of the fluid. As the fermentation progresses the brew becomes less dense and the hydrometer will sink lower into the tube. When ready, the final reading should be between 1008-1010 when using the Coopers Brewing sugar provided in this kit.



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NOTE: Use of the hydrometer is the only reliable way to ensure that the wort is fully fermented before bottling.

3. BOTTLE

WASHING THE BOTTLES

The bottles supplied in the kit do not require cleaning before the first use. Just rinse with cooled, boiled water. To reuse bottles rinse out immediately after emptying and leave to drain. You may wish to sanitise with a capful of unscented household bleach, topped up with cool water for at least 1 hour. Rinse with cool water to remove any trace of chlorine smell.



Note: Do not use boiling or hot water on PET bottles as this will damage the bottles.

PRIMING

Add carbonation drops to prime the bottles for secondary fermentation. Use 1 drop for 345-375ml and 2 drops for 740-750ml bottles.



FILLING



Connect the little bottler directly to the tap. Place the bottles over the little bottler. Touching the base of the bottle will open the valve and begin to fill the bottle. Fill the bottle to within 50mm (2") from the top (foam can be minimised by turning the tap off slightly to reduce the flow rate). Continue to fill the rest of the bottles until the fermenter is almost empty (approx 25mm (1") from the bottom). The remaining liquid contains thick yeast sediment and can be discarded.

CAPPING

Use the screw on caps supplied in the kit to seal the bottles. After sealing, invert the bottle 4 times to mix the priming sugar and beer. Continue to seal and invert all of the bottles.

4. ENJOY

Store your bottles upright in an area with a temperature between 21°C-27°C for 7 days. After 7 days your bottles can be stored at room temperature for at least another 7 days.

After 14 days, you may want to try your beer. Storing (conditioning) your beer beyond two weeks and up to at least three months should see the flavour improve, the bubbles reduce in size and the yeast deposit becomes more compact.

Congratulations, you can now sit back and enjoy your own full flavoured, completely natural beer!



HELPFUL HINTS

WATER QUALITY

You will need 22 litres of water for each brew. Generally speaking, tap water is quite acceptable for micro-brewing, however if your water is highly chlorinated or has a strong taste, you may wish to boil it before beginning or alternatively use filtered or bottled (spring) water.

OBTAINING CORRECT TEMPERATURE BEFORE ADDING THE YEAST

The ratio of 2 litres boiling water to 20 litres cold water is suggested to achieve a recommended starting temperature of 21°C-27°C. However, in a warm to hot climate it may be necessary to reduce the boiling water to a ratio of 1 litre boiling water to 21 litres cold water. In a cold climate the ratio could be 4 litres boiling water to 18 litres cold water. If you are unsure of the quantities of hot and cold water required try filling the fermenter with hot and cold water minus the ingredients to get a feel for what is needed to achieve 21°C-27°C.

TEMPERATURE CONTROL DURING FERMENTATION

The most common cause of home brewing failure is poor temperature control. Exposing the fermenting brew to temperatures outside the recommended range of 21°C-27°C increases the risk of infection and off taste. Some techniques for controlling temperature are; hot box (box with a low wattage light globe attached inside), heat pad, heat belt, immersion heater, insulate fermenter, place fermenter near a storage hot water system, place in a disused fridge, etc.

USING A HYDROMETER

A hydrometer is a simple instrument used to measure the specific gravity (density) of the wort. The top part of the hydrometer consists of a graduated scale showing the specific gravity (S.G.). Microbrew worts usually have a starting or "original" gravity (OG) of between 1021 and 1040, depending on the quantity of fermentable sugars added (1kg of added sugar will give an OG of approximately 1040).

As fermentation proceeds the S.G. of the wort falls. When the S.G. stops falling then fermentation has ceased. This is called the "final" gravity (FG) and should be between 1003-1006 (using household sugar) or 1008-1010 (using Coopers Brewing sugar).

Measuring the S.G. is a good method of telling you what is going on in your wort, and also exactly when to bottle your beer.

PRIMING THE BREW

Rather than individually priming each bottle you may prefer to transfer the wort to another large, sanitised container. Then dissolve 180g of sugar in hot water, add it to the wort, stir for 30 seconds and then begin bottling. Ensure that the 180g is measured accurately so that no extra sugar is added.

NOTE: Do not exceed the recommended dosage of priming sugars when bottling as this may cause over carbonation and exploding glass bottles.

DETERMINING ALCOHOLIC STRENGTH

By modifying the amount of sugar used in the initial fermentation the final strength of the beer can be adjusted as follows:

*Grams of sugar added for **approximate** Final Alcoholic Strength*

1,000	4.6-4.9%
750	4.2-4.5%
500	3.7-4.0%
250	3.2-3.5% (recommended as a minimum to aid fermentation)

Formula: $\frac{OG - FG}{7.46} + 0.5$ for priming = % alcohol

Eg. $\frac{1040 - 1006}{7.46} + 0.5 = 5.1\%$

BOTTLES

Glass bottles may be used as an alternative to PET. If using glass ensure that the bottles are suitable for refilling and are in good condition. New bottles are available in home brew specialist shops and department stores.

CONDITIONING AND STORAGE

After 14 days your beer is ready to drink. However you may prefer to store it in a cool area to continue conditioning. After 3 months the bubbles will become finer and the taste will improve significantly.

CONSUMPTION

The secondary fermentation in the bottle (which naturally carbonates the beer) results in a fine yeast sediment remaining in the bottle. This sediment is completely natural and gives the beer its characteristic cloudy appearance. If you prefer your beer to be as clear as possible, we recommend storing the bottles upright in the refrigerator and serving at a temperature of 4-8°C, pouring the bottle carefully so that sediment remains at the base of the bottle.

Cloudy beer enthusiasts may choose to rotate the bottle gently before opening to mix the yeast deposit through the beer.

COMMON PROBLEMS

FLAT BEER

- Not enough priming sugar added to the bottles
- Storing bottles at low temperature will not allow secondary fermentation to take place. As indicated on our instructions, bottles should be stored between 21°C and 27°C for 7 days.
- Faulty bottle seals.

POOR HEAD RETENTION

Most common causes of this problem are:

- Polluted glassware (detergent, greasy foods, etc.) is by far the most common cause.
- Residual sterilent/detergent in the bottle.
- High alcohol content. This could occur if more than 1kg of ordinary sugar has been added to the wort thus thinning the final beer.
- Excessive yeast in the bottle.
- Flat beer (see above).

GASSY BEER/EXPLODING BOTTLES

Most common causes of this problem are:

- **Too much priming sugar added to the bottle.** The amount added should be 3g per 345-375ml and 6g per 740-750ml bottle. It is extremely important that the sugar is measured accurately. This can be achieved using the carbonation drops contained in this kit. If using the sugar adding method outlined in "Helpful Hints", it is important to use accurate scales when measuring the 180g.
- **The beer did not fully ferment out before bottling.** In this situation unfermented sugars are carried over into the bottle and when combined with the priming sugar (already added to the bottle), excess gas is produced. If the gas pressure is high enough glass bottles will explode. (This is a very dangerous situation which can cause injury). Check the brew with the hydrometer to ensure fermentation is complete.
- **The brew has become infected.** When this occurs the beer is likely to become over gassed. (See "Beer has sour/bitter taste" section page 14).

NO ACTIVITY THROUGH THE AIRLOCK

There are two possible causes for this:

- **The lid and/or the airlock grommet are not adequately sealing the fermenter.** Often it is incorrectly assumed that fermentation is not occurring because there is no bubbling activity through the airlock when, in fact, the brew is fermenting and CO₂ gas is escaping via a poorly sealed lid or airlock (see page 7 for achieving a good seal). Other indicators that fermentation has commenced are; condensation inside the lid, sediment in the base of the fermenter and a scum ring on the fermenter wall above the wort.
- **See "Fermentation fails to commence" (p. 14)**

FERMENTATION FAILS TO COMMENCE

This is generally brought about by one of two things.

- **Wort too cold when the yeast is pitched** or if it is allowed to get too cold, it may start and stop or not start at all. It may be aroused by stirring with a sanitised spoon and standing it in hot water. Moving the fermenter to a warmer place also helps. The yeast sachet should be stored in a cool, dry place before being used.

- **Pitched yeast has expired best before date.** Pitch another sachet of fresh yeast.

BEER HAS A SOUR/BITTER TASTE AND “OFF” SMELL

This is a sign your beer is infected. There are a number of factors which can cause a brew to become infected.

Some of the more common causes are:

- Whilst the use of a scouring pad, stiff brush etc. may greatly assist in removing the sediment from the inside surface of a plastic fermenter, such items do leave minute scratches on the walls. Although these scratches may appear to be insignificant they do create an ideal place for bacteria to harbour, thereby increasing the chance of the brew becoming infected. The inside of the fermenter should only be cleaned with a soft cloth, and the caked on residue soaked off rather than scrubbed.

- Once the brew has been mixed, ie. concentrate/water/sugar, there should not be any delay in adding the yeast. Often brewers use too much hot water and then wait for the wort temperature to fall below 27°C to pitch the yeast. 21°C-27°C is the recommended optimum temperature range. However, if the initial temperature is between 18°C-32°C pitch the yeast. The longer this is delayed the more likely the brew will become infected.



COOPERS BREWERY
Traditional brewers of fine ales and stouts
for five generations

When Thomas Cooper first began brewing
his now-famous ale in 1862,

South Australia was only 26 years old.
His exceptional talents soon found him
producing the world-renowned
Coopers Sparkling Ale
and Coopers Best Extra Stout
for a growing band of customers.

Thomas Cooper delivered
direct to his customers' homes,
a tradition that continued until the 1920's.

Coopers Brewery, still controlled
by the Cooper Family, continues to supply
fine ales and stouts to its customers
throughout the world.

Today, Coopers Brewing Kits
allow brewers the world over to brew
beer in the Thomas Cooper tradition.