

INSTRUCTION MANUAL

essencia *EXPRESS*

COPPER REFLUX AND POT STILL KIT
WB 50-A

PRO-GRADE 2" TRICLAMP

EXPANDABLE

FAST 3.5 HOUR BATCH

94% ABV PURITY

96% YIELD

LARGE 5-50L BOILER

2 IN 1

ALL COPPER/SS CONSTRUCTION

FLEXIBLE WATER FLOW

DUAL THERMOMETER

50L 2KW 304 SS BOILER

THERMOSTAT

UPGRADABLE TRICLAMP FITTINGS

NZ-MADE CONDENSER



This kit contains 100% copper NZ-made Express Reflux/pot Condenser, SS 2" tri-clamp lid adapter and nut, 3m food-grade silicone tubing, medical-grade tee, digital thermometer, black silicone stopper, Essencia dial head thermometer, 50cm tri-clamp copper column, 3x Essencia Condenser Packing Sets, 2KW-50L 220-240V boiler and tap in 304 SS with 30-110C thermostat and auto-cut-out, domed SS lid with 47mm hole.

THE *essencia* EXPRESS

COPPER REFLUX & POT STILL

CONGRATULATIONS ON YOUR PURCHASE !

Firstly, congratulations on purchasing the wonderful Essencia Express Copper Reflux & Pot Still. You now have a world of distilling at your fingertips. From simple, fast, reflux distillation of sugar washes, through to multiple pot-distillations of grain mashes, your Essencia still will be there for you for many years to come.

You made a wise choice in purchasing the Essencia system. We have been making home distilling equipment and supplies for over 20 years. Why is the Essencia system so much better than others on the market? Here are a few reasons:

- New Zealand owned and operated, so you receive personal care from our dedicated and experienced team
- Hand-engineered, high-performance copper condenser made in Christchurch in a workshop that makes high-end jet engine parts. This condenser is based on the original design that distillers have used for over 20 years already. It is virtually indestructible.
- The condenser is all copper. No cheap plastic parts to break.
- We have improved the system to use 2" tri-clamp fittings to bring more flexibility and accessory options to the home distiller. Like the 50cm copper extension, the Botanical Sight Glass, and more.
- Quality 50L 2KW boiler with automatic safety cut-out, 306 stainless construction and stainless steel tap.
- Thermostat so your boiler can be controlled during heat-up, plus it can be used as a mash tun or sparge water heater for brewing beer.

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ASSEMBLY: REFLUX-MODE

ASSEMBLY

1. Pack the Essencia Express Condenser with one set of packing (3 units). Pack the Essencia 50cm Copper Extension evenly with two Essencia Condenser Packing Sets (6 units).

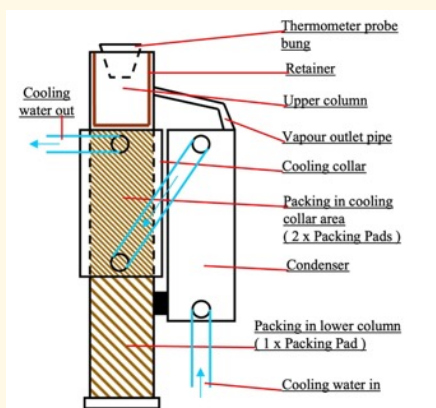


2. Fit the Tri-clamp Lid Adapter to the domed lid ensuring the silicon gasket sits between the column and the top surface of the lid and the large white PTFE gasket fits with the nut on the underside of the lid. Tighten until a good seal is achieved.



REFLUX-MODE ASSEMBLY

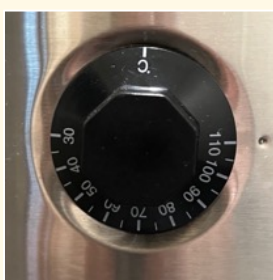
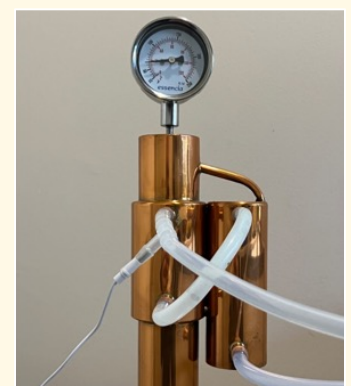
1. Fit the Essencia 50cm Copper Extension to the adapter using a tri-clamp and gasket.
2. Fit the Essencia Express Condenser (with packing as below) to the extension using the tri-clamp and silicone gasket, ensuring a good seal. For best results only use Essencia Condenser Packing Sets 105120



INSTRUCTIONS: REFLUX-MODE

REFLUX DISTILLATION

1. Make sure the tap on the boiler is closed. Pour the fully fermented wash into the boiler leaving the sediment in the fermenter. The timings are for a 25L wash (45L wash in brackets). Do not fill higher than 45L.
2. Add one capful (45L: two caps full) of Essencia Foam Stop to the wash in the boiler to prevent boil through.
3. Fit the lid and condenser unit with all four clamps, ensuring it is placed evenly and there is a good seal.
4. Fit the bung, with the thermometer probe inserted, firmly into the top of the reflux column.
5. Cut silicone tubing into four pieces. One approx. 20cm for the diagonal condenser connection. Another for spirits-out. And two long pieces to reach the tap and the drain for cooling water in and out.
6. Fit the tee of the cooling water thermometer into the end of the water outflow tubing, and connect this end to the condenser water outlet.
7. Plug in the boiler, and set the thermostat to 85°C. Switch the 2000 Watt element to the on position. The green light will show and the red light will be off. During heating, the head temperature (measured by the dial thermometer) will remain at about room temperature.



INSTRUCTIONS: REFLUX-MODE

REFLUX DISTILLATION

- 50 minutes (45L: 1hr, 50min) later, turn the thermostat to maximum, 110°C and start running the cooling water at a rate of about 1 litre per minute.

The cooling water must be running before the boiler gets up to temperature.

- Within about 10 more minutes, the head temperature will rise rapidly and the distillate will start to flow.
- Adjust the flow rate so that the **cooling water thermometer reads between 35 – 45° Celcius**. When adjusting the cooling water, make the adjustments small, and allow 45 seconds between adjustments to allow the system to re-settle. To achieve 35 – 45° C, flow rates will vary depending on tap water temperature.



It is very important that the distillate collection tube remains above the level of the collected distillate, and flow down from the condenser. Never let the distillate collection tube become immersed in the collected distillate.

Tap water temperature	Cooling water flow rate	Cooling water-out temperature
13°C	650 – 850 ml per minute	35 – 45° Celcius
17°C	850 – 1,000 ml per minute	35 – 45° Celcius
20°C	1 L – 1.4 L per minute	35 – 45° Celcius
25°C	1.4 – 1.8 L per minute	35 – 45° Celcius
30°C	1.8 – 2.2 L per minute	35 – 45° Celcius

INSTRUCTIONS: REFLUX-MODE

REFLUX DISTILLATION

11. **Collect and discard the first 50 - 100 ml of distillate.** This is known as the 'foreshots' and is not drinkable as it contains congeners, some of which may be harmful. **It must be discarded.**
12. Once the foreshots have been removed, collect the distillate in a container which is large enough to hold the expected quantity (generally a 5L jug is ideal).
13. Now, re-check your cooling water flow rate to keep the water-out temperature between 35-45 ° C. The Essencia Express Still allows for water flow fluctuations due to household water pressure changes.

During distillation, check your water flow every 30 minutes or so to ensure the water-out temperature remains at 35 – 45°C.

14. Throughout most of the collecting period the head thermometer dial should be reading 65 – 75° Celcius.
15. Towards the end of the collection process the temperature may rise from around 70 °C towards 85°C, the distillate flow will slow dramatically and the alcohol strength will fall. Once the flow becomes a slow drip (approx. 2 per second) you will have collected almost all the alcohol from your wash. This takes around 3 to 3½ hours (45L 5-6hrs). Turn off the still ensuring first that the end of the distillate collection tube is not immersed in the collected distillate.
16. You should now have collected 3.5 – 4.5L (45L: 6.5 – 7.5L) of distillate at 90 - 94% ABV.

NOTE: If you want the highest quality drinking alcohol it is recommended you use **Essencia Super 6 Yeast**. This yeast produces virtually no volatiles during fermentation so distilled product is much cleaner than common 'turbo' yeasts.



INSTRUCTIONS: REFLUX-MODE

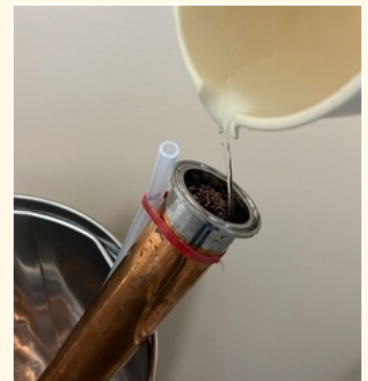
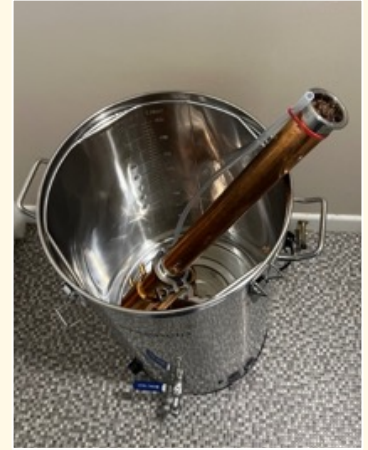
CLEANING

Your Essencia Express Still should be cleaned regularly.

After running the still, turn off the boiler and wait for it to cool. Empty the boiler directly into a sink or tub. Rinse out the boiler with water only. Do not use detergents.

Clean the copper column and condenser whilst still connected.

1. Fit the solid bung firmly into the top of the condenser where the thermometer bung goes.
2. Place the condenser/reflux column upside down into the top of the empty boiler. Ensure the distillate collection tube is attached and its end is lifted above the condenser as shown. A rubber band can be used to keep it in place.
3. Dissolve two teaspoons of citric acid in about 1.5L of hot water. Pour this into the up-turned base of the reflux column until full..
4. Leave soaking for around 20 minutes.
5. Remove the bung and allow the citric acid solution to drain into the boiler.
6. Flush the reflux column and packing thoroughly with cold water. Also flush water through the distillate collection tube using the tap or a jug of cold water.
7. Empty the citric acid solution from the boiler and rinse out the boiler thoroughly.

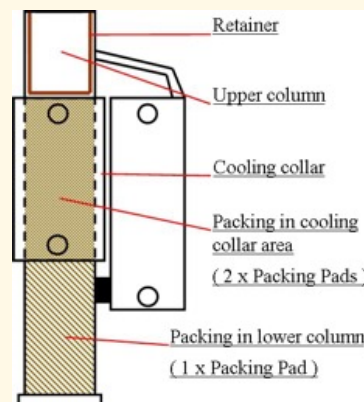


INSTRUCTIONS: REFLUX-MODE

REPLACING THE CONDENSER PACKING

The packing will need to be replaced periodically as it does wear out and become less efficient. New Essencia Condenser Packing Sets are available from your specialist home brew store.

1. Remove the column from the lid.
2. Remove the three packing pads through the bottom of the column. Use a large screwdriver or similar tool through the bung hole to push the top two packing pads down.
3. Holding the column upside down, make sure the retainer is in place at the top of the column. Fit the first packing pad through the bottom of the column. Using the handle of a hammer or similar, compact this pad up the column and pack it firmly against the retainer.
4. Fit the second pad and compact it also, so that it is level with the bottom edge of the cooling collar.
5. Fit the third pad into the lower column but **do not compact** this pad.
6. Check that the packing at the top of the column is level with the top edge of the cooling collar.



REPLACING THE 50CM COPPER EXTENSION PACKING

The 50cm copper extension creates additional refluxing to further purify your spirit. Pack it with 6 pads (2 x sets). Push the first pad almost into the middle of the column, followed by two more. The pad should come to the end of the column. Repeat the process from the other end of the column until all 6 pads are inside the column.

INSTRUCTIONS: REFLUX-MODE

TROUBLESHOOTING

- Q. After distilling off about 3 L of alcohol the temperature drops right down, the distillate flow stops, then a large amount of wash flows through the condenser into the collection container.
- A. This problem is caused by excessive foaming of the wash in the still and occurs when there is too much unfermented sugar in the wash. It is very important to follow the fermentation instructions on your yeast exactly. **Turn off the still, wait for the boiler to cool to a safe temperature and remove the lid. Return all the collected distillate and wash to the boiler. Add one capful of Essencia Foam Stop to the liquid in the boiler, reassemble the still and start again.**
- Q. Distillate flow is slow and alcohol % is low soon after distillate starts flowing.
- A. **Check for vapour leaks around the lid clamping ring, the base of the reflux column or the thermometer probe bung. If a leak is found, turn off the still, check for obstructions in seal areas, rotate the lid about 45 degrees on the boiler and ensure all seals are tight. Turn on the still again and recheck for leaks once the still has come up to temperature. If leaks are still present contact your retailer.**
- Q. Alcohol % is low (65%) when distillate starts flowing, and stays that way.
- A. **Turn off the still, wait for the boiler to cool to a safe temperature and remove the lid. Remove the Condenser. Remove the packing and re pack the column following the procedure described previously. Return the low strength distillate to the wash. Reassemble the still, and start again.**

INSTRUCTIONS: REFLUX-MODE

TROUBLESHOOTING

- Q. Alcohol % is low to mid 80's, temperature won't go below 80oC (176oF), distillate flow is generally slow and the cooling water flow rate needs to be high.
- A. **This problem occurs when the column packing pushes up past the retainer in the upper column. To rectify the problem simply turn off the still and remove the bung and thermometer probe. Push the packing down using a blunt instrument through the bung hole at the top of the column. The top of the packing should be level with, or slightly below the top of the cooling collar.**

CONTACT US

If you are still having problems, or have questions you would like to ask, please contact us at essencia.co.nz and we will be happy to help.

IMPORTANT SAFETY NOTES

- When using or troubleshooting the still, the metal body becomes **VERY HOT. DO NOT ALLOW SKIN** to come in contact with it.
- Be especially careful if you are disassembling the still, for any reason, that the metal parts and the liquid inside are allowed to cool to a safe temperature before handling.
- To keep up to date with the latest products and information, or if you need questions answered, visit www.essencia.co.nz

INSTRUCTIONS: POT-MODE

INTRODUCTION TO TAKING CUTS

Intermediate to Advanced Distillers may wish to use the Essencia Express Still in pot-mode. Before the advent of reflux stills, all distilling was done using pot stills. Pot stills are very simply designed, using a single cooling condenser to extract the spirit. The spirit extraction is far less pure than a reflux still, and contains more water, but also more flavour from the mash

Pot stills are preferred for extracting more flavour from grain, molasses or wine mashes, to make spirits like whiskey, bourbon, rum and brandy.

Distilling with a pot still will produce a lot more lower and higher alcohols including undesirable acetones (nail polish remover) and pleasant aldehydes (e.g. citrus or peach aromas) as well. There is a balance between collecting pure, flavourless, neutral spirit and collecting desirable flavours. To do this, we take 'cuts' during the distillation. The purer, neutral spirit is contained in the Hearts, and the flavour (both desirable and undesirable) is contained in the Heads and Tails.

Pot Distilling can be done in a single step distillation, or in a two-step distillation of a *stripping run* followed by a *pot run* (or spirit run). We will explain both methods.

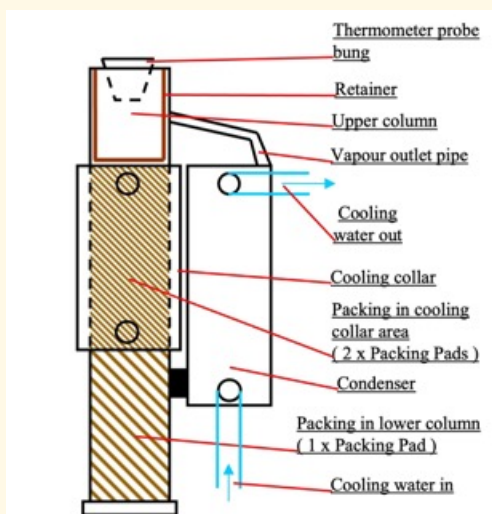
If you follow the simple process of taking 150 ml cuts, numbered, throughout the distillation, you will be able to know where the 'good spirits' are, and then use your nose and taste to guide the boundaries of where the good stuff starts and finishes.

NOTE: DO NOT taste the foreshots, discard them (or use the solvent for cleaning or lighting your barbeque). When tasting other fractions, be sure to dilute them to 40% ABV, and spit them out. Drink water in-between to refresh your palate.

ASSEMBLY: POT-MODE

1. Follow the Assembly: Reflux Mode instructions steps 1 and 2.
2. To change from the reflux configuration to the condenser only configuration (Pot Condenser), simply remove the link hose from the top of the condenser and transfer the 'cooling water out' hose to the top of the condenser. It is not necessary to remove the packing.
3. Fit the condenser directly to the tri-clamp adapter secured firmly to the lid.

The optional botanical sight-glass can also be fitted for distilling gin.



INSTRUCTIONS: POT-MODE

STRIPPING RUN

YOU WILL NEED

- Alcometer and jar
- 5L glass carboy
- Essencia Foam Stop concentrated distilling conditioner

ABV of 25L wash (%)	Alcohol in wash (L)	ABV of distillate (approx. %)
10	2.5	55
12	3.0	66
14	3.5	77
16	4.0	88

The table shows the the ABV of distillate in various 25L washes. Distillate should come out at 25 - 30 °C. If it is above 35°C, increase the cooling water flow. You would expect 4-6 Litres on distillate from a 25L wash.

1. Fill your boiler with fermented mash, and add just one capful of Essencia Foam Stop concentrated distilling conditioner. Do not fill higher than 45L. These instructions are for a 25L, for a larger mash, temperatures are the same, but times will increase proportionately.
2. Plug in the boiler, and turn the thermostat to set the thermostat to 85°C. Switch the 2000 Watt element to the on position. The green light will show and the red light will be off. During heating, the head temperature (measured by the dial thermometer) will remain at about room temperature.
3. 50 minutes later, turn the thermostat to maximum, 110°C and start running the cooling water at a rate of about 1 litre per minute. You must have the cooling water running before the boiler gets up to temperature.

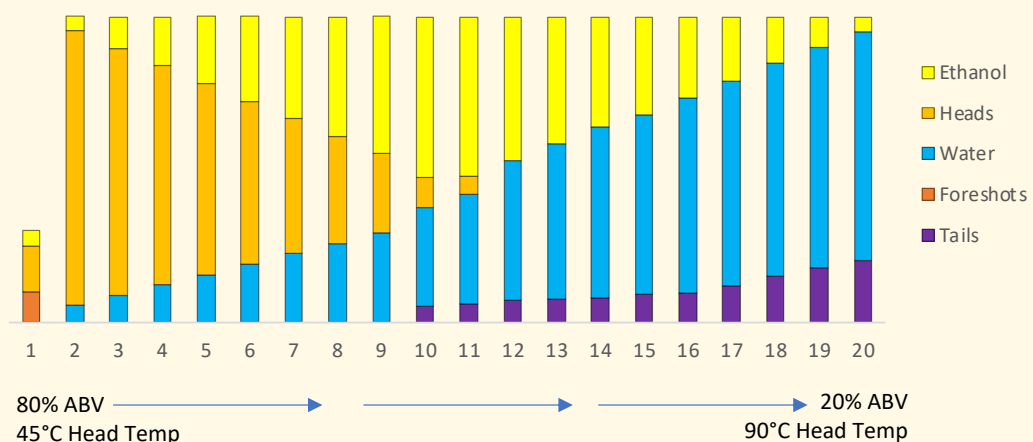
WARNING

The vapour and distillate are highly flammable. Ensure there is adequate ventilation. Avoid any potential sources of ignition.

INSTRUCTIONS: POT-MODE

STRIPPING RUN

4. Within about 10 more minutes, the head temperature will rise rapidly. Distillate will start to flow at around 40°C. If distillate does not start to flow at 40°C, increase the cooling water flow rate to around 2L per minute and distillate will start to flow. If distillate does not start to flow and only vapour is coming from the distillate tube, turn off your boiler and wait for it to cool down. Restart it with a higher cooling water flow rate of 2.5L per minute.
5. Collect and discard the first 150 ml of distillate (foreshots). This must be discarded as it contains acetone and may contain traces of methanol.
6. Head temperature will rise to around 80°C. within 2-3 minutes. For the stripping run, collect the distillate in a single 5L container, like a carboy.
7. Adjust the water cooling temperature to ensure your distillate is coming out at around 25-30 °C (below 35 °C).
8. Continue collecting until the distillate is around 20% ABV.
9. Either stop collecting, or to maximise yield, continue collecting into a separate vessel until it is around 10% ABV. These 'tails' can be used to re-distill in the next stripping run.
10. Switch the boiler off and wait for it to cool. Empty and clean your equipment as per the cleaning instructions.



INSTRUCTIONS: POT-MODE

POT (OR SPIRITS) RUN

YOU WILL NEED

- Alcometer and jar
- 5L glass carboy
- 6 X 150ml collection containers

1. Measure the ABV of your stripping run, and dilute it to 40% ABV or lower with water. You can add the output of multiple stripping runs into one Pot Run if you wish.
1. Fill your boiler with the stripping run/s.
2. Turn on your boiler and set the thermostat to 85°C. During heating, the head temperature (measured by the dial thermometer) will remain at about room temperature.
3. 50 minutes later, turn the thermostat to maximum, 110°C and start running the cooling water at a rate of about 1 litre per minute. You must have the cooling water running before the boiler gets up to temperature.
4. Within about 10 more minutes, the head temperature will rise rapidly. Distillate will start to flow at a head-temp. of around 40°C. If distillate does not start to flow at 40°C, increase the cooling water flow rate to around 2L per minute and distillate will start to flow. If distillate does not start to flow and only vapour is coming from the distillate tube, turn off your boiler and wait for it to cool down. Restart it with a higher cooling water flow rate of 2.5L per minute.
5. Collect and discard the foreshots again. This is likely to be first 50 – 100 ml, depending on how many stripping runs you have done.

IMPORTANT

It is very important that the distillate collection tube remains above the level of the collected distillate. Never let the distillate collection tube become immersed in the collected distillate.

INSTRUCTIONS: POT-MODE

POT (OR SPIRITS) RUN

6. You are now collecting the heads. Head temperature will rise to around 80°C. within 2-3 minutes. The heads will contain alcohol levels of over 80%. Collect the heads in separate, numbered containers of around 150ml each.
7. Measure each cut with your alcometer. When the alcohol reading drops below 80%, your collection of heads is complete, and you will be collecting the hearts.
8. Continue distilling and collecting 150ml samples until the alcohol reading drops below 55%. The hearts are the purest spirit upon which you will base your final product.
9. Next are the tails. Continue to collect 150ml samples until the ABV drops below 20%. At this stage the head temperature will be approaching 85°C. Turn off the boiler but leave the cooling water running until the still cools down. It is important to note that the head temperature of the still must not exceed 90°C.
10. Cover all of the distillate samples with paper towels and allow them stand overnight. This allows any unpleasant tasting volatiles to evaporate.
11. Once the boiler is cool, empty and clean your equipment as per the cleaning instructions.

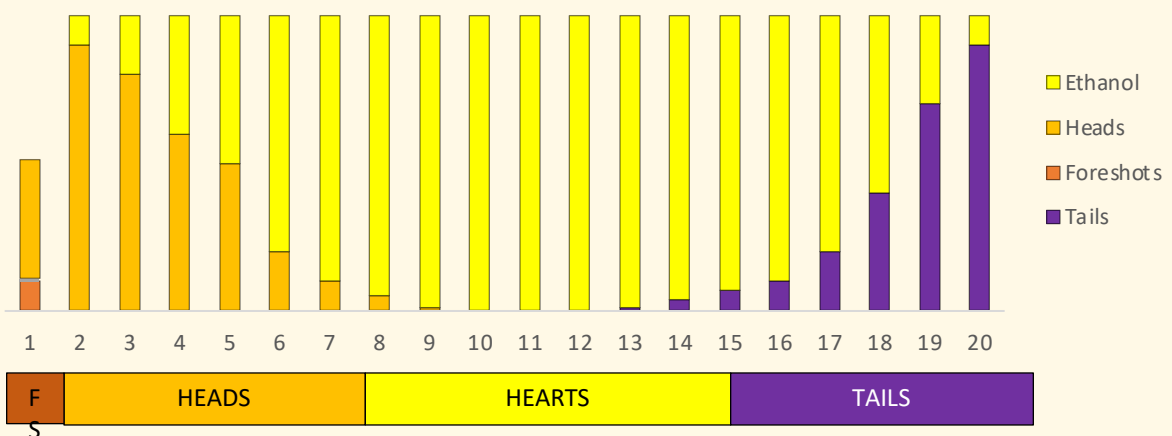


INSTRUCTIONS: POT-MODE

POT (OR SPIRITS) RUN

12. The following day, smell and taste each sample of heads, and blend the pleasant samples with hearts in quantities that you see fit.
13. Repeat this with tails. Any samples that don't get blended into the finished product can be saved and added to your next distilling run.
14. Blending different cuts is a matter of personal taste. There is no right or wrong method. After a few batches, your nose and taste will become more adept and your blends will become more and more refined. The most important thing is to enjoy the process!

Pot Run



INSTRUCTIONS: POT-MODE

CLEANING

Your Essencia Express Still should be cleaned regularly.

After running the still, turn off the boiler and wait for it to cool. Empty the boiler directly into a sink or tub. Rinse out the boiler with water only. Do not use detergents.



1. Fit the solid bung firmly into the top of the condenser where the thermometer bung goes.
2. Place the condenser/reflux column upside down into a jug, container or sink. Ensure the distillate collection tube is attached and its end is lifted above the condenser as shown. A rubber band can be used to keep it in place.
3. Dissolve two teaspoons of citric acid in about 1.5L of hot water. Pour this into the up-turned base of the reflux column until full..
4. Leave soaking for around 20 minutes.
5. Remove the bung and allow the citric acid solution to drain into the boiler.
6. Flush the condenser thoroughly with cold water. Also flush water through the distillate collection tube using the tap or a jug of cold water. Allow to drip-dry.

INSTRUCTIONS: WATER DISTILLATION

Your Essencia Express Still can be used to produce distilled water.

WATER PURIFICATION

1. Assemble your still as for Pot-Mode.
2. Pour water into the boiler to a maximum of 45L.
3. Switch on your boiler
4. Start running the cooling water at around 450ml per minute. This will vary slightly depending on the cooling water temperature.
5. Pure distilled water will start to flow once the head temperature reaches approximately 88°C or higher. If the temperature will not reach 88°C, reduce the cooling water flow in small increments until the distillate starts to flow. The purified water should flow at a rate of around 2.5 litres per hour.
6. Be very careful not to allow the boiler to run out of water. If the boiler was filled with 25L of water, it is recommended that you turn off the boiler once you have collected 20L of purified water.



IMPORTANT INFORMATION

WARNING

DISTILLING PRODUCES HIGHLY FLAMMABLE LIQUID. TAKE SAFETY PRECAUTIONS AND DO NOT OPERATE NEAR A NAKED FLAME.

PRECAUTIONS:

1. **VENTILATION.** Always ensure there is adequate ventilation when using your Essencia Express Still.
2. Never leave your still unattended while in operation.
3. Keep the still away from any potential ignition sources, including naked flame, vapes, smoking, sparks, heat and open flame.
4. Keep a fire extinguisher suitable for alcohol nearby.
5. **DO NOT** switch on your boiler without liquid in it. Do not allow it to boil dry. There is an automatic cutout switch underneath that will rest itself once the unit has cooled down.
6. Never let the distillate out tube be submerged in liquid. Distillate should drip out.
7. The boiler and condenser will become **VERY HOT**. Do not touch them with bare skin. Switch off and allow components to cool down before handling them.

LEGAL ALCOHOL DISTILLATION

In New Zealand it is legal to distil your own spirits for personal consumption, as it is to brew beer and make wine.

However, in some jurisdictions distilling may require a licence. **ALWAYS** check with your local authorities and obtain a licence to distill spirits if necessary.

essencia

THE QUALITY LEADER IN HOME DISTILLING

At Essencia, we are distillers too. We are always striving to bring you newer, better products so you can continue to produce the highest quality spirits at home. Please visit our website for the latest recipes, products and information.

www.essencia.co.nz



SCAN WITH YOUR PHONE