STILL SPIRITS

ALEMBIC

POT STILL

ALCHEMIST SERIES

INSTRUCTIONS:

Step 1: Making the wash

Add your choice of cleared fermented wash to the boiler.

Step 2: Prepare the Alembic Pot Still

1. Attach the copper condenser arm to the copper dome by removing the nut and O-ring from the base of the condenser. Sit the condenser on the dome and screw the nut and O-ring back into the condenser to firmly attach the dome to the condenser.

2. Insert the thermometer probe into the hole at the top of the column.

3. Attach the tubing for the water cooling of the condenser. The thin tube is for the outlet water and connects near the top of the condenser arm and takes the water back to the sink. The thicker tube connects to the water inlet near the tip of the condenser arm, with the other end connecting to the tap.

Step 3: Distil the wash (stripping-run)

To distil the wash you will need a large container for collecting the alcohol, a cooling water supply and sink and an alcometer to measure the percentage of alcohol in the spirit.

1. Transfer the cleared wash into the boiler making sure not to fill beyond the maximum level as indicated. Add ceramic boil enhancers and 3 capfuls of Still Spirits distilling conditioner to the wash. More information on

this can be found in the T500 instructions.

2. Attach the Alembic Pot Still setup by sitting it on top of the boiler and fastening the clips.

3. Attach the cooling water inlet hose to your tap and make sure the outlet hose is in your sink. Briefly turn on the cooling water to check there are no leaks, if everything is flowing correctly turn the water off and turn on the boiler.

It takes approximately 1 hour for a full boiler to start boiling and for the distillate to start coming off. Turn the cooling water back on when the wash has warmed up but before the thermometer reads 50°C (122°F). Set the cooling water flow rate to approximately 2.5L/min (for water at 18°C/64°F). Check that there is no steam coming out with the distillate, if this is the case then allow for more cooling water to pass through the condenser. To measure the flow, fill a calibrated jug from the outlet tube for 1 minute.

4. Distillate should start to come out at a regular rate once the temperature reaches 70 -75°C (158-167°F) Collect the distillate until the alcohol coming out has an ABV of around 18%.

5. When the distillation is complete turn off the boiler and the cooling water. Allow the still and wash to cool before emptying.

6. Clean your boiler and dome with warm soapy water and rinse it out thoroughly. Make sure the scum is wiped out.

Step 4: Spirit-run
It is useful to have several containers (preferably with graduations) for collecting the alcohol so different fractions can be kept separate and then blended at a later date. When checking the alcohol percentages remember to adjust for the temperature of the alcohol or cool the alcohol down before taking the measurement.

1. Transfer the output from the stripping-run into the boiler and add ceramic boil enhancers. It is good to have the output from 2 or 3 stripping-runs per spirit-run to increase the volume and to make it more efficient as it is this run where close attention to the output is needed.

2. Attach the Alembic Pot Still and condenser and set up the cooling water as previously.

3. Make your cuts (See below).

WHAT ARE CUTS & WHY DO WE NEED TO MAKE THEM?
The wash contains many components; water, ethanol and other compounds referred to as congeners which include acetaldehyde, methanol, esters and higher alcohols. Different compound have boiling points that are either higher or lower than ethanol. The cuts are split into three sections; heads, hearts and tails. Lower boiling point congeners will come out in the heads with higher boiling

point congeners coming out in the tails. The bulk of the ethanol at the hearts region will also include some late heads and early tails congeners which give flavour to the spirit.

SINGLE OR DOUBLE DISTILLATION?

Pot stills are well suited to the production of non-neutral spirits such as whiskey, brandy and rum. Spirits usually undergo two distillation runs, a stripping-run and a spirit-run. In the stripping-run the fermented wash is distilled to concentrate the ethanol and impurities to around 35%. The product of this distillation is then re-distilled to refine it into the finished spirit. During the spirit-run the cuts are made to separate out the heads, hearts and tails.

It is also possible to produce spirit in a single distillation where the spirit-run is done directly from the wash. This tends to result in a spirit which can be rich in flavour but may also be harsh and unrefined.

MAKING CUTS ON A DOUBLE DISTILLATION:

It is important to understand when to make the cuts and with experience this can be done by taste. Other parameters for judging the cuts are from the still head temperature and the percentage of alcohol in the spirit. Note that this varies depending on the still and what is being distilled. It is helpful to collect the spirit in 100-200ml lots which are kept separate until the hearts phase

is reached. These can then be checked by tasting at your leisure and added into the mix later if they are found to contain wanted flavours.

HEADS CUT: At the start of the spirit run when the distillate begins to flow rapidly the temperature at the still head will be approximately 80°C (176°F) with an ABV of 80%. The spirit will smell and taste 'solventy' like nail polish remover or paint thinner. Soon this harsh smell will be replaced with a more neutral flavour. You will be able to start tasting characteristics of what you are distilling. You thermometer should read 83-84°C (182°F) You are now entering the hearts phase. Note to discard the first 50ml of distillate as this contains harmful compounds.

HEARTS PHASE: The hearts phase will last until the alcohol percentage has dropped to around 60- 65% ABV and the still head temperature has risen to around 92°C (198°F). At the transition from the hearts phase to the tails, the flavour will change from smooth and sweet to increasingly bitter and harsh.

TAILS CUT: When the spirit starts to taste very earthy and bitter, you will be approaching the tails cut. It can be helpful to collect small fractions of spirit at the end of the hearts phase to assist with deciding when to make the cut. The remainder of the tails can be collected separately down to about 10% alcohol. These tails can

then be added to a future spirit run so that the remaining alcohol can be recovered in a subsequent run.

MAKING CUTS ON SINGLE DISTILLATION:

In a single distillation the measurable parameters to help with assisting to make the cuts will be different than in a spirit-run of a double distillation because the alcohol concentration in the wash being distilled will be much lower (~12%) than in the spirit-run (around 35%). The flavour changes between the heads, hearts and tails phases will be similar to those in the sprit-run of a double distillation.

At the start of the distillation the alcohol will come out around 75% ABV and the still head temperature will raise rapidly from 78°C to 89°C (172°F-192°F). The first cut from heads to hearts will be made when the alcohol is around 68% ABV and the still head 90°C (194°F). The second cut from the hearts to the tails would be made when the alcohol has reduced to around 45-50% ABV and the still head is around 95°C (203°F).

Triple Distillation

If you elect to distil for a third time it is important to add water to the distillate to bring it down to 40% ABV or less before distilling. This ensures that the condenser operates correctly and helps to better separate the cuts.

Turbo Wash Distillation *(Using sugar, Turbo Yeast, Turbo Carbon and Turbo Clear)*

If using your Pot Still for distilling a Turbo Wash and the spirit is intended for stronger flavoured spirits and liqueurs, then you can use a simple one step process as follows;

Follow booklet instructions up to Step 3 number 3 then continue on with:

4. Distillate should start to come out at a regular rate once the temperature reaches 70- 75°C (158-167°F). Separate the first 100mls of "Heads" and discard.

Collect the "Hearts" until the alcohol strength drops to 40% ABV and tempreature is approx. 92°C (198°F).

Anything after this can be regarded as "Tails" and can be discarded.

***Please note** that if you are intending to double distil your Turbo Wash then collect down to about 20% ABV and if necessary, water the resultant spirit down to 40% before proceeding with the second distillation.*

Alcohol Outlet Tubing Setup Instructions

Attach the 13mm diameter clear PVC tubing onto the end of the condenser and secure with the locking clamp. Trim the tubing to a suitable length that will ensure that the tubing end will always be above the level of the distillate. The distillate should fall from the tube into the collection vessel; the tube should never sit in the distillate.

Tap configuration diagrams

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