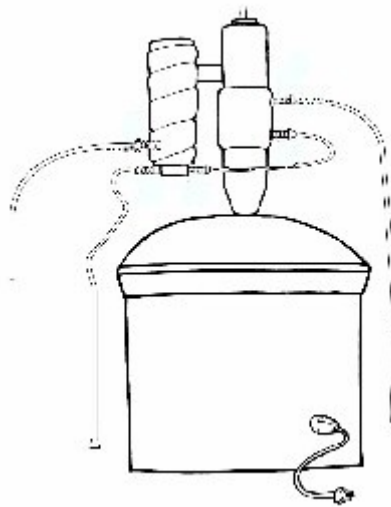


# 1 US gallon Super Water Purifier



Please note; Under current law it is a Federal offence to use this device to home distil alcohol.



Still Spirits 22 Kirkcaldy Street Petone New Zealand. [www.stillspirits.com](http://www.stillspirits.com)

## Using your still to produce Distilled water.

Congratulations on your purchase of the Still Spirits 1 US gallon Water Purifier. I am sure you will be delighted with your purchase and will soon be enjoying the benefits of drinking distilled water. The Still Spirits Water Purifier removes volatilis as well as bacteria, chlorine and heavy metal contamination.

### Instructions for use:

Fill still with 3.6 litres of water to be distilled. To speed up the process use water from the hot tap. Fit the bung and thermometer to the condenser and fit this to the lid. Connect the inlet hose connector to a cold water supply. You will need to adjust the cooling water flow through the condenser to between 400 and 500 mls per minute.

1. Discard the first 50 mls that is collected from the Still. This could contain volatilis like chlorine, herbicides and insecticides.
2. Collect 2 litres of distillate then stop collecting and discard anything else.
3. The 2 litres of distillate that you have collected should then be filtered through the Still Spirits Z Filter to ensure maximum purity.

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**Using your still to produce Alcohol.** Please note it is legal to produce alcohol in New Zealand for your own consumption. In most other countries this is not the case and independent legal advice should be sought before doing so.

## Fermentation

### Stage 1 - Sterilisation

- 1) Everything used in the fermentation process must be cleaned and sanitised before and after use. This includes the fermenter (pail), airlock and stirrer.
- 2) For optimum cleaning, we recommend **Brewcraft Pink Stericlean**. Note: Do not use this on your still. Stills should be cleaned with warm water immediately after use.
- 3) After sterilising, the fermenter and equipment should be rinsed several times with cold tap water, taking care to run some water through the tap, to ensure no trace of the steriliser remains.
  - ◆ After rinsing, seal the fermenter to prevent any contamination.

### Stage 2 - Fermenting the Alcoholic Wash using Still Spirits Turbo Yeast.

- a. Add 6 kgs of White Granulated Sugar to a **Fermtech 30 litre Fermenter** or similar with 3 litres of warm water and dissolve before topping up with cold water to the 25 litre mark. Try to use a combination of warm and chilled water to ensure a start temperature of between 20° and 25°C.
- b. When the Wash temperature is between 20° - 25° Celsius, add one sachet of **Still Spirits Turbo** to produce an alcoholic Wash.
  - ◆ If the Wash is too hot the yeast may be killed or weakened, and therefore may not be able to ferment out all the sugar. In warmer climates the **Still Spirits Temperature Turbo Yeast** can be used.
  - ◆ If the wash is too hot then cool as quickly as possible and add the yeast as any delays can result in contamination resulting in poor quality results.
  - ◆ Each pack of Still Spirits Turbo Extra contains a mix of yeast and nutrients, to make 25 litres of Wash and produce alcohol that is extremely low in by-products.

- c. Part fill the U of the Airlock with water and fit to the fermenter to prevent any oxygen, bacteria or insects getting in during fermentation. Within 24 hours carbon dioxide should start bubbling through the airlock, if the brew is working correctly and if the fermenter is sealed properly.
- ◆ If the gas does not start to bubble through the airlock, then loosen the top and have a look inside. The wash should be bubbling and will probably have a foam or froth on top. If the wash is not bubbling and there is no froth around the top of the wash then check the temperature is in the recommended range.
  - ◆ A vigorous stir at this stage with a sterilised paddle (not wooden) will speed up fermentation. Stir gently to start with, to avoid a froth buildup.
- d. The wash should ferment in an area where the room temperature is between 20° - 25° C.
- ◆ At a higher temperature, extra by-products may be made. Using **Still Spirits Temperature Tolerant Turbo** will produce a wash with low by-product levels at higher room temperatures.
  - ◆ At a lower temperature, the wash will take longer to ferment, or in extreme cases may stop working altogether.
  - ◆ Fermentation can take as little as 3 days.
  - ◆ In cooler weather it could take up to 7 days. For the first 24 - 48 hours, heat is generated from the fermentation process. **DO NOT ADD ANY HEAT DURING THIS TIME.** After this period a Heating Pad may be used in cooler weather to maintain the temperature.
- e. Fermentation is complete when the yeast has used up all the sugar. All sign of fermentation should be finished and the hydrometer reading will have remained static for two days. If in doubt, leave the wash for an extra day or two.
- ◆ Wash and sterilise the Wash, Wine & Beer Hydrometer in cold water.
  - ◆ Float the hydrometer into the wash, and take the reading where the line of the liquid cuts across the scale on the hydrometer; the reading should be about 990.
  - ◆ Remember to take care when handling hydrometers. They are very delicate.
- f. To remove all carbon and unwanted spent yeast cells prior to distilling treat the wash with **Still Spirits Turbo Clear**. Add part A by mixing in thoroughly and let stand for 2 hours then add part B by gently stirring in evenly at the surface and let stand for 24 hours.

## Points to watch out for.

- 1) If the airlock is not bubbling after 24 hours it is most likely that the fermenter is not sealed properly. Ensure you have pressed the lid on correctly. Check you have a good seal by lightly pressing the sides of the fermenter to force some air out through the airlock. When you release the pressure on the barrel the air should try to get back in through the airlock. If sealed properly the water level should remain uneven in the airlock (more water on one side than the other).

In some circumstances the yeast can stop working before all the sugar is used. This will be indicated by a final hydrometer reading higher than 990. Any reading above 1005 on a standard Wash, Wine & Beer Hydrometer suggests that something has gone wrong. In most cases a good stir to get the yeast back into circulation should get the wash fermenting again. The most common cause of stuck fermentation is low temperature. In this case simply move the fermenter to a warmer place and stir the yeast back into the liquid. An inexpensive stick-on thermometer, available from your Brewing Specialist Store, will help monitor the temperature. If you are having problems maintaining temperature, a purpose designed Heating Pad, can be purchased from your local Brewing Specialist Store.

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# Distilling using the Still Spirits 1 US Gallon Super Reflux Still.

Assembling your 1 US gallon Super Reflux Still:

Your Super Reflux Still comes complete with 250ml of Still Spirit Ceramic Saddles

1. Add the Still Spirits Ceramic Saddles to the condenser making sure that the wire mesh is sitting flat in the condenser chamber. Fit Bung.
2. Fit the condenser to the domed lid and tighten securely.
3. Situate the still on a firm heat resistant base close by a cold water tap, drain and power socket.
4. Fit the thermometer so that the bulb appears on the inside of the black bung by 20mm. Then refit the bung & thermometer into the top of the condenser.

## Distillation:

1. Plug the cord into the element while supporting the element from the inside of the still (**don't have the cord plugged into the electrical socket at this point**). Add 3.6 litres of the wash and fit the lid complete with Condenser and hoses.
  2. Plug the cord into the wall socket. When the wash has warmed up, but before the thermometer reads 50° C, start the cold water running through the Condenser.
  3. During most of the distillation process the cooling water flowing through the condenser should be flowing at about 400 mls per minute. To measure the flow, fill a calibrated jug from the outlet pipe for one minute.
  4. Collect the first 50 mls and put to one side. This is the **Head**.
  5. Collect 450 mls of the **Body** which contains the Ethanol (drinkable alcohol) at about 80% proof. Make sure that the spirit outlet tube from the condenser stays well above the level of the spirit. **Do not collect alcohol after 450 mls (500 mls if head is added to the wash).**
  6. The more cooling water that flows through the condenser the lower the temperature in the reflux column, this will show on the thermometer. The temperature of your water also influences the amount you need (*i.e. In summer you may need more water than in winter when the water is cooler*).
  7. The slower the cooling water flows through the condenser, the higher the temperature will rise producing a faster flow of spirit. Running the cooling water at less than 400 mls per minute may result in the lid pushing off or wash bubbling out. If you run more than 500 mls of cooling water through the condenser then this will slow the process down.
  8. Repeat steps 1 - 8 with the other 5 batches of 3.6 litres that you have fermented. With each subsequent batch you can add the 50 mls of head collected from the batch prior, along with the 5 litres of wash, to the still. If you do this you can increase the quantity of condensate collected to 500 mls. After the last 3.6 litre batch has been run, discard the 50 mls head. Remember that you have extracted the alcohol so the rest of the wash contains fermentation byproducts and water and should be discarded.
  9. The thermometer temperature will slowly rise as the alcohol is boiled off. Should the temperature exceed 92° C and you have not collected the full amount of distillate then increase the flow of water through the condenser to hold the temperature at 92° C. If the flow slows down substantially then this would indicate that there is no more alcohol left in the wash and that it is time to stop collecting.
- From a standard 25 litre wash produced with 6 kgs of sugar you should collect 3.45 litres of alcohol at 80% strength. Any Alcohol collected after the still has produced 450 mls (500 mls if head is added to the wash) from 5 litres of a standard turbo wash will be poor quality and should be discarded. Remember to always measure the strength of your spirit at 20° Celsius or refer to the **Temperature Correction Chart** on page 5 to make the relevant adjustments. Discard the rest of the fermented wash.

### Points to watch out for:

a) *If for any reason the Wash has not fermented completely, (i.e. above 990 SG all the sugar has not been converted to alcohol), then you will not collect the full amount of distillate through the Still.*

b) *If you have not collected the full amount of alcohol, check you have:*

*used the correct amount of sugar/ dextrose in the Wash; and/or*

*the specific gravity is below 990 before distilling; and/or*

*there is no steam leak during distillation.*

c) *If the wash is not fully fermented out, then the unfermented sugars combined with suspended yeast cells can foam causing the wash to come through the condenser with the distillate. In this instance Distilling Conditioner can be used to increase yield or avoid problems. This problem should not occur though if Turbo Clear has been used prior to distilling.*

## Cleaning:

Your 1 US Gallon still is made from alloy. It is very important that you empty the still out immediately after use and rinse out with clean water and **dry thoroughly**. Do not use corrosive cleaners on the still.

Sugar used & alcohol yield for 5 Litre Reflux						
Temperature range	Turbo Used	Sugar type	Sugar kgs	Spirit Collected	Total Spirit Collected	Spirit Strength
20° - 30° Celsius	Standard Turbo	White Sugar	6	First run 450 mls Next 6 runs 500 mls	3.45 Litres	80%
20° - 30° Celsius	Standard Turbo	Dextrose	7	First run 450 mls Next 6 runs 500 mls	3.45 Litres	80%
20° - 40° Celsius	TT Turbo	White Sugar	6	First run 450 mls Next 6 runs 500 mls	3.45 Litres	80%
20° - 40° Celsius	TT Turbo	Dextrose	7	First run 450 mls Next 6 runs 500 mls	3.45 Litres	80%
20° - 25° Celsius	Turbo Extra	White Sugar	8	First run 700 mls Next 6 runs 750 mls	5.2 Litres	80%
20° - 25° Celsius	Turbo Extra	Dextrose	9	First run 700 mls Next 6 runs 750 mls	5.2 Litres	80%

## Introducing the Z Filter

The **Z Carbon Filter** uses an advanced treatment system designed to treat the spirit in one stage and gives excellent results in a very short time. It is designed to provide the maximum carbon treatment possible. It achieves this by ensuring that all of your distillate comes into contact with all of your carbon. The 750mm continuous length of this unique filter system ensures the maximum contact time for the spirit with the carbon.

While we talk of filtering, a process that strictly speaking refers to removal of particles by passing them through a material finer than the particles we want to remove, what we are really doing is absorbing the by-products into microscopic holes in our carbon. As the carbon is full of impurities after spirit is passed through it, the carbons cannot be reused.

## Your complete Z Carbon Filter contains;



- (a) 1 x Z Filter Cartridge
- (b) 1 x Small White Screw Cap - Top
- (c) 1 x Large Black Nut with Hose Adapter and Washer
- (d) 1 x Large Black Nut with Hose Adapter, Washer and 500mm of Tubing. *Not shown.*
- (e) 1 x Large Black Nut with Washer and Z Filter Mesh Disc
- (f) 1 x Packet Z Filter Papers (5 per Packet). *Not shown.*
- (g) 1 x Pottle Z Carbon Universal. *Not shown.*
- (h) 1 x 10 litre Pail Reservoir. *Not shown.*
- (i) 1 x 10 litre Pail with hole drilled in lid collect your spirit. *Not shown.*

Note: you will also need a funnel.

## How to Use the Z Carbon Filter

- Attach the tubing on the Black Nut Adapter (d) to the tap on the 10-litre pail reservoir.
- Check that the rubber washer is in place inside the black nut that will attach to the Z Filter.
- After ensuring the tap is off, pour your distillate (spirit from the still) into the 10-litre pail reservoir.
- Water the distillate down to 50%/V Alcohol with clean tap water.
- *This makes it easier for the carbon to remove any impurities present.*
  
- Unscrew the Black Nut with Hose Adapter (c) from the bottom of the Z cartridge and remove the rubber washer. Insert one
- Z Filter Paper (f) and replace the rubber washer. After making sure there are no pieces of carbon in the thread, screw tightly back onto the Z Filter.
- Unscrew the white plastic cap (b) and the Black Nut (e) from the top.
- Using a funnel, fill each chamber with carbon, leaving about 10mm at the top of each chamber to allow for the expansion of the carbon that occurs when the carbon is wet.
- Securely refit the white cap and the black nut. Your Z Filter is supplied with the Z Filter Stainless Steel Mesh Disc correctly inserted inside the black nut (e) between the washer and the black nut.

The carbon needs to be rinsed with clean water to remove mineral salts from the carbon. This process removes the salts and prevents them from appearing as fine crystals in your spirit a couple of days after carbon treatment. The Z Filter makes this task clean and easy, by simply back-washing the filter using a garden hose. With the hose fitting removed from the hose it will fit easily onto the black adapter (c) on the bottom of the Z Filter. Holding the Z Filter upside down, run water through the filter until the outflow runs clear for 30 seconds. Stop the water flow briefly, then again run water through the filter until the outflow again runs clear for 30 seconds. Repeat this one more time

so that the water runs clear for 30 seconds for the third time. Three flushes are sufficient to remove the mineral salts.

Once the carbon has been rinsed, turn the Z Filter upright, with the black nut and mesh (e) to the top. Tap the Z Filter to drop the carbon from the top. Carefully remove the black nut and mesh (e). Ensuring there is no carbon in the thread on the Z Filter, screw the filter into the black nut (d) attached to the reservoir (h) containing the spirit. Place a 10-litre pail (i) underneath the filter to collect the filtered spirit.

Open the tap on the reservoir and wait while the spirit makes its way through the tube. This will take a few minutes. Collect the first 150 – 200 ml, as this may contain some carbon, and return this to the reservoir (h). Fit the end of the filter into the hole in the lid of your collecting pail. You may need to adjust the length of the syphon hose to suit your distilling environment. Once all the spirit has run through tilt the reservoir (h) to get the last spirit into the filter.

Check the strength of the filtered spirit, adding clean tap water to bring it to the desired strength. We recommend 40% or less.

After use, remove all nuts and caps and shake out the spent carbon. Rinse out the Z Cartridge with cold water taking care to remove any carbon from the threads.

#### Other points

- Your Z Carbon Filter comes ready to use with part (f) correctly assembled and attached. Remember for future usage that the stainless steel mesh needs to be inserted between the black plastic nut and the rubber washer.
- Your Z Carbon Filter comes with a pottle of Z Carbon Universal (initially released as Pot Carbon). This carbon removes a wider spectrum of impurities and as such can be used to treat any distilled spirit. Reflux Carbon should only be used to treat spirit made with a reflux still.
- We recommend using a garden hose when flushing your carbon with water prior to carbon treatment as it is flexible enough to easily fit on and off the hose adapter on the black nut (d). A small section of hose with a tap adapter fitted may be the most convenient system for you.

## A word about mineral salts

Mineral salts are present in the raw materials used to make activated carbon. When spirit runs over activated carbon some mineral salts can be absorbed into the spirit. Later, once the temperature has dropped, these mineral salts start to become insoluble in the spirit and after a few days a fine sediment appears in the spirit. This fine sediment (which first appears as a milky haze and then drops to the bottom of the bottle) is the mineral salts originally from the activated carbon. These mineral salts are absolutely 100% safe (in fact essential for life!) but you don't want them in your spirit. This is why we recommend flushing the carbon with clean water. If you notice this problem in your spirit you can decant the spirit from the sediment and your spirit is safe to drink. Ensure that next time you increase the amount of water you flush the carbon with.

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## Watering the alcohol down and mixing up the spirits and liqueurs.

Float a **Spirit Hydrometer** or **Alcometer** in the spirit and read the line where the level of the spirit cuts across the hydrometer.

Additives such as flavouring and **Liquid Glucose** will distort the hydrometer readings.

Spirit hydrometers should only be used to test spirit in the following conditions:

- before any additives such as flavouring or liquid glucose are mixed;

- at a temperature of 20° C or refer to the Temperature Correction Chart below. Taking readings of warmer liquids may damage your hydrometer.
- Float the spirit hydrometer in the spirit to measure the alcohol content. As alcohol is thinner than water, the higher in strength the alcohol is, the further down the hydrometer floats.

### Temperature Correction for Spirit Hydrometer

20° C	Alcohol %/Volume							
	30	40	50	60	70	80	90	95
temp								
10	4.12	3.98	3.67	3.42	3.19	2.92	2.45	2.06
15	2.03	2.00	1.85	1.73	1.61	1.47	1.25	1.06
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	-2.01	-1.95	-1.88	-1.76	-1.65	-1.51	-1.31	-1.12
30	-4.06	-3.94	-3.78	-3.55	-3.33	-3.05	-2.67	-2.31
35	-6.15	-5.98	-5.82	-5.4	-5.13	-4.67	-4.07	-3.54
40	-8.29	-8.05	-7.92	-7.41	-7.03	-6.35	-5.5	-4.8

e.g. If your Spirit Hydrometer reads 50%V at a temperature of 25° Celsius, then you should read the Correction Adjustment from the chart and subtract 1.88 to give a realistic reading of 48.12% V (50.00 - 1.88).

- Take good care of your Spirit Hydrometer as it is very fragile. Wash & sterilise with cold water only.
- After carbon purifying, the spirit should be watered down in strength to 40 % by volume prior to drinking. It is very important not to make higher strength spirit.

### Calculation:

Litres collected x alcohol strength / alcohol strength required = Total litres to be made up to.

e.g To convert 45% strength alcohol to 40% use the following calculation. 4.5 litres x 45 / 40 = 5.06 litres.

If you collect 4.5 litres of spirit and this measures 45% after carbon purifying, then multiply 4.5 x 45. Divide this by 40% and you will need to make the total spirit up to 5.06 litres with water. In other words add .59 of a litre of water. This is a rough guide only.

Watering down the spirit to 40%, or less, is very important as people unused to high strength spirit can easily overdose resulting in nausea and in extreme cases death.

## Making Spirits and Liqueurs

Today's essences are an extremely close match on the equivalent commercial spirits and liqueurs. All you need to do is add them to your filtered spirit or commercial vodka to recreate your favourite tippie. Instructions are on each pack or bottle and you should read these before using the essence. Some ranges of essences produce different quantities than others.

When making spirits you simply add the essence to the appropriate volume of filtered alcohol. When making liqueurs you need to mix liquid glucose, sugar, alcohol, water and the essence. In the case of cream liqueurs you need to add cream as well. First warm the liquid glucose and mix with any water. Using boiling water will help with the dissolving. Add the sugar to this and any alcohol. Mix well until dissolved then add the essence. In the case of cream liqueurs, the cream should be added last to the cool mixture. Using shelf stable cream will lengthen the life of the liqueur. Any cream liqueurs should be stored in the refrigerator and consumed while fresh.

### Helpful Hints.

1. Some flavours need a few weeks to age. All liqueurs become "smoother" over time.

2. **Liquid Glucose** - can be added to slightly thicken liqueurs, without sweetening, and give a smoother mouth feel. A powdered version, **Liqueur Thick**, is also available for easy mixing. Dissolve, (perhaps in a little boiling water), before adding to your spirit base.
3. **Top Shelf Mellow Oak Extract** - can be used to add an oak flavour if required. Add 5-10mls per 5 litres. This is particularly appropriate for Whisky, Brandy, Bourbon and Dark Rum.
4. **Distillers Caramel** - This is a commercial caramel that is stable in spirits and can be used to darken any spirit if required.
5. **Glycerine** - Improves texture and mouth feel in liqueurs and spirits. Use about 5ml per litre.

*nb: Adjust the essences to your own taste by increasing or decreasing the amount you add; or using some liquid glucose or even mixing essences to get the exact taste you require.*

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**Top Shelf Classic** is the range of spirit essences, for people who want the very best. These are commercial essences not previously available to the home user. Each sachet will flavour 2.25 litres (2 x 40 oz bottles) of filtered alcohol. Each sachet varies in volume as this range is prepared without any of the fillers required when making the essences to a certain fill volume as is the case when marketed in 50ml bottles.

**Classic American Bourbon** - a smooth, rich, bourbon with the strong aroma of peach wood barrel oak. A superior bourbon ideal for drinking straight over ice.

**Classic Navy Dark Rum** - a dark sweet, mellow rum styled on the seafaring rums of old. Try making this with 50%/V spirit for an overproof variation.

**Classic Scotch Whisky** - a rich, golden, full flavoured, single malt whisky style. As you sip this you can almost hear the sound of bagpipes & smell the peat fires burning.

**Classic Gin** - a distinctive refreshing gin of outstanding character. This very concentrated essence produces a clean tasting, clean smelling gin with a strong juniper flavour & a touch of coriander. *(Special care needs to be taken with this essence that the spirit is 40% /V or above prior to mixing to ensure the essence dissolves in the spirit.)*

**Classic Brandy** - a mellow, well aged, brandy style. A subtle blend of grape & fruit flavours give this connoisseur's brandy a distinctive place in any liquor cabinet.

**Top Shelf Classic Queensland Gold Rum** - A mellow rum with subtle tones of liquorice, golden syrup and molasses. The distinctive taste of American white oak gives this rum a complex yet smooth aftertaste. A favourite with Australians.

**Top Shelf Calypso Rum** - A rich, dark molasses style rum which first found popularity in the Caribbean. Great with rum based cocktails but most often consumed with Coca Cola.

**Top Shelf Classic Tennessee Bourbon** - A full flavoured sour mash Whisky with distinctive aromas and yet mellow and smooth. Great over ice but traditionally drunk with coke and ice.

**Top Shelf Classic Finest Reserve Scotch Whisky** - A unique blend of several of the best distillations from fermented grains along with unique smoky and peat qualities, combine to give this Whisky outstanding flavour and aroma. *(Special care needs to be taken with this essence that the spirit is 40% /V or above and that the spirit and essence is warmed prior to mixing)*

## Top Shelf Spirits

A range developed for the connoisseur who is working within a budget. Each 50 ml bottle will flavour 2.25 litres (2 x 40 oz bottles) of filtered alcohol.

**Top Shelf Bourbon** - a favourite for many discerning Bourbon drinkers. Variations can be made by adding sugar to taste.

**Top Shelf Kentucky Bourbon** - a rich, fruity complex Bourbon reminiscent of famous American Bourbons. Sweeter in taste than Top Shelf Bourbon.

**Top Shelf Dark Rum** - an Australian style Dark Rum. Mix 50% Original & 50% Top Shelf Dark Rum for an interesting variation.

**Top Shelf Rye Whiskey** - a light refreshing Canadian style Whiskey.

**Top Shelf English Gin** - a clean full flavoured English style Dry Gin.

**Top Shelf Scotch Whisky** - a complex Whisky with rich oak and subtle peat tones. Very good on the rocks.

**Top Shelf French Brandy** - an excellent complex Napoleon Brandy style. Very smooth.

**Top Shelf Smokey Malt** - a distinctive, single malt style with strong peat undertones.

**Top Shelf Jamaican Dark Rum** - as the name suggests, this rich, dark Rum has the rich molasses tones and full flavour of a traditional Jamaican style. This essence does however drop some sediment in the bottle.

**Top Shelf White Rum** - the very best Caribbean style White Rum available.

**Top Shelf Ouzo** - a Greek specialty derived from star anise and other secret ingredients passed down over the generations.

## Original (formerly known as Still Spirits)

This range is produced for the cost conscious consumer. We have taken care to select these essences for their widespread appeal. Each 50ml bottle will flavour 5 litres of filtered alcohol.

**Blended Whisky** - a quality whisky can be drunk neat or on the rocks. Has a slight peaty flavour.

**Gin** - a refreshing mellow Gin with a clean finish. This can be softened by adding a little sugar to taste.

**Bourbon** - a Bourbon that would stand up well in the Southern States. Make subtle variations by adding a little sugar for sweetness & a little oak to mellow.

**Brandy** - a popular Brandy with a large following. Not as sweet as the Top Shelf Brandy and can be further improved with a little Oak Essence.

**London Dry Gin** - a dry complex Gin reminiscent of quality Gins from the London area.

**Tequila** - typical Mexican style ideal with salt & lemon or for making Margaritas.

**Citrus Vodka** – a citrus flavoured Vodka. Best drunk on the rocks and served from the freezer.

**Vodka** - this essence replaces some of the subtle esters required in a good Vodka. The filtering process removes some of these esters together with all the unwanted flavours.

**Whisky** - a popular Whisky ideal for drinking with splits.

**Chilli Vodka** - this pepper/chilli vodka is a very trendy drink at present & may well do better in the winter. Not only do you receive a warmth from the Vodka you also get a lovely hot after taste from the chilli's.

**Dark Rum** - Jamaican rum ideal for drinking with splits.

**White Rum** - a good, easy drinking variety best suited for drinking with mixes.

## Top Shelf Liqueurs

This range has been carefully matched to its commercial equivalents in flavour, sweetness, thickness, colour and resultant alcohol strength. Each 50ml bottle will flavour a 1.125 litre (40oz) bottle of liqueur. The instructions for mixing are on the bottle.

*Note: The recipes on Top Shelf liqueurs give sugar measurements in mls. This is because we consider it easier for you to measure all ingredients the same way (and in the same container) rather than have grams for sugar and millilitres for all other ingredients. Simply measure the sugar as if it were a liquid!*

**Amaretto** - For those who enjoy a sweet, rich almond flavour from Northern Italy.

**Apricot Brandy** - This brandy has been infused with apricots.

**Banana Schnapps** - Rich yellow schnapps with the flavour of fresh bananas.

**Blackberry Schnapps** - A sweet purple schnapps with the full taste of blackberries.

**Black Sambuca** - Purple liqueur with a strong aniseed taste balanced by a delicate liquorice aftertaste.

**Blue Curacao** - Bright blue liqueur with a strong citrus orange flavour.

**Butterscotch Cream** - Very popular, easy drinking, cream liqueur.

**Butterscotch Schnapps** - A clear schnapps with the flavour of butterscotch.

**Cafelua** - Rich, fresh coffee flavour from Mexico. A must for coffee drinkers.

**Candy Shots** - Sweet confectionery flavour.

**Cappuccino** - A cream liqueur with a rich coffee & delicate chocolate flavour.

**Cherry Brandy** - Brandy flavoured with cherries.

**Chocolate Mint** - Chocolate based with a clean refreshing mint aftertaste.

**Coconut Rum** - Based on white rum and has a strong taste of fresh coconut.

**Coffee Maria** - Similar to the rum based, coffee flavoured liqueur from Jamaica.

**Crème de Cacao** - Sweet, dark brown liqueur with a rich cocoa and vanilla flavour.

**Crème de Menthe** - Green liqueur with a clean refreshing peppermint flavour.

**Dictine** - This is a brandy based herbal liqueur with a clean refreshing flavour; a unique blend of herbs, spices, blossoms and peel.

**Dry Vermouth** - Ideal for Dry Martinee's made with wine or spirit.

**Hazelnut** - Boasts a pleasant hazelnut flavour.

**Hot Cinnamon Schnapps** - Think of the fragrant flavours of hot cinnamon.

**Irish Cream** - Cream liqueur with a strong vanilla flavour & delicate whisky tones. An old favourite.

**Italiano** - A gold coloured sweet Italian liqueur with the flavours of vanilla, aniseed & liquorice.

**Macadamia Nut** - This liqueur has a delicate macadamia nut flavour.

**Melon Liqueur** - A light green liqueur with a delicate honeydew melon flavour.

**Orange Brandy** - Amber liqueur, of French origin, which delicately combines brandy and fresh oranges in one of the best known styles of Triple Sec.

**Parfait Amour** - A popular sweet, purple, fragrant liqueur with a hint of citrus fruits and butterscotch.

**Peach Schnapps** - Sweet, clear liqueur with the soft flavour and aroma of fresh peaches.

**Red Sambuca** - An aniseed liqueur with a rich red colour.

**Rum Liqueur** - A rum based liqueur with chocolate, caramel and coffee notes.

**Southern Smooth** - As the name suggests, this bourbon liqueur is very popular in the southern states of America. Has a sweet, fruity, aftertaste.

**Skyebuie** - A herbal liqueur based on whisky with notes of honey. Very popular in Scotland.

**Swiss Chocolate Almond** - A sweet, nutty, chocolate liqueur with a smooth almond aftertaste.

**Triple Sec** - Clear liqueur with a rich, strong & dry, citrus orange taste. Often used in cocktails.

**Strawberry Schnapps** - Tastes and looks like fresh strawberries

**White Sambuca** - Aniseed based liqueur that (depending on alcohol content) is clear to opaque.

## Fermentation Problems;

Problem	Cause	Remedy
My wash has failed to start fermenting.	Fermenter not Sealing	Remove the lid of the fermenter and check to see if there are any bubbles rising through the liquid or any froth on the surface or around the sides. If there is sign then seal the fermenter.
	Too Cold	Fermentation should start as low as 15° C. If wash is below this add heat using a heater pad or belt from a specialist brewing store.
	Too Hot	If you added the yeast to the wash when it was too hot you may kill the yeast. In this situation you should not add more Turbo as this will result in too much nutrient. Obtain an EC1118 wine yeast from a specialist store and add this to the wash when the temperature is 20° C
My wash started to ferment but stopped and my hydrometer reading is not down to 990 (SG).	The temperature rose too high in the first 24 hours of fermentation. (The yeast activity can raise the wash temp by as much as 8° C in the first 24 hours of fermentation.) It is important to start the wash at around 20° C and not use any heat in the first 24 hours. If the wash overheats during this period the yeast may not have the energy to finish fermenting.	First stir the wash vigorously to stir the yeast back into circulation. If the SG has not lowered within 24 hours then obtain an EC1118 wine yeast from a specialist store. As there is alcohol present you should first start the yeast working in 200 mls of water. Once the yeast has dissolved, add a teaspoon of dextrose. When this is fermenting, add 200 mls of wash. When this is fermenting add half of this to the stuck wash and top back up with wash. Continue this until the wash starts fermenting.
	The wash has cooled down below 15° C.	Warm the wash up and stir vigorously to get the yeast back into circulation. Once the wash is warm fermentation should continue normally.
	I have tried to get the wash going again but nothing seems to start it.	Distill it anyway. You will not get as much alcohol as you would from a normally fermented wash. Watch the temperature on the condenser and stop when you have reached the appropriate max. temp. for your model.

## Distilling Problems;

I did not get as much alcohol as the instructions said I would.	Incorrect quantity of sugar used.	Check that you have used the right quantity and type of sugar. Standard Turbo and Temperature Tolerant Turbo. 6 kgs Still Spirits Turbo Sugar or; 6 kgs of White Sugar or; 7 kgs of Dextrose
	Steam leak from the still.	Fix leak.
	Wash has not fermented out.	See Fermentation section
My alcohol is not as strong as the instructions said it would be.	Check in above section.	Make sure you do not exceed the maximum temperature allowed at the top of the condenser. If the alcohol is not in the wash then you can't distill it.

My distillate is blue.	Ensure you have used Still Spirits Turbo products.	Some brands of Turbo produce a blue spirit due to an imbalance of nutrients.
	Use only one Turbo sachet per 25 litre wash.	If the fermentation stick do not add another Turbo sachet as this will result in an imbalance of nutrients.
My distillate is cloudy when it comes out of the still.	The wash has frothed and come out the condenser.	Use Turbo Clear prior to distilling and/or Distilling conditioner.
My distillate is clear when it comes out of the still and has been filtered but it goes cloudy after a few days.	Mineral Salts have been washed out of the carbon and have reformed in the distillate. These are harmless but unsightly. This problem can also appear as coloured sediment when flavour has been added as the salts pick up the colouring from the flavouring. This problem is also more common with Turbo Extra as distillate from this wash is more prone to flushing out the mineral salts.	<ol style="list-style-type: none"> <li>1. Thoroughly wash the carbon in the Z Filter prior to use</li> <li>2. Ensure that the temperature is kept as close as possible to 20 degrees C during fermentation of wash.</li> <li>3. Filter spirit containing sediment with a wine filter or coffee filter paper.</li> <li>4. Leave until sediment has all dropped out (cold temperatures will accelerate process) and decant off sediment.</li> </ol>
	Fermentation temperature is too high causing the production of unwanted but harmless proteins.	See points 2, 3 & 4 above.
My distillate comes out of the condenser discoloured or has dark flecks in it.	If the condenser is used for the first time then this could be residue from the manufacturing process.	Soak with White Vinegar or flat Coca Cola to clean this away then rinse with a weak solution of dishwashing liquid and warm water.
	If this has not occurred the first time the condenser has been used but occurs second and subsequent times, then it can be traced to collecting too much distillate. This will result in the problem showing up next time the condenser is used.	Clean as above and only collect the correct amount of distillate. Before distilling ensure that the SG is down to 990 otherwise make sure that you do not distill above the temperature limits of your condenser.
The condenser seems to overheat even though I am running far more water through it than is recommended.	The condenser may not be plumbed correctly.	Fill the condenser with water then pull the hoses off the base of the main condenser. One of these will be the inlet for the water and the other will be the hose that transfers the water into the reflux condenser. The water should flow out of the condenser through the pipe that the inlet water pipe is connected to. If it flows out of the other one then the hoses have been fitted the wrong way around.
	The internal overflow outlet is missing or loose.	Take the marble out of the Reflux condenser and shake the whole condenser. There should not be any rattling. If there is then the overflow pipe may be loose.
The spirit from my reflux condenser is not as strong as it should be.	The marble is not in the Reflux Condenser.	There should be a marble in the Reflux condenser. This should be resting on four indentations in the inside of the Reflux chamber. The marble ensures that all the alcohol laden steam comes in contact with the inside of the Reflux chamber. It can happen that the marble is too small and drops right through the Reflux chamber and come to rest over the nut at the bottom of the condenser where it screws onto the still domed top. This cuts off the flow of steam into the condenser altogether stopping it from working. If the marble is missing, then the condenser works more like a Pot Still condenser.

No spirit comes out of my condenser and the lid pushes off.	There is a blockage in the condenser.	When the condenser is removed from the still, it should be easy to blow in through the spirit outlet tube. Any resistance here would indicate a blockage that will most likely be at the back of the nipple that the outlet tube is attached too. Using a 4 mm flat punch and a hammer just tap the punch up the outlet to push the inside wall of the main condenser away from the back end of the nipple. This should clear any blockage.
How do I know how much water flow the condenser needs to run correctly.	Water flow is extremely important for the correct operation of the condenser. First the water runs through the main condenser then into the reflux condenser. The water warms up in the main condenser as it removes heat from the condensing spirit. This hot water is then fed into the reflux condenser. If the flow of water is too high then the reflux condenser becomes too efficient which reduces the flow of steam into the main condenser. This reduced flow will also result in a higher alcohol content as more of the heavier molecules like water are returned to the Still and what does get past the reflux condenser is the lighter molecules or the alcohol.	When a condenser is running properly, the top two bands of the main condenser should be very hot. The bottom band of the spiral should be cool and the one above it should be hot but not be too hot to touch.
Can I fit my condenser from my 5 litre still onto a larger boiler.	Yes you can fit the condenser from a 5 litre still onto a 3 in 1 fermenter. This will make a 25 litre still.	Please note that it is illegal to own and operate a still over 5 litres capacity in Australia.

## Z Filter;

My spirit comes out gray from the filter.	The carbon has not been flushed properly prior to use.	Flush the carbon as per the instructions making sure to repeat this. Take care not to knock the filter once carbon filtering has commenced.
	The wrong filter paper had been used.	The blue filter papers are for Reflux Carbon and the white filter papers are for Universal Carbon.
The spirit runs very slowly.	The filter has been over packed with carbon. When the carbon gets wet it expands and may block.	Leave a 10 mm gap at the top of both chambers of the filter.
The spirit runs too fast.	This is unlikely to cause any problem as the filter is designed to work very quickly as all the spirit is forced to pass through all the carbon.	If you are concerned with the speed then simply put the spirit through again.

## Essences;

Finest Reserve Scotch goes cloudy when I mix it with the alcohol.	This essence is prone to going cloudy if the alcohol content is below 40% or the spirit is very cold.	Make sure the alcohol content is above 40% when mixing. If possible mix it in at 50% then slowly water the spirit down. Make sure the spirit is warmer than 25° C
My spirits tastes like methylated Spirits even after I have filtered the alcohol.	This could be caused by too high a fermentation temperature. Make sure you water your distillate down to below 50% prior to filtering.	Make sure you are using the Z Filter to filter your spirit. Universal Carbon gives a cleaner result than Reflux Carbon. Use Still Spirits Turbo Sugar in the wash. Use Turbo Clear prior to distilling. Try Temperature Tolerant Turbo as this gives the cleanest spirit even in warm climates.