

THE



essencia

CARBON FILTER



- The *essencia* Carbon Filter has revolutionized the filtering and carbon treatment of alcohol.
- Using a unique cartridge system this filter eliminates the hassle of having to handle messy carbon.
- So simple to use. Alcohol poured into the upper reservoir is filtered by the multi stage cartridge system as it makes its way to the lower reservoir.
- The *essencia* Carbon Filter combines the sub micron properties of ceramic filtration with an effectively packed bed of specially formulated activated carbon.
- As well as looking good, this filter produces results un-matched by other carbon treatment systems.
- The *essencia* Water Purifier is a version of the *essencia* Carbon Filter for those who need to clean up their drinking water.

Carbon treatment using the *essencia* Carbon Filter

Priming the Carbon Cartridge and the Ceramic Cartridge before use.

Before the two filter cartridges are used for the first time, they need to be primed as follows.

- Remove the Carbon Cartridge from the filter.
- Remove the Ceramic Cartridge from the filter. Handle the Ceramic Cartridge with care as it is fragile.
- Soak the Ceramic Cartridge in a jug or pot of cold water for 1 hour.
- Ensure the plastic nozzle of the cartridge is pointing upwards and is above the water level. This allows the air to more easily escape therefore avoiding the chance of an airlock.
- While soaking the Ceramic Cartridge, immerse the Carbon Cartridge in a jug or pot of cold water.
- Be careful when fitting the cartridges not to over tighten either cartridge.
- Always support the Carbon Cartridge when handling the upper reservoir with the cartridges fitted.



Soaking the Ceramic Cartridge



Soaking the Carbon Cartridge

**** If the Carbon Cartridge is over tightened, the screw thread may break off. ****

Setup.

- Place the base on a firm surface.
- Fit the lower reservoir onto the base.
- Fit the complete upper reservoir/cartridge assembly into the lower reservoir.

Testing.

- Pour water into the upper reservoir so that the Ceramic Cartridge is completely covered. Water will begin to emerge from the Carbon Cartridge.
- Leave over night or until the water has passed through both cartridges into the lower reservoir.
- Check for any leaks around the tap. Empty the upper and lower reservoirs. It may be necessary to rinse the lower reservoir as a small amount of carbon may be present.

Watering down the alcohol prior to carbon treatment.

- Unless high strength alcohol is specifically required for a liqueur etc, your alcohol should be watered down to normal drinking strength (40% ABV) before treatment using the *essencia* Carbon Filter. There are two key reasons for this:

1. The *essencia* Carbon Filter has been specially designed to treat the water as well as the alcohol, which means the entire end product has been treated to ensure maximum quality with no contaminants.

2. The highly specialized carbon used to treat the alcohol is more efficient at removing the impurity particles when the alcohol is diluted. **Note:** Activated Carbon is not capable of effectively treating alcohol if the strength of the alcohol is greater than 55% ABV.

- Whenever you water down alcohol a chemical reaction occurs which will cause the temperature of the mix to increase. It is therefore important to measure the temperature of the alcohol whenever you are measuring alcohol strength. The spirit hydrometer has a temperature displayed on it (usually 20°C (68°F)), this is the temperature at which the hydrometer has been calibrated. If the alcohol is warmer than this the hydrometer will read high and conversely if it is colder the hydrometer will read low.

- Below is a temperature correction table for use with a spirit hydrometer calibrated at 20°C (68°F). Use it to calculate the actual strength of your alcohol.

Temperature correction table for Spirit Hydrometer.

<u>Measured alcohol temperature</u>	<u>Measured alcohol strength</u>							
	30%	40%	50%	60%	70%	80%	90%	95%
10°C (50°F)	+4.12	+3.98	+3.67	+3.42	+3.19	+2.92	+2.45	+2.06
15°C (59°F)	+2.03	+2.00	+1.85	+1.73	+1.61	+1.47	+1.25	+1.06
20°C (68°F)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25°C (77°F)	-2.01	-1.95	-1.88	-1.76	-1.65	-1.51	-1.31	-1.12
30°C (86°F)	-4.06	-3.94	-3.78	-3.55	-3.33	-3.05	-2.67	-2.31
35°C (95°F)	-6.15	-5.98	-5.82	-5.40	-5.13	-4.67	-4.07	-3.54

Example: If your spirit hydrometer reads 50% ABV and your thermometer reads 30°C (86°F), then by using the temperature correction table you can see that the actual alcohol strength is: 50 – 3.78 = 46.22% ABV.

Using the *essencia* Carbon Filter.

- Fill the upper reservoir. **If spirit is over 45%ABV the blue lid must not be fitted as the vapour may cause damage to the lid** (cover the filter with a dinner plate or similar if filtering high strength alcohol).
- Filtered product will emerge into the lower reservoir from the bottom of the Carbon Cartridge.
- Filtered product can be drawn off through the tap as required.
- The upper reservoir should be topped up as the level drops.
- When filtering is complete, approx 400 ml (13 fl oz) remains in the lower reservoir below the level of the tap. This must be left in the reservoir to prevent the carbon in the Carbon Cartridge from drying out. A very small amount of unfiltered product will remain in the upper reservoir. This should also be left until re-using the filter as the small amount of alcohol vapour is a good mould inhibitor.

Various ways to use.

The *essencia* Carbon Filter is a gravity system, and filters product when the fluid level in the upper reservoir is higher than the level in the lower reservoir. The system stops processing when the levels are equal.

Because of this, the *essencia* Carbon Filter can be used in several ways:

- Batch:** Process and draw off whole batches, drawing off filtered product through the tap in the lower reservoir to keep the level in the lower reservoir lower than in the upper reservoir.
- Storage:** Continue to top up the upper reservoir until both reservoirs are full. Draw off filtered product as required for use, topping up the upper reservoir as the level drops.
- Continuous:** Process with the tap open. Filtered product will flow from the tap as it is filtered and can be collected in another vessel.

Maintenance.

The *essencia* Carbon Filter is virtually maintenance free. Generally the only component that requires attention is the Ceramic Cartridge, which will need cleaning periodically.

To clean the Ceramic Cartridge.

Carefully remove the Ceramic Cartridge (the Carbon Cartridge must be removed first), then clean the surface using either a hard bristle brush or a pot scrubber under running water. Care must be taken when handling the cartridge as it is fragile.

Replacement Periods.

The Carbon Cartridge has been designed to treat **five batches only**, or approx. 45 L (12 gal) of spirit at 40% ABV. The Carbon Cartridge **must then be replaced to ensure a quality product is maintained.**

The Ceramic Cartridge will treat approximately 50 batches before replacement is required.

Notes:

- Replacement intervals will be affected by the quality of the product being filtered.
Best results are achieved when used in conjunction with other *essencia* products.
- Running high strength alcohol through the filter is not more economical.

The alcohol carbon in the Carbon Cartridge will only treat a certain amount of **alcohol**, ie 45 L (12 gal) at 40% ABV, **or** 33 L (8.7 gal) at 55% ABV. Higher strength alcohol merely reduces the effectiveness of the alcohol carbon at removing the impurities.

To replace the Carbon Cartridge.

- Simply un-screw the used cartridge and screw in the new one (after priming), being careful not to damage the nylon thread.
- Do not over tighten the Cartridge.
- Tighten only until the 'O' ring just seals against the upper reservoir.



Warning

- The Carbon Cartridge is a disposable item and cannot be refilled.
- To enable this cartridge to work effectively, a specific and special activated carbon is used.
- Once five batches have been processed it may appear that the Carbon Cartridge is still working because the alcohol will smell clean. This is because the odour producing particles are removed by the Ceramic Cartridge. Failure to replace the Carbon Cartridge after five batches will result in untreated alcohol.

Flow rate.

- The *essencia* Carbon Filter has been specially designed to ensure that spirit remains in contact with the activated carbon for the optimum period of time.
- The flow rate will alter according to the level of product in the upper reservoir. The maximum flow rate (approx 500 ml (17 fl oz) per hour) occurs when the upper reservoir is full, the tap is left open and spirit is being collected in another vessel. As the level of product in the upper reservoir drops, the flow rate will reduce accordingly.

If you are experiencing an unusually slow flow rate.

- An unusually slow flow rate is when there is no flow or almost no flow when the upper reservoir is full. This can occur if an air lock forms in the Ceramic Cartridge.
- If this occurs, perform the Ceramic Cartridge Priming procedure explained previously.