

PLEASE READ CAREFULLY

SkyJuice

The following information and instructions is provided to ensure this unit is correctly and safely operated. Do not use this unit unless it has been issued to by an authorised Skyjuice™ agency

What is included in this Skyjuice™ package

The issued-boxed package will include the following items.

- 1 The **Skyjuice™** water purification complete with ends caps and adapter connections and the Starter “activation” solution. The starter solution activation is a once-off operation that is undertaken by the authorised agency/agent to properly commission the unit to commence water production. It is not necessary to use this activation solution for each production cycle
- 2 The Connector package. This will consist of the two quick release plastic connectors (12 mm), the plastic stop valve (12mm) as well three lengths of 12mm clear plastic tube.
- 3 The starter cleaning package. This will consist of instructions, three concentrated cleaning Tablets, three treated water sterilisation (finish) satchels, a plastic cleaning brush and a pair of rubber gloves

The water purification (module) unit enclosed

The **Skyjuice™** water purification complete with end caps has been enclosed in protective wrapping. Inspect the unit to ensure that there has been no damage during transit. If there is any visible damage report this to the authorised agent.

This unit has been sterilised prior to shipment. Before the unit can be used to produce potable water it must be “activated” with enclosed solution. This is important to ensure that best possible flow is obtained from the unit during operation. See instructions for “activation” of your **Skyjuice™** water purification unit.

The end caps of the unit can be unscrewed for cleaning and inspection. The end caps must be removed during the cleaning cycle. Please ensure you read and fully understand instructions for cleaning of your unit. The membrane fibres that effectively remove the contaminants to purify the water are visible from the inlet end of the unit. These fibres will periodically require cleaning. Therefore it is important that you do not place any foreign object or chemical solutions in the vicinity of the membrane fibres. They can be easily damaged. If you notice any loose, broken or fractured fibres please report this to your agent.

The unit should at all times be treated with care and not placed near contaminated materials and areas where infection or germs are likely. The unit is reusable and should be used as often as possible for all potable water requirements

The function of the Skyjuice™ purification unit

The **Skyjuice™** water purification unit complete with ends caps and fittings and hoses is designed to produce water which complies to World Health Organisation requirements. The

user should supply a feed tank (plastic container, pot or urn) store the feedwater and a collection container to store the filtered potable water. The inlet water is feed under gravity low through the plastic tube to the **Skyjuice™** water purification unit. The gravity head pressure is the driving force for filtration. This unit does not normally require addition of any chemical or solutions for filtration

The **Skyjuice™** water purification unit is designed to be disassembled. The flow during water production should always from the feed container then into the unit in the direction of the arrow. The outlet point should be at the end of arrow. A simple check is to make sure the arrow is always pointing towards to ground. A stop valve has been included with the unit to allow you to regulate the flow through the **Skyjuice™** purification unit. This can be inserted into the plastic the from outlet side of the unit. So once again ensure that when operating the unit, flow should always be in the direction of the of the arrows shown. That is, with membranes fibres facing the incoming flow of raw water.

Contaminants will be removed on the surface of the membrane fibres and pure water will flow through the filtered water tube to your designated collection container. The unit must be activated by your agent when it first installed. They will use the “activation” solution. If the **Skyjuice™** water purification unit has not been activated with this solution there will be no flow from the unit.

The flowrate will vary depending on the type of feed water supplied to the unit. You can expect at minimum 50 -100 litres of water over a 3 - 5 hour period. The unit can continue to filter water until the flow ceases and becomes impractical. This is referred to as “expired”.The total flow through the unit can be as much as 1000 litres before the unit has expired. Trail and error from using the unit on the same water source will best determine your most economic batch quantities. Please ensure that you have stored and sterilised the treated water if you intend to store it for long periods during consumption.

Your unit will require cleaning after it has expired. There are two cleaning cycles to ensure that water production is restored. The first is a rinse clean and the second is a “sanitised” caustic solution cycle. In most cases, the rinse clean can be easily and quickly done by removing the inlet end cap and physically rinsing out contaminants and suspended material captured by the unit during the water production cycle. This may enable additional filter cycles but the volume of water will reduce during subsequent water production cycles. The second cleaning cycle is entirely effectively and involves soaking the unit in a mild caustic sanitising solution. This cleaning cycle may take between 4-8 hours duration. The unit can be rinsed and returned to service. The sanitising solution, stored safely in a separate container can be reused again, or used by other users until ineffective

Please ensure you carefully read and understand the cleaning cycle procedures before using the unit. Ask your agent for instructions or assistance. Personal safety and careful handling of the unit are important at all times. If in doubt, always ask questions.

Operating instructions for cleaning the Skyjuice™ unit

As explained there are two cleaning cycles to ensure that water production is restored. The first is a rinse clean cycle and the second is a “sanitised” caustic solution clean cycle. In most cases, the rinse clean can be easily undertaken by removing the inlet end cap and rinsing out contaminants and suspend material removed by the unit during the water production.

1 The Rinse Cycle

This operation is designed to restore flow to the unit as an intermediate measure between the major sanitised clean cycle. To undertake the rinse clean cycle ensure the unit has been disconnected and there is a supply of at least 20 litres of pure (filtered) water available. The following procedure is recommended:

- 1 Disconnect the unit
- 2 Select a suitable location where rinse water will not cause inconvenience
- 3 Select a small clean container to place unit into for rinsing and washing
- 4 Unscrew end caps, and thoroughly rinse and remove any loose sediment.
- 5 Hold fibres with one hand whilst gently and softly stroking the outside of the fibre bundle with the cleaning brush with the other hand to delicately remove contaminant build up
- 6 Do not aggressively brush and pull at fibres. If fibres appear discoloured or unchanged in appearance do not be concerned
- 7 Rinse unit thoroughly using filtered unchlorinated water after this operation
- 8 Do not use any chemical (especially chlorine) on or near the fibres
- 9 Do not use hot or boiling water on the unit or fibres
- 10 Reconnect the unit as previously and commence a new production cycle

This can be undertaken for a maximum of three cycles, If the flow has not improved as expected then you need to undertake a sanitising clean cycle

2 The Sanitising Cycle

This operation is designed to fully restore flow to the unit and is referred to as the major “sanitising clean” cycle. To undertake the sanitising clean cycle ensure the unit has been disconnected and there is a supply of at least 20 litres of pure (filtered) water available to rinse after wards. The following procedure is recommended

- 1 Disconnect the unit
- 2 Select a suitable location where rinse water will not cause inconvenience as per rinse cycle cleaning instructions. Unscrew end caps, and thoroughly rinse and remove any loose sediment from the unit.
- 3 Hold fibres with one hand whilst gently and softly stroking the outside of the fibre bundle with the cleaning brush with the other hand to delicately remove contaminant build up
- 4 Select a small clean sanitising container of 5-10 litres volume and add one sanitising tablet (finish tablet) to the solution. Ensure that you are wearing eye protection and wearing the rubber gloves provided. Ensure the tablet has fully dissolved and stir solution
- 5 Place the unit into the sanitising container and move around gently
- 7 Hold fibres with one hand whilst gently and softly stroking the outside of the fibre bundle with the cleaning brush with the other hand to delicately stroke fibres with the brush to ensure the solution has penetrated into the interior of the unit.
- 8 Do not aggressively brush or pull at the fibres. Let the entire unit soak for between 4-8 hours. Preferably this duration should be as long as possible
- 9 After this extended soak, remove the unit (still with gloves and eye protection in place)
- 10 Rinse unit thoroughly using potable water (unchlorinated)
- 10 Do not use any chemical (especially chlorine) on or near the fibres
- 11 Do not use hot or boiling water on the unit or fibres
- 12 Reconnect the unit as previously and commence a new production cycle

Important issues when using your Skyjuice™ unit

The following comments should be noted and understood before using your **Skyjuice™** unit. Please report any discrepancies or queries immediately to your distributor.

- 1 This unit must be operated in accordance with the instructions and agents verbal advice
- 2 The unit can be used many times, but should not be used if a there is doubt about the integrity of the membrane fibres or the unit structure, ie it looks damaged
- 3 This unit cannot be bought or sold
- 4 Do not use any other chemicals with this unit
- 5 This unit cannot be used for commercial purposes
- 6 Questionable feed waters including, saline, sewage contaminated or toxic waters cannot be used to produce filtered water

- 7 This unit should be revalidated by the agent as "safe" every 6 months
- 8 Do not expose the membrane fibres to sunlight (direct or indirect) at any time other than during the cleaning cycle
- 9 Do not stick sharp, foreign objects into the unit or pull at the membrane fibres at any time
- 10 Treat the unit with care at all times
- 11 Store the unit with end caps in place in a safe, clean, dry place when not in use
- 12 Do not place the unit in hot or boiling water or near open fires at any times
- 13 Always ask questions to your agent if you have any doubts on the operation of the unit

Some advanced technical information on your Skyjuice™ unit (for those interested)

The filtration module forms the basis of the **Skyjuice™** treatment process. This has been developed from proven and validated membrane technology used in existing potable water applications. The membrane media has been validated in numerous countries and operating plants as an effective physical and microbiological barrier for potable water production from variable water sources.

The WTD or the "filter module" as well as derivatives are covered by patent protection. The intellectual property vests with the **Skyjuice™** foundation and not permitted to be available for external commercialisation activity or for commercial purposes.

The core WTD consists of 0.2 micron microfiltration media that has been manufactured and donated by a principal project sponsor at no charge. It will produce a discrete volume of treated water depending on the incoming water quality. The output will vary dependant on the feed water quality. There are three **Skyjuice™** models. It is designed to be cleaned and reused indefinitely. The practical life of the unit is site and user dependent

These capacities are 50 litres, 100 litres and 200 litres. The treated water would be produced over a 3-5 hour period by utilising gravity as head (driving) pressure. The key components of the system are the header container, the connecting hoses and the WTD (with appropriate add-on adapter modules).

It has been designed with the intention that the treated water would comply with WHO standards from non-brackish, non-toxic water sources. Output of the system will be somewhat site dependent. Assuming feed waters with high turbidity (300 NTU +), high suspended solids (500 mg/l +) and high bacterial and algae loadings ($>10^6$ cfu) performance will normally be:

Colour	usually <10 Pt Co units
Suspended solids	<0.1 mg/L
Turbidity	< 0.3 NTU
Giardia Lamblia cysts removal	>Log 4
Cryptosporidium Oocysts removal	>Log 4
Bacterial loads	<10 cfu /100 ml
Algae	<1 cell /ml

The WTD process provides advanced treatment for turbidity, particle and parasite removal without the use of chemicals or coagulant agents. It is strongly encouraged that users add a chlorine tablet to be filtered water. This would be provided to the communities at no charge and added to treated water to ensure it is not contaminated.

If you have any general questions or suggestions on the operation of the **Skyjuice™** water purification please directly these to your nominated **Skyjuice™** water purification agent.