Water Still

1157003

Setup

- This equipment must be earthed. The power supply requirement is 220-240V 50/60 Hz single phase. If in doubt consult a qualified electrician.
- Connect water supply to the condenser cooling water inlet with a suitable length of silicone, plastic or rubber tubing. Water supply with a minimum flow rate of 1L per minute is recommended.
- Connect the distillate outlet into a sink, drain of container with a suitable length of silicone, plastic or rubber tubing. Ensure the drain tubing falls straight below the water still without kinks or bends so as to allow and unimpeded flow.

Operating Instructions

1. Ensure electrical supply is turned off at the mains plug.
2. Gradually turn the water supply on and observe the water circulating through the condenser coil and into the boiler.
3. Ensure the constant level device drain stopcock is closed to allow the boiler water level to rise.
4. When the boiler is filled to the constant level with the heater completely immersed in water, then and only then, turn on the power supply at the mains plug.

Do not turn on the power supply until the heater is completely submerged in water!

5. Within minutes, low temperature distillate will be collected from the distillate outlet.
6. Should the water supply to the unit fail resulting in high boiler temperature, a safety thermostat will cut off electrical power to the heater. Once the water supply is restored, electrical power will be automatically returned to the heater to resume the distillation process.

Preventive Maintenance

The main preventive maintenance that needs to be carried out on a regular basis is the descaling exercise. Scale will build up on the internal boiler wall and on the heater over a period of time. Removal of scale will ensure optimum performance of the water distiller. The frequency of descaling is determined by the frequency of use and the hardness of the water supply. As a general guide, for heavy usage in hard water areas, weekly descaling of the distiller is recommended whereas in soft water areas, monthly descaling may be acceptable.

Descaling Procedure

Warning: Descaling operation involved handling of concentrated acid. Therefore, exercise great care when performing descaling and wear your protective clothing, gloves and face mask

The water still has built-in constant level control device with drain valve which enables removal of scale without dismantling the glassware.

1. Disconnect electrical power supply to the distiller. Allow the equipment to cool completely as necessary.
2. Turn the water supply off.
3. Drain the water from the boiler by opening the stopcock on the constant level control device. Once the boiler is completely drained, close the stopcock.
4. Turn the water supply on. Once the boiler is filled up half way to its normal operating level, turn the water supply off.
5. Carefully, pour about 100ml of concentrated hydrochloric acid into the open funnel of the constant level control device. If necessary, flush the residual acid on the wall of the funnel into the constant level device.
6. Turn on the water supply to fill the boiler to the normal operating level. The acid in the constant level control device will be flushed into the boiler. Once the water level in the boiler is slightly below the overflow, shut off the water.
7. Allow the acid in the boiler to dissolve the scale. This could take some time depending on the severity of the build-up.
8. Open the stopcock to drain the boiler.
9. Flush the boiler, at least 3 times,
    a. Close the constant level control device stopcock.
    b. Turn the water supply on to fill the boiler to the overflow.
    c. Turn off the water supply.
    d. Open the stopcock to drain the water.
10. Clean the support stand and the outer surfaces of the glassware with mild detergent.

    Your water still is now ready to be put back into service!

Corrective Maintenance

1. Disconnect electrical supply from the distiller. Allow the equipment to cool.
2. Turn the water supply off. Disconnect all water hoses or tubing.
3. Remove the condenser.
4. Remove the two metal straps securing the boiler on to the support stand.
5. Place the boiler and heater assembly on a bench top.
6. Unscrew the 3 hexagon head bolts securing the heater. Carefully withdraw the heater from the boiler.
7. Examine the fibre insert and rubber gasket. Replace as necessary.
8. Fit the heater into a new boiler. Screw the 3 hexagon head bolts to secure the heater.
9. Secure the boiler and heater assembly onto the stand with the metal straps.
10. Reinstall the condenser and reconnect all water hoses and fittings.