

RO Maple Production

***** Membrane manufacturer flow rates will vary with colder temperatures.**

Step 1: A—Elevate the sap storage container at a minimum of 2' (60.96 cm)

B—Install the transfer pump from the tank to the RO unit, if elevating it is not possible.

Step 2: Open up the restrictor to get all of the air out. Once all of the air is out and a steady stream of sap is coming out of the concentration line, adjust the restrictor to a 1:8 ratio.

Ratio is (1) permeate reject to (8) sap concentrate.

Step 3: While the RO unit is running, turn the restrictor valve clock-wise until the pressure climbs up to 150 psi, or a 1:8 ratio on Mini RO units.

Step 4: After a short period of time, you will start to see a stream of RO water flowing. This reject product is valuable for rinsing & cleaning sap/sugar off of the membrane. It is also valuable for cleaning your evaporator.

Step 5: Always make sure your pre-filter is clear and that your sap storage is at a sufficient level.

NOTE: The bucket test will allow you to measure your reject/concentrate ratio. Simply get 2 containers and measure both volumes, (A) reject & (B) concentrate, in one minute. The ratio should be approximately 1:8

Prevent Sugar Fouling

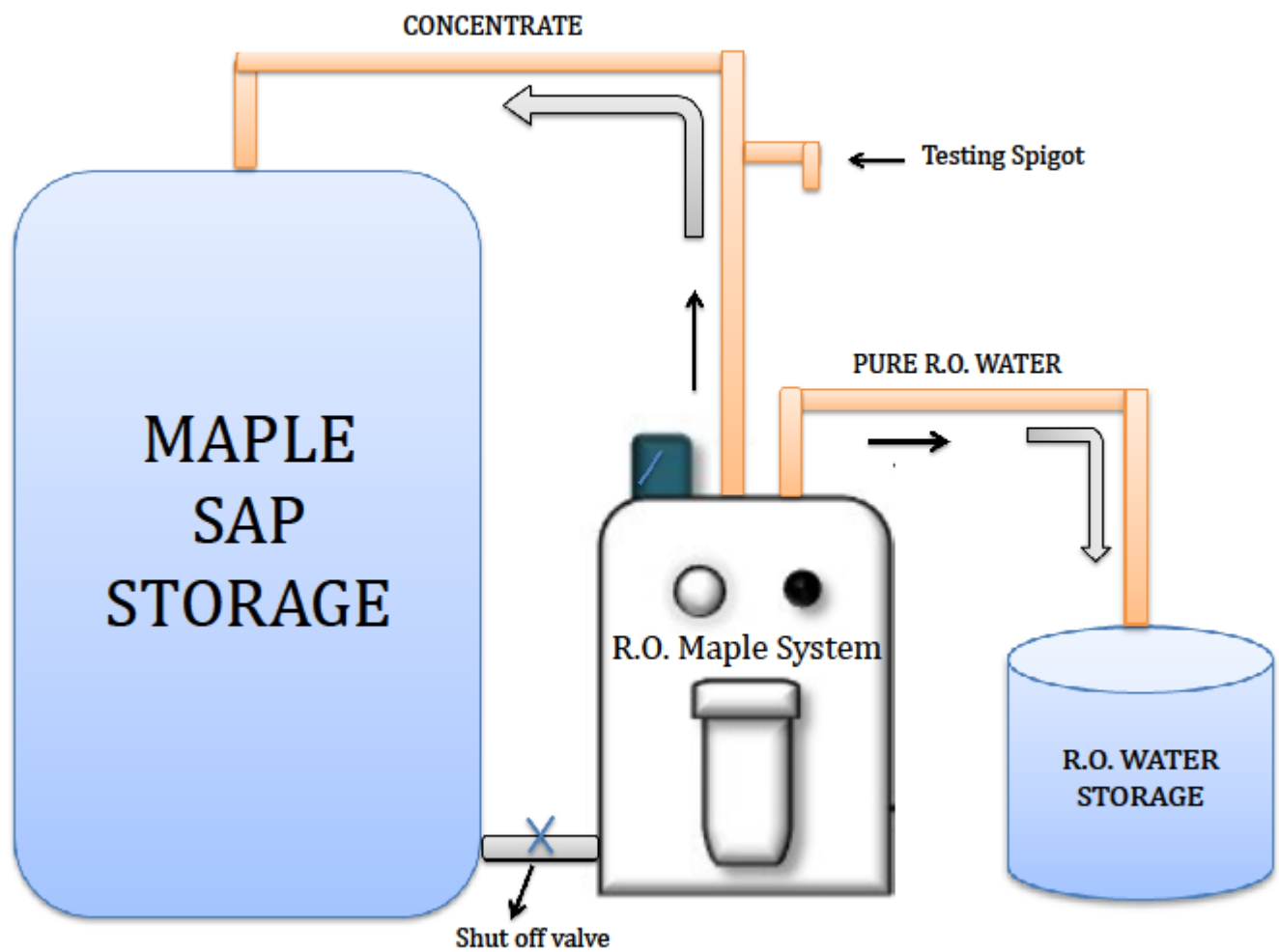
Occasionally, your membrane will need to be flushed.

As sugar starts to build up on the membrane, you can open the restrictor valve by turning it counter clockwise, which will help the sugar release from the membrane.

This is a good preventative procedure to complete every so often.

NOTE: On the newer models (21" & 40" Series) there is an additional flush valve upgrade available. If you are interested in this upgrade, ask for the "flush kit" -FK5250.

R.O. Maple Production—How it Works



The Multiple Pass System

Short Term Storage

During periods of time when the temperature drops and the sap stops running, and/or you are not using your RO unit for more than 3 days, you should flush the sugar out of your system.

Heat 20 gallons (75-76 litres) of RO water in a container, up to 70-75 degrees F (21-23 degrees C).

Put both, the reject water line & the concentrate line, into the container of warm RO water, creating a loop that will cycle through the RO unit.

This process can be completed several times to release the bulk of the sugar from within your unit.

75 degrees F (23 degrees C) maximum works best.

Deep Freeze Conditions

Each of the Series, the 12", 21" or 40", can be drained by removing the pre-filter sump and removing the tubing, to drain the sap from the membrane vessel, disconnecting the in/out tubes connected to the booster pump.

As long as all of the sap is out of the unit, no freezing damage can occur.

We recommend bringing the RO unit into a warm area to store when not in use, if you have the availability to do so.

Note: Follow the draining procedure.

Off-Season Storage

Before storing your RO unit for the off-season, please remember to:

1. Flush your RO unit with warm RO water (70-75 degrees F / 21-23 degrees C)
2. Re-route your "waste" water line and concentrate line into the RO water container, and cycle through your unit for about 10 minutes. This can be done several times until you get a low TDS reading to ensure the sugar is not sitting inside your unit.
3. Mix 5 gal (19 litres) of a food-grade citric acid & RO water mixture. (Ratio: 3 tbsp of food grade citric acid to 5 gal of RO water)

Note: Tap water will have calcium in it which can foul & shorten the life of your membrane, also affecting it's production abilities.

4. Store your RO unit in a cool place in the summer, and in an area that is above freezing temperatures in the fall & winter.

If Severe Fouling Occurs

Sometimes a very heavy sugar build up can slow the water removal rate.

This severe sugar build up will require a warm RO water application.

Heat approximately 20 gallons (80 litres) of a RO water solution, that has a low TDS, up to 70 degrees F (21 degrees C). Elevate the container of the warm RO water approximately 2' (60.96 cm), so gravity can feed the RO unit. Disconnect the line from the sap container and hook up the line from the container that contains the warm RO solution.

Put both the RO reject water line & the concentrate line into the container of the warm RO water to create a continuous loop of warm RO water moving through the system.

With both lines in the warm RO water container, start the RO unit.

Open up the RO restrictor needle valve to help lift off sugar.

Measure the TDS of the RO water. It will spike in the ppm readings. After 10 mins, or sooner, the TDS will stop increasing.

The over all TDS (ppm) in the warm RO water container will increase as the sugar separates from the membrane.

Pour out the warm RO water after you have cycled it through the system for 10 minutes. (This sugar water can be added into the sap)

For a thorough cleaning, make another container of fresh RO water solution, heat up, etc., and repeat the above procedure.

You will know that you have thoroughly cleaned the membrane when the sugar levels (TDS) have diminished and the RO water production has increased.