

The instrument

- A hydrotherm is an instrument that combines a hydrometer and thermometer in a single instrument.
- A maple syrup with the right °Brix guarantees a good shelf life for the product if it is properly barreled.
- **A syrup that is too dense** (plus 67 °Brix) **promotes the crystallization of the sugar** in the container.
- **A syrup of insufficient density** (less than 66 °Brix) **can easily mold or ferment**.
- Penalties are even applied for the most marked deviations from this target area.
- Precalibrated at 65.8 °Brix

It is for all these reasons that it is important to properly calibrate maple syrup

Using, reading and interpreting a hydrotherm

To take measurements

- The best results are obtained in a syrup at around 104 °F / 40 °C.
- To take a reading, you must first know the target density for which the syrup is designed (generally 65.8 ° Brix) and the resolution of the scale (generally 0.2 ° Breakage per graduation). Then, we count the number of graduations between the base of the meniscus and the top of the temperature column, then we multiply this number of graduations by the value of each one. Finally, we add (if the temperature column is above the meniscus) this value from the target density of the device (generally 65.8 ° Brix). Figure 2 shows examples of calculations.
- Use a clean, dry container large enough to take your sample. You must close the container tightly, allow it to cool the syrup to reach the calibration temperature.
- **Take a sample of the syrup to sufficiently fill the cup** and place it on a horizontal and stable surface to minimize the risk of reading error. **Do not fill the cup with the hydrotherm inside it** because if the syrup flows down the stem, it will affect the result.
- **Use a properly cleaned hydrotherm**. Residues on the hydrotherm would add weight to it, which would further sink into the solution and underestimate the concentration.
- Slowly lower the hydrotherm into the solution to avoid covering the aerial part with syrup, which would also increase its weight and overestimates the concentration. **The hydrotherm is a very fragile instrument. NEVER drop the heater into the cup as it may burst.**

Reading and interpreting a measurement

- For readings, always make sure that the eye is at the level of the top of the liquid of the liquid and must be made at the base of the meniscus formed by the syrup around the hydrotherm (see diagram 1). If the level syrup corresponds to the end of the red column, the concentration is 65.8 °Brix. To obtain a syrup at 66 °Brix, the level of the red dye must exceed the surface of the syrup by the number of lines appropriate according to the graduations of the device.

Maintenance and storage

- After reading, clean the device thoroughly with water the temperature that approaches the measured syrup. If there are sugar crystals or sugar stones, soak the device in a diluted solution of vinegar (as sold in grocery stores), and dry well with a soft, clean cloth.
- Avoid thermal or mechanical shock.
- **Store vertically.**
- **In the case of separation from the red dye, the hydrotherm is defective and should not be used.** To try to bring the column together, to attempt bringing the dye together, mount the device when the temperature reaches near boiling temperatures (212 ° F / 100 ° C). Insert the device into a fabric sheath (a sock, for example), with the rounded part of the device facing down. Quickly rotate the fabric sheath like a sling to force the liquid into the reservoir at the base of the device. This method is not foolproof, but it can be attempted before getting rid of the hydrotherm.

Reading error risks

- A poorly cleaned device, therefore being overweight.
- A reading that is not taken at the base of the meniscus.
- A hydrotherm submerged too quickly, causing the upper part to sink into the solution, adding additional weight to the device.
- A lack of solution in the container, which creating a plunging eye sight and causing an incorrect measurement.
- A container that is not deep enough, causing the instrument to lean against the bottom.

Source : " La calibration du sirop d'érable ". Info-Sirop de la FPAQ, Avril 2018 : pages 12-14
Source : "Comment utiliser un densimètre". Les Equipements d'érablière CDL, 2017 : pages 1-3
Source : "Les instruments de mesure dans la production de sirop d'érable". Donald Lemelin, 2011 : pages 15-21

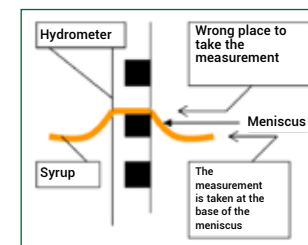


Diagram 1 : illustration of the measurement under the meniscus

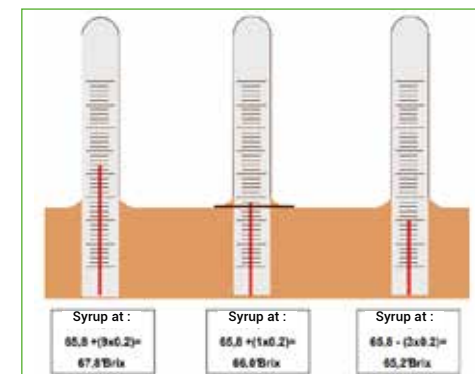


Diagram 2 : How to read a hydrotherm



Complementary products



Test cup
8 in
025-0818



Test cup
10 in
079-0769



Density
standard
054-4470