How to Use a Murphy Cup/Float

You Will Need

- **Murphy Compensation Cup** OR **Murphy Compensation Float**
- **Syrup hydrometer with a BRIX scale**
  For the most precise results, the hydrometer should be calibrated at 60ºF. (Canadian hydrometers may be calibrated at a different temperature.)
- **Maple syrup sample**

Murphy Cup

1. Float your hydrometer in a syrup sample in the Murphy Cup.
2. Compare the hydrometer reading to the Murphy Cup reading. (See example on page 4).
3. Return the syrup sample to its original container. Rinse and dry the Murphy Cup and Hydrometer.

Murphy Float

1. Place your Murphy Compensation Float and hydrometer side by side in a vessel of syrup.
2. Compare the hydrometer reading to the Murphy Float reading. (See example on page 4).
3. Remove the Murphy Float and hydrometer from your syrup sample. Rinse and dry.

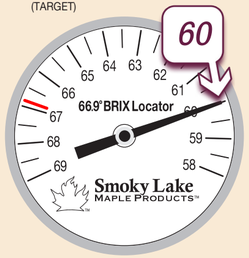
HYDROMETERS ARE FRAGILE! Be careful when releasing your hydrometer into a Murphy Cup — or ANY vessel. It could crack if it collides with the floor.

Tips

- Allow both the hydrometer and the dial to stabilize before taking a reading.
- Always start with a clean, dry hydrometer and Murphy Cup/Float.
- If the paper inside your hydrometer is loose or shifted, replace your hydrometer.
- To use a hydrometer that was calibrated at 68ºF (common in Canada), you would add 0.16 BRIX to the dial's factory setting if you are concerned with having all things equal. However, prime syrup density (between 66º – 66.9º BRIX) will still be achieved without any adjustment.

Comparing the Readings

EXAMPLE MURPHY DIAL READING (TARGET)

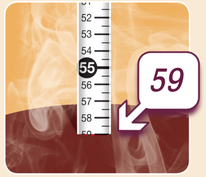


Think of the reading on your Murphy Dial as a **TARGET** that your hydrometer must match. If the numbers match, your syrup is perfect density (66.9º BRIX). **Your TARGET number will change based ONLY on the temperature of the syrup.**

In the example to the left, the Murphy Dial says your TARGET is 60. This means your hydrometer will float at its 60 mark if the syrup has perfect density.

The Murphy Dial calculates this TARGET based on the syrup sample's current temperature. 60 means the sample is 189ºF. *(See the "Discovering Syrup Temperature" section for more background on temperature.)*

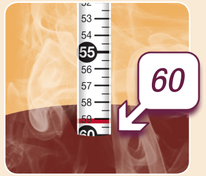
BELOW ARE THREE EXAMPLE HYDROMETER READINGS WHICH ARE BEING COMPARED TO THE ABOVE MURPHY DIAL READING.



Keep Boiling!

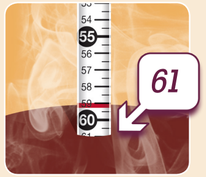
If the hydrometer reading is **LOWER** than the dial's reading, your syrup's sugar density is **LOWER** than 66.9º BRIX.

(59 - 60 = -1. So this sample is 1º BRIX lower than 66.9º BRIX.)



Just Right!

If the hydrometer reading **MATCHES** the dial's reading, your syrup's sugar density is **PERFECT**! *(66.9º BRIX)*

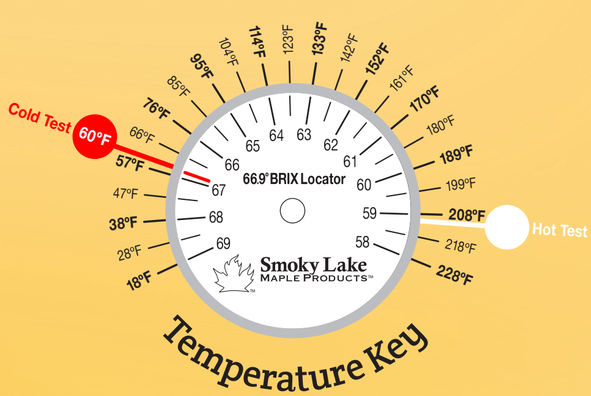


Oops! Add Sap!

If the hydrometer reading is **HIGHER** than the dial's reading, your syrup's sugar density is **HIGHER** than 66.9º BRIX.

(61 - 60 = 1. So this sample is 1º BRIX higher than 66.9º BRIX.)

The hydrometer depicted above has received accolades for being the most legible syrup hydrometer in the maple industry. Designed by Smoky Lake Maple Products.
Learn more at SmokyLakeMaple.com/gold



Discovering Syrup Temperature

The Temperature Key above can be used to determine the temperature of your syrup sample in degrees Fahrenheit.

1. Fill your Murphy Cup with a syrup sample OR float your Murphy Float in a vessel of syrup (as shown on page 3).
2. Insert the Murphy Dial through the hole in the Thermometer Key on page 2. Line up the red and purple lines on the key with the red and purple marks on your Murphy Dial as shown above. When the key is positioned in this way, the needle on the Murphy Dial will point to the temperature of your syrup sample. *Example: If the Murphy Dial reads "62," that means your syrup is 152ºF*

Restoring Factory Settings

ALL MURPHY DIALS ARE CALIBRATED BEFORE THEY LEAVE THE FACTORY!
You should NEVER need to re-calibrate your dial unless the screw on the back of your Murphy dial has been tinkered with. Turning the screw alters the calibration.

1. Fill your Murphy Cup with a syrup sample OR place your Murphy Float in a vessel of syrup. Use the Temperature Key above to match the Murphy Dial reading to a temperature.
2. IMMEDIATELY, use a CERTIFIED Fahrenheit thermometer to test the temperature of the SAME syrup sample, in the SAME vessel. NOTE: Syrup temperature can stratify/change over time, so you need to make it snappy. The reading of your certified thermometer should match the temperature that was determined in Step 1. If the temperatures do not match, REPEAT these steps and double check with second CERTIFIED thermometer.
3. If you are absolutely sure that an adjustment needs to be made on your Murphy dial, use the screw on the back of the dial to adjust accordingly.

Frequently Asked Questions

Shouldn't my target always be 66.9 BRIX?

Yes, the Murphy Dial is telling you where 66.9 BRIX is located on your hydrometer. This location shifts based on syrup temperature. That is why your hydrometer has a HOT TEST line (for 211ºF) and a COLD TEST line (for 60ºF).

Do I still need a hydrometer?

Yes. You must compare the hydrometer reading and dial reading to understand the density of your syrup.

If the hydrometer reading and the dial reading don't match, then which one is correct?

Think of the dial reading as your target. The hydrometer reading determines if you are above or below the target. If the readings match, your syrup is 66.9º BRIX. Perfect! See page 4.

Will barometric pressure affect the accuracy of my readings?

No. Barometric pressure affects the boiling point of syrup, but hydrometers are not concerned with boiling points. Hydrometers measure specific gravity.

Will the stem of the dial obstruct my hydrometer?

There should be room for the hydrometer to float and move freely. It is very rare for a syrup hydrometer's bulb to be too large to fit.

What do the colored lines on the dial represent?

The line at 66.9º BRIX coincides with COLD TEST line on your hydrometer. The line at 58.9º BRIX coincides with the HOT TEST line on your hydrometer.

Can the Murphy Compensation Cup be used with raw sap?

This generation of the Murphy Compensation Cup is meant for finishing your syrup. It is not meant to be used with raw sap.

Can I dip the Murphy Compensation Cup into my finishing pan while it's boiling?

We recommend that you fill the Murphy Compensation Cup via your evaporator pan's draw-off valve. To protect the dial, do NOT immerse it in hot liquid nor hang it in steam.