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Technical Document

Refractometer Use Instructions

File Name: TD10178_Refractometer_Use_0814A

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Product Identification: Refractometer (PN 31366)

Purpose: The purpose of this document is to detail how to use a refractometer to measure coolant concentration.

IMPORTANT: Coolant must be mixed to the manufacturer's recommended concentration for optimal performance. If the coolant concentration is weak, corrosion may be a problem. If the coolant concentration is too strong, coolant is being wasted. The water in a water-based coolant evaporates over time, changing the coolant-to-water ratio in the tank. By periodically measuring the concentration with a refractometer, small adjustments can be made to maintain the proper coolant concentration.

Using a Refractometer:

1. Check the calibration of your refractometer. Water at 68° F should read 0.0 percent Brix. Open the cover plate and place a drop of plain water (no coolant) on the prism surface (see **Figure 1**).
2. Close the cover plate to spread water over surface.
3. Look through the refractometer eyepiece and observe the Brix percentage reading (see **Figure 2**). You may need to adjust the focus ring around the eye piece to read it clearly. For plain water, the reading should be 0.0 percent. If it's not right at 0.0 percent, you can calibrate it via the adjustment screw located under the black rubber cap (see **Figure 1**).

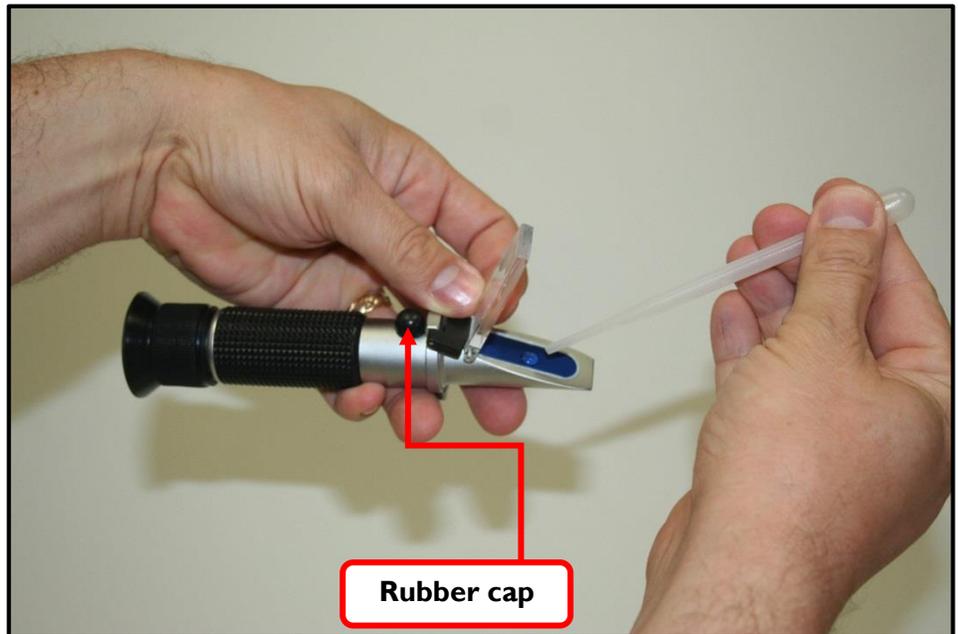


Figure 1



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4. Mix undiluted coolant with water at the ratio specified by coolant manufacturer.
5. Put a few drops of the mix on the prism, close the cover plate; take a second reading. The specific reading depends upon the particular coolant used and the dilution ratio. A 5.5 percent Brix reading is shown in **Figure 3**.
6. Record this Brix percentage reading of fresh coolant mix as the baseline reading.

IMPORTANT: Over time water in the coolant mix evaporates and the refractometer reading will increase. Dilute with water until the reading reaches the baseline Brix percentage. If the reading is below the baseline, add small amounts of undiluted coolant, mix well, and take another reading. Repeat until the baseline is reached.

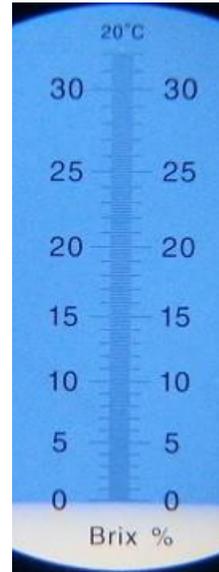


Figure 2

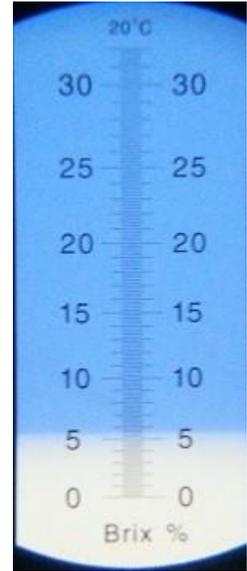


Figure 3

7. Before putting the refractometer away it's important to open the cover plate and wipe the cover plate and prism surface clean with a soft cloth. Dried coolant residue on the prism or cover plate could affect future readings.
8. If you maintain the correct mixture of coolant to water you won't need to wipe down or dry off your machine when you are finished using it. The water will evaporate and leave behind a residue of coolant that acts as corrosion protection. This will rehydrate when you start using coolant the next time. Remember, this will only work well if you are using the correct ratio of water to coolant, so keep that refractometer handy and test your coolant mix regularly.