



REFRACTOMETER REFERENCE GUIDE

Based upon decades of feedback from customers such as yourself, we offer the following guidelines for the proper operation of your refractometer. Please note that applications may vary and that these are provided as suggestions only, specific operational procedures should be developed based upon your particular condition of use. Please feel free to contact Reichert, Inc. at anytime for assistance. Our telephone and fax numbers, as well as our email and website addresses are listed below for your convenience. Our website also features a "Support" section which has many helpful hints and tips and answers many common questions.

Optimizing Reading Accuracy:

- **Warm Up:** Allow the instrument to warm up to a stable temperature prior to taking readings or verifying calibration. In fact, most refractometers perform better if left on full time. Avoid placing them in areas where temperature fluctuates such as under an air conditioning or heating vent.
- **Minimize Sample Volume:** Apply only enough sample to cover the entire surface of the prism.
- **Temperature Equilibration:** Allow the sample and refractometer to reach an equilibrium temperature before taking a reading. Monitor the temperature reading on the refractometer until stable, then take the reading. (The time required will vary with sample temperature, volume, and heat capacity, as well as refractometer temperature and room temperature.)
- **Routine Calibration Verification:** Verify the calibration of your refractometer across the reading range of your samples on a regular basis. This means verifying the set point as well as span of the instrument with known value standards (similar to tare-ing a balance and then measuring a known mass standard).
- **Sample Quality:** Non-Homogenous or volatile samples may cause reading-to-reading variances. Samples with undissolved material can cause "fuzzy" shadowlines on traditional refractometers, and may cause settling effects on automatic refractometers. Filtering or even centrifuging this type of sample may help.

Cleaning:

Note: Refractometers are optical instruments, similar to a microscope or telescope. Many have glass prisms which may be harmed by improper use or cleaning. If the optics are not properly maintained, sample readings will suffer or costly repairs may be necessary.

- **Clean Immediately After Use:** Sample should be cleaned from the refractometer immediately after reading. This is especially true for harsh chemicals that may degrade the cement seal between the prism and sample well, or high sugar content samples which could dry on the prism surface. If a sample does dry on the prism surface, soak it in warm soap and water until dissolved, then proceed with the following steps.
- **Excess Sample Removal:** Wipe away excess sample with a soft tissues or cloth. The goal of this step is not to remove all sample, or even to clean it completely, but rather to remove the majority of sample. *CAUTION: Some samples may crystalize and scratch the prism surface if you do not rinse them first with a suitable solvent.*
- **Soap and Water:** Clean the remaining sample residue with a mild dilution of soap and warm water. Do not use harsh solvents.
- **Water Rinse:** Rinse the prism surface and sample well with water. Repeat if necessary.
- **Dry:** Gently dry the prism and well assembly with a soft tissue or cloth. Kim-Wipes are suitable for use, however, minimal pressure should be used.
- **Verify:** View the measuring prism surface from an angle. You should see a sharp, distinct reflection from the surface, similar to that of a window viewed at an angle. If residue is apparent, repeat the cleaning process.

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