



Evaluation of Wildland Fire Chemicals

Standard Test Procedures

4.2 Refractometer

Summary: This procedure is used to determine the salt content of fire chemicals. Actual readings are recorded on applicable mix, product performance, and any other lab form.

Material and lab locations:

1. Refractometer
2. Retardant sample
3. Lint-free wipes
4. Wash bottle of deionized water

Misco® Digital Refractometer

- Turn the refractometer on.
- With a plastic applicator rod, taking care not to touch the prism, add a drop of product sample approximately the size of a dime onto the prism glass. Close the lid and press “Go” to take a reading. A value will be displayed on the LCD screen after a couple seconds.

After a reading is taken, rinse the sample off with water from a wash bottle and dry the prism with a Kimwipe before taking another reading. Never use a regular paper towel to dry off the prism, as they are slightly abrasive and etch the glass over time. The same care is taken as is when using the digital refractometer. The salt content value of a retardant is read through the eyepiece. Reading the refractometer can sometimes be difficult. Pointing it toward a light source and cupping one hand around the eye may help. Retardant concentrate samples must be mixed with water before being read by the refractometer. Refractometer cannot be read for liquid retardant concentrates.

- Occasionally it is not possible to read the sample. This may be because it is too concentrated (see item #1) or because there is too much retardant on the prism. Clean the refractometer and try again
- Lot Acceptance and Quality Assurance (LAQA) concentrates need to be diluted before obtaining a value. See LAQA Procedures for correct mix ratios.