



Warning!

Always check sample Health and Safety Data before applying to the refractometer.

When applying samples which are harmful by skin or eye contact, wear appropriate protective clothing and glasses.

The flap material is poly carbonate which is subject to reaction with a variety of concentrated acids and bases and it is soluble in various organic solvents. Avoid contact with acetone and certain aromatic hydrocarbons. Check sample specifications before applying.

The Zebra refractometer is a precision optical instrument and should be handled with care. Do not drop or subject it to sharp knocks.

Zebra Skimmers accepts no responsibility for any loss or damage caused by the use of this instrument.



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Zebra[®] Hand-Held Refractometer Instructions for Use

You have purchased a high-quality refractometer for measuring coolant used in the metalworking industry.



OPT10/OPT32

If you want a refractometer to measure **glycol** (engine coolant), please contact us directly for an exchange.

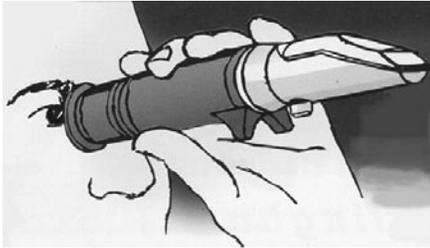
OPT15/OPT30



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Focussing the scale

Hold the instrument up to the light and look through the eyepiece.



Rotate the eyepiece to focus the scale.

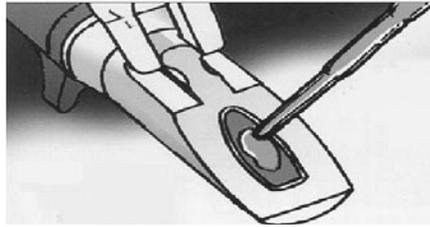


Calibrate the Unit

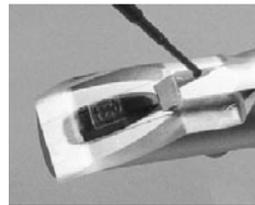
It is best to calibrate your unit with distilled water at room temperature to zero the scale. Apply distilled water to the prism, then adjust the scale to zero using the adjuster knob.

Applying sample to the refractometer

Lift the flap, drip sample onto the prism then close the flap



or

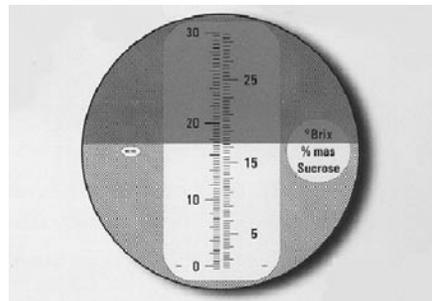


use the dribble feature; drip sample into the top of the closed flap.

Optical glass is relatively soft and care should be taken not to scratch the prism surface. Do not use metal spatulas or glass rods to apply samples but instead use softer materials such as plastic.

Taking a reading

Read the scale at the border of the light and dark areas. If the scale is completely light then the sample concentration may be too high for the instrument range.



Your coolant may not measure 1:1 on the scale of this refractometer. Please correct your reading by multiplying the reading on the scale by your coolant's refractometer factor, which can be found on the coolant's product label (if there is not one listed on the label, contact your coolant supplier or manufacturer for this data).

Ex: The refractometer shows "5" on the scale and your coolant has a refractometer factor of 2.1. ($5 \times 2.1 = 10.5\%$ concentration).

When the line on the scale becomes blurry, even with the unit in focus, it means that your coolant is starting to entrain emulsified oils. Prevent this problem by removing floating oils from your machine sump or tank whenever they are present. Once the line becomes unreadable, it is time to change your coolant.

Correcting for Temperature

If, during concentration measurement, the temperature is above or below 10°F to that of the temperature during calibration, it is recommended to recalibrate the unit at the testing temperature.

NOTE: OPT10 and OPT32 models are temperature stabilized within a 18°F range.

Cleaning the prism

Thoroughly clean the prism and flap immediately after use with water or other suitable solvent and dry with clean tissue.



The prism surface could be damaged by strong alkalis or acids if left in contact for long periods of time. Clean samples from the prism as soon as practicable.

Wiping the prism surface occasionally with alcohol will remove any build-up of oils left from the samples.

Fitting a new flap

If the flap should become damaged, a replacement can be clipped on easily as shown below. Contact us for ordering information.

