

SC-B/2HB-3D DIGITAL REFRACTOMETER FOR ANTI-ICING ADDITIVE USER GUIDE

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INTRODUCTION

Gammon Technical Products Inc. would like to extend our appreciation to you for purchasing this instrument. It is our mission to provide a quality product at a competitive price and this instrument will prove its value to you.

IMPORTANT PRECAUTIONS

- DO NOT place fuel on the measuring surface.
- DO NOT SUBMERGE INSTRUMENT IN LIQUIDS.
- DO NOT STORE INSTRUMENT WITHOUT MAKING SURE IT IS CLEAN AND DRY.
- DO NOT leave instrument in direct sunlight or in a vehicle on a sunny day.
- DO NOT subject instrument to temperatures above 50°C (122°F) or below -10°C (14°F).
- DO NOT attempt to repair, modify, or disassemble any portion of the instrument.
- DO NOT drop or subject instrument to strong shocks or vibrations.
- DO NOT use a metal device to transfer samples to the measuring surface.
- DO NOT use an instrument unless you have personal knowledge of its calibration.
- DO NOT press the buttons with anything other than a finger.
- DO NOT clean instrument with cleaners or solvents.

SCALE

The scale measures %DiEGME only. Since the ASTM standard references all measurements in %DiEGME, samples will always be read in the %DiEGME scale.

CALIBRATION

The refractometer **MUST** be calibrated before initial use and periodically thereafter. Calibration is recommended at least once a day as well as prior to performing tests requiring the highest precision, or when moving between environments with extreme changes in ambient temperature.

A clean container of water is all that is needed to automatically calibrate the instrument. Tap water may be used, but distilled or deionized water is recommended. The water temperature should ideally be between 10°C to 30°C (50° to 86°F).

CALIBRATION PROCEDURE

1. Inspect the measuring surface to make sure it is clean and dry. Place about 0.5 mL of distilled water on measuring surface.
2. Close the sample cover and allow at least 20 seconds for the temperature to equalize. The sample cover **MUST** be closed to calibrate or take readings.
3. Press and release <GO> to turn the instrument on.
4. Press and release <MENU> until the display reads "SET ZERO? (GO) TO SET."
5. Press and release <GO> to automatically calibrate the instrument. Remember to clean and dry the measuring surface after calibration.

OBTAINING A TEST SAMPLE

Obtain a test sample following the ASTM D5006 procedure.

1. In a clean and dry container, procure a 200mL sample of the fuel to be tested.
2. Set up the ring stand as shown at right.
3. Using the graduated cylinder, transfer exactly 160 mL of the fuel to the separator funnel that you have placed in the ring stand.
4. Using one of the piston pipettes, add exactly 2mL of the same water used for calibration to the funnel. Cap the funnel and shake vigorously for five minutes. Then return the funnel to the ring stand to let the water settle to the bottom.
5. When some water has collected at the bottom, carefully rotate the separator funnel drain cock so that a trickle of settled water can be taken in a clean, dry, aluminum dish.



TAKING READINGS

1. A single press and release of <GO> will turn the instrument on.
2. Inspect the measuring surface to make sure it is clean and dry. Use a clean, disposable, plastic pipette or syringe (without a needle) to place about 0.5mL of the sample from Step 5 of Obtaining a Test Sample on the measuring surface. This sample must not contain fuel.
3. Always close the sample cover and allow at least 20 seconds for the temperature to equalize. A good rule of thumb is to wait at least 30 seconds for every 20°F (10°C) difference in temperature between the fluid and the instrument.

TAKING READINGS (continued)

4. Press <GO> to automatically trigger a reading. The display will indicate the scale on the first line of the display and * READING * on the second line.
5. The reading will take about five seconds and the result will be displayed on the screen.
6. Press and release <GO> to take a second reading.
7. Use the same pipette used for application to suck away the sample and dispose of it properly. Wipe away any remaining residue with a damp cloth and then wipe dry. Make sure the surface is clean and dry before next use.

MENU OPTIONS

Set Zero?
[GO] to Set

The Zero Set option will zero or calibrate the instrument to water.

LCD Light?
[GO] Yes

This option allows you to turn the LCD display backlight on or off. The options are "Yes" and "No."

Language?
[GO] to Set

Follow the prompts to select the display language from the five options and press <GO> to set.

AUTO TEMPERATURE COMPENSATION

The speed of light in a liquid increases as temperature increases, and the refractive index, therefore, decreases. Automatic temperature compensation ensures that concentration readings of aqueous (water-based) solutions will be accurate with respect to the sample's temperature.

Samples should be read at an ambient temperature as close to 20°C (68°F) as possible for the best precision. Scales are programmed with temperature compensation specific to an individual unit of measure. This will be noted on the specification card accompanying the instrument.

For the most accurate possible results, the instrument, the ambient temperature, and the fluid should be in equilibrium with the instrument's temperature range.

CARE AND MAINTENANCE

Keep the measuring surface clean! It is extremely important to thoroughly clean the measuring surface after each use with a wet, soft, clean cloth or paper towel.

TROUBLESHOOTING

The most common source of error is trying to take readings with the cover open. If this is not the case, and you suspect the instrument is malfunctioning or giving an erroneous reading, try calibrating it and take a reading of water to check the zero set. If the instrument readings are still suspicious, replace the battery and repeat the above procedure.

If the instrument "locks up" and will not read or shut off, clear the instrument by removing the batteries. If the unit fails to display "GAMMON/PALM ABBE II" when starting, check the battery insertion and polarity. If the unit still will not start, check the battery charge and/or replace the batteries. If batteries are good and instrument still will not start, call GTP for support.

No Sample Detected

Sample was not detected on prism.

Close Cover Press [GO]

Cover must be closed before taking reading.

Out of Range Temp +

Temperature out of range - too high (+) or too low (-)

Sample out of Range +

Concentration out of range - too high (+) or too low (-)

Warning! Low Battery

Time to change the batteries.

SPECIFICATIONS

- This refractometer only measures DiEGME in fuel using the ASTM D5006 test procedure.
- **Power supply:** 2 AAA batteries
- **Battery Life:** ~3,500+ readings
- **Dimensions:** 145 x 75 x 37 mm (5.7 x 2.95 x 1.46 in)
- **Weight:** 250 grams (8.8 oz)
- **Languages:** 5 languages - English, French, Spanish, German, and Russian
- **Minimum sample volume:** 0.3 mL
- MADE IN USA



PARTS LIST

SC-B/2HB-3D Refractometer only, hand held, directions included.

SC-B/2HB-C-3D Complete Kit: carrying case, nicked hardware, locks and keys; the refractometer and ancillary equipment listed below. Directions included.

ANCILLARY EQUIPMENT

SC-B/2-F1 Funnel, separatory, polypropylene*, 250 mL

SC-B/2-SB1 Ring stand

SC-B/2-D1 Dishes, aluminum foil, 100ct.

SC-B/2-P1 Pipettes, piston style, 3ml, 6ct.

SC-B/2-B2 Bottle, polypropylene*, 60mL, with screw cap

SC-B/2-G1 Graduated cylinder

SC-B/2-CA Carrying case

* Vendor reserves the right to substitute different plastic materials, as availability provides.



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