Racing Surfaces Testing Laboratory

907 National Avenue
Lexington, KY 40502
207.570.9869

LABORATORY TEST METHOD FOR SALT CONTENT DETERMINATION OF RACING SURFACE SOIL MATERIALS

Note:
This procedure applies only to dirt surfaces, and not to surfaces that contain wax, rubber, or fibers.

1) Place sample in muffle furnace to remove organic material. Refer to the Organic Carbon Determination Procedure for details.

2) Clean a metal **scoopula** and **250 mL beaker** using the following procedure: a) clean the equipment using **isopropyl alcohol**, b) spray with **distilled water** from the spray bottle, c) dry with a clean cloth or **paper towel**, and d) set equipment aside where it will not get contaminated with dirt/dust.

3) Add approximately 100g of material (from organic burn-off) to a 250 mL beaker using the scoopula or spoon that were just cleaned. Record the weight of the material under "Sample mass" with a **scale accurate to ±0.01g**.

4) Add distilled water so that the weight of the material in the beaker and the weight of the sample in the beaker are the same, creating a "1:1 suspension". Record the weight of the water added under "Water mass."

5) Mix for 30 seconds with the clean scoopula. **DO NOT** rinse the scoopula into the beaker. Cover with **plastic wrap** to avoid dust contamination.

6) Place beaker in a place where it will not be disturbed by vibration for 4 hours (on the mantel). This allows the sand particles to settle from the suspension, air to leave the solution, and the salt ions to diffuse into the solution.

7) Take this time to check the calibration date and settings of the COM-100 probe: a) If 4 weeks have elapsed since previous calibration, proceed to the section in this protocol called "Calibrating the COM-100 Probe" before continuing, b) Once calibration is set, turn the probe on by pressing the 'ON/OFF' button then make sure that the probe is set 442 ppm scale. If not, press and hold the 'Hold/Mode' button until the correct mode is displayed.

8) After 4 hours have passed, measure the Total Dissolved Solids (TDS) and temperature of the water in the suspension above the settled sand with the **COM-100 Probe** using the following procedure:

a) Spray the electrodes with distilled water and shake off excess water.

b) Dip the electrodes into the water mixtures and gently stir the solution to release any air in the meter. Allow reading to equilibrate for up to 120 seconds (press the 'Hold/Mode' button quickly to save the reading after the equilibrating period has passed).

c) Record the final temperature under "temperature (probe reading)" and total dissolved solids reading under "Total dissolved solids in liquid above settled soil (probe reading)." Note that for large salt contents, the tester may read in units of ppt rather than ppm (1 ppt = 1000 ppm).This will show a flashing 'x10' just under the reading.

9) If taking readings on multiple samples, be sure to spray the electrodes and probe tip with distilled water before taking readings on the next sample.

10) When testing is complete, shake excess liquid off the probe and spray the electrodes with distilled water. Dry completely before storing.

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Calibrating the TDSTestr11 Probe

1) Clean a 250 mL beaker using the procedure outlined in step 2 of the regular protocol.

2) Pour 100 mL of the "**1413 µS/cm Conductivity Standard**" into the beaker.

3) Make sure the meter is in the correct mode for the standard solution (this will be µS). If not, press and hold the 'Hold/Mode' button until the correct mode is displayed

4) Spray the electrodes of the COM-100 with distilled water. Shake excess liquid off the probe.

5) Dip the meter into the calibrating solution. Lightly stir/tap the meter on the bottom of the glass to remove any air bubbles or lingering electrical charges

6) Press and hold the 'TEMP/CAL' button. The temperature display will change to a 'CAL' image.

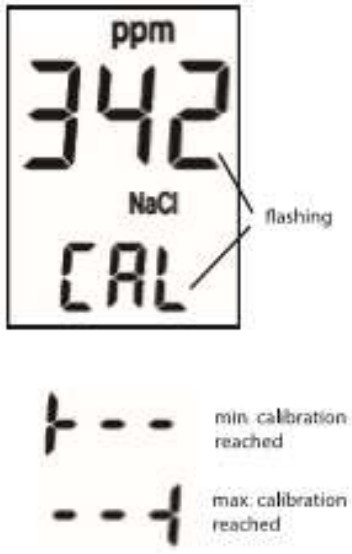
7) The meter will automatically adjust to a reading within a range of solution the meter is in.

8) Change the reading so that it matches the calibration solution. The tester will read in units of ppt rather than ppm (1 ppt = 1000 ppm) This will show a flashing 'x10' just under the reading. This means to calibrate to the 1413, the reading will show 141.

To increase the reading, press the 'UP' button (TEMP/CAL). To decrease the reading, press the 'DOWN' button (HOLD/MODE). NOTE – If the calibration reading is lowered or raised to the minimum or maximum calibration reached' icon or 'maximum calibration reached' icon, respectively (see figure below). Note that this occurs only within the range of the solution the meter is currently in. When 'CAL' does not flash, it means calibration is in the middle of the range. The meter does not restrict calibration.

9) To set calibration, press and hold the 'TEMP/CAL' button until the screen reverts to the measurement mode.

10) Your meter is now re-calibrated.



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Revision No.	Date	Revision By	Description
1.0	06-May-2009	R. Beaumont	Created and issued procedure
2.0	09-May-2009	R. Beaumont	Modified steps 1 & 3 – use material after organic carbon has been burned-off
2.1	23-April-2012	M. Segee	Revised
2.2	06-June-2013	M. Segee	Added cell labels from datasheet
2.3	28-Apr-2014	H. Babbitt	Updated lab address
2.4	5-Jan-2015	T. Thomson	Updated for new TDS probe
2.5	6-May-2016	J. Rose	Updated clarity of instructions
3.0	19-June-2017	K. Dempsey	Changed instruction for accurate measurements
3.1	26-Feb-19	H. Adams	Update address and phone number
3.2	19-Mar-2025	M. Rockefeller	Update address