Racing Surfaces Testing Laboratory

2 Summer St. Unit 1
Orono, ME 04473
207.866.1046

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 **scupula** 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 scupula 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 scupula. **DO NOT** rinse the scupula 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) 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 **TDSTestr11 probe** using the following procedure: a) Check the calibration date of the TDSTestr11 probe. If 4 weeks have elapsed since the previous calibration, proceed to the section in this report "Calibrating the TDSTestr11 Probe" before continuing. b) Spray the electrodes with distilled water, c) dip the electrodes into the water mixture and allow reading to equilibrate for 60 seconds (press the hold button to steady the reading) d) 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).

8) 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.

Calibrating the TDSTestr11 Probe

1) Clean a 250 mL beaker using the procedure outlined in (2) above.

2) Pour 100 mL of the "**Standard Reference Solution**" into the beaker. On the bottle, there should be a line reading some number in units of ppm (such as "2190 ppm (442 scale)").

3) Clean the tip and electrodes of the TDSTestr11 with distilled water. Dip the tip into the calibration solution and note the reading. If the meter does not display the value on the side of the reference solution bottle, then refer to the TDSTestr11 instruction manual for further directions for adjusting the meter reading. Note that for large salt contents, the tester may read in units of ppt rather than ppm (1 ppt = 1000 ppm).

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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