

# Racing Surfaces Testing Laboratory

2 Summer St. Unit 1  
Orono, ME 04473  
207.866.1046



## LABORATORY TEST METHOD FOR ORGANIC CARBON DETERMINATION OF RACING SURFACE SOIL MATERIALS (ASTM D2974)

Note:

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

- 1) Place sample in oven to remove moisture. Refer to the Moisture Removal & Determination Procedure for details.
- 2) Using a **scale accurate to  $\pm 0.01$  g**, determine and record the mass of the **crucible** under "mass of crucible." Note: clean crucible with compressed air and a dry cloth. Do not use liquids if possible. If liquid is used, crucible must be reconditioned at 200°F for 24 hours before using.



- 3) Transfer approx. 100g of oven dried material to the crucible and record mass of crucible + material to nearest 0.01g under "initial mass of crucible & sample."



- 4) Place the crucible into the **muffle furnace**. If testing more than one sample at a time, make sure the location of

each sample in the furnace is recorded, as there is no way to label the crucibles.



- 5) Set the muffle furnace to the "8.0" setting during heat-up. Press the green start button on the **timer**. It will take approximately 45 - 75 min to reach the desired temperature of 825°F (440°C).



- 6) When the furnace has reached 800°F to 850°F, turn the dial setting to a setting between "4.6" and "4.8" and press the start button again.

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7) Important: 1) do not let the temperature inside the furnace exceed 900°F, otherwise there is the risk that the sand particles may crack, and 2) DO NOT OPEN the muffle furnace while it is at temperature as the crucible will be exposed to thermal shock.

8) The timer will turn off the furnace automatically after 10 hours have elapsed. Allow the furnace to cool completely to room temperature with DOOR CLOSED.

Cool-down time is approx 4 hours. After cool-down, record the final mass of the material in the crucible under "final mass of crucible and sample." The difference between the initial and final mass represents the amount of organic carbon (OC) that was present in the sample.



9) The percentage of organic carbon can be found by dividing the weight of the organic carbon found in the previous step by the dry weight of the material before burn off. Note that this is calculated differently than moisture content.

Revision No.	Date	Revision By	Description
1.0	17-Mar-2009	R. Beaumont	Created and issued procedure
1.1	28-Mar-2009	C. Mahaffey	Modified step 7 for cool-down procedure.
1.2	03-Aug-2009	M. Segee	Added note in step 3 to not clean crucibles with liquids.
1.3	13-Jan-2011	M. Segee	Added timer
1.4	23-Nov-2012	A. Eguren	Modified step 5 for the approx time that takes to reach 825°F
1.5	06-Jun-2013	M. Segee	Added cell labels from data sheet
1.6	28-Jun-2013	M. Segee	Added pictures, clarified steps.
1.7	10-Jul-2013	M. Segee	Added more pictures and further clarified steps.