Racing Surfaces Testing Laboratory

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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) Record the number of the crucible on data sheet. Using a **scale accurate to ±0.01 g**, determine and record the mass of the **crucible** under "mass of crucible."



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(s) into the **muffle furnace**.



5) Press the green start button on the **timer**. The thermocouple switch will automatically maintain the correct temperature, so there is no need to turn the muffle oven down. It may be necessary to increase the amount of time the muffle oven is on for during the winter, to ensure that the muffle oven spends enough time at the correct temperature.



6) 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.

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7) The timer will turn off the furnace automatically after 14.5 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.

8) After the muffle oven has turned off, the datalogger can be checked to ensure that the correct temperature was maintained for at least 10 hours. The datalogger must be connected to a computer, and the EasyLog USB software can be used to read the data and relaunch the device.



9) Place the crucible into the 110C oven for about an hour or so before recording the final weight on the data sheet.

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.
1.8	22-Jun-2015	N. Lawson	Modified steps 5 and 6 to account for changes in muffle furnace.
1.9	06-Oct-2015	N. Lawson	Modified step 5 and removed step 6, and added step 8 for datalogger.
2.0	26-Feb-19	H. Adams	Update address and phone number
2.1	19-Mar-2025	M. Rockefeller	Update address