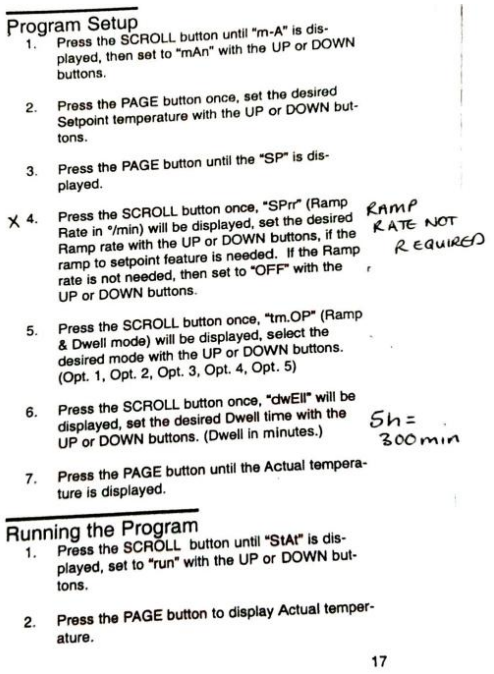
Total Organic Content Protocol
Revised 4/16/2012 by Nannette Huber

Before you use the blast furnace, be sure the breaker is "on" and no samples are in the furnace. Be sure to sign the logsheet and indicate when you will return to collect your samples.

Supplies needed:

Clean and dry crucibles
Nitrile Gloves
Heat-resistant gloves
Sediment samples
Scale
Log Sheet
Modified 60-mL syringe

1. Weigh a clean and dry crucible (W1)
2. Make sure the sediment sample is well mixed.
3. Using the modified 60mL syringe, place 10mL of sample in weighed crucible.
4. Weigh crucible with samples (W2) to determine wet weight (W2-W1).
5. Repeat steps 1-4 for all sediment samples you need to analyze.
6. Heat weighed samples at 105 °C (221°F) for 5 hours (300 minutes), to drive off water. If your samples are especially wet, you may need to increase the heat time. (If the image of the directions below is too small, there is a full-size copy of the Program Setup SOP kept next to the blast furnace)



Program Setup

1. Press the SCROLL button until "m-A" is displayed, then set to "mAn" with the UP or DOWN buttons.
2. Press the PAGE button once, set the desired Setpoint temperature with the UP or DOWN buttons.
3. Press the PAGE button until the "SP" is displayed.
4. Press the SCROLL button once, "SPrr" (Ramp Rate in °/min) will be displayed, set the desired Ramp rate with the UP or DOWN buttons, if the ramp to setpoint feature is needed. If the Ramp rate is not needed, then set to "OFF" with the UP or DOWN buttons.

RAMP RATE NOT REQUIRED

5. Press the SCROLL button once, "tm.OP" (Ramp & Dwell mode) will be displayed, select the desired mode with the UP or DOWN buttons. (Opt. 1, Opt. 2, Opt. 3, Opt. 4, Opt. 5)
6. Press the SCROLL button once, "dwEll" will be displayed, set the desired Dwell time with the UP or DOWN buttons. (Dwell in minutes.)

5h = 300 min

7. Press the PAGE button until the Actual temperature is displayed.

Running the Program

1. Press the SCROLL button until "StAt" is displayed, set to "run" with the UP or DOWN buttons.
2. Press the PAGE button to display Actual temperature.

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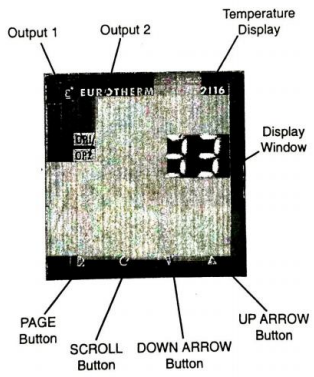

7. Allow the samples to cool in the oven at least overnight.
8. Weigh cool crucibles again (W3) to determine dry weight (W3-W1)
9. Heat samples at 650 °C (1202 °F) for 8 hours (480 minutes) to burn off organic material.
10. Allow the samples to cool in the oven for at least 48 hours.
11. Weigh cooled crucibles for the last time (W4) to obtain the weight of carbon (W3-W4)
12. This last figure should be expressed as a percentage of the dry weight of the sample to give organic carbon content

Sample	Crucible (W1)	Crucible and Sample (W2)	Wet Weight (W2-W1)	Crucible and Dry Sample (W3)	Dry Weight (W3-W1)	Crucible and Burned Sample (W4)	Weight of Carbon (W3-W4)