

Organic Matter Pretreatment for Malvern

1. Turn on the Digiblock.
 - a. Flip on the switch on the back of the digiblock keypad.
 - b. Hit enter (operation)
 - c. Set target temperature to 50 °C.
 - d. Set target time for 4 hours (240 min).
 - e. Select heater off at end of time.
2. Place ~1 g of sample in a 50 mL digitube.
3. Add 5 mL DI water
4. Add 3 mL of 30% H₂O₂ dropwise while manually swirling the tube.
5. Continue adding H₂O₂ until bubbling subsides or until 5 mL of H₂O₂ have been added. If the sample bubbles over, you will need to remake the sample (bubbles will preferentially remove smaller grains).
6. Place in Digiblock, cover with a watchglass, and monitor:
 - a. Wash beaker sides frequently with H₂O₂.
 - b. When reaction slows or stops, add 1mL H₂O₂ at a time.
 - c. When the reaction is complete, the sample will settle and leave the liquid relatively clear.
 - d. At this point, remove the watch glass and increase the heat to 60 °C.
 - e. Do not let the samples dry out!
 - f. Note: this process may take 2-3 days or even a week + depending on organic matter content.
7. Transfer sample to 50 mL centrifuge tube and add H₂O until solution is ~1/4" from the top.
8. Centrifuge samples for ~20 min at ~2500 RPM. (Ensure that the centrifuge is properly balanced!)
9. Decant off H₂O₂/H₂O, fill again with water.
10. Repeat centrifuging twice (total of 3 times in centrifuge).
11. After decanting the final time, add 20 mL of sodium hexametaphosphate (2.5 g/L) to the samples and stir.

Adapted from SCP Application Note- "The Digestion of SS-1" and Harland Goldstein, USGS.