

Introduction:

The 440 Elemental Analyzer can perform direct automated elemental analysis of organic carbon with a minimum of sample preparation. The samples are placed in acid to dissolve the carbonate material and then filtered. The filters are run on the analyzer.

Sample Preparation

1. Place sediment samples in drying oven at 105°C until dry, usually 24-48 hours.
2. Weigh out 5-10 mg of sample into a 15-20 ml beaker or glass scintillation vial. You want your sediment to be a thin covering over the bottom of the container. This will maximize contact of sediment with the acid.
3. Cover the sediment with 1M H₃PO₄. This will dissolve out the carbonate material. The sediment will begin to bubble.
4. Allow the sample to sit 4-5 minutes. If bubbling continues, add up to 1 mL of 1M H₃PO₄ or 1 drop of 6M H₃PO₄. Keep the sample covered with the acid.
5. Rinse down the walls of the beaker with carbon free water.
6. Place the beaker in an ultrasonic bath for 4-5 minutes.
7. Filter the sample at a low pressure (15 in Hg) vacuum onto a precombusted 25 mm diameter filter to dryness.
Rinse tower down with carbon free water to insure that all of the sediment is residing on the filter and not the sides of the tower.
8. Place the filter in a drying oven at 85°C until dry.
9. Once dried, leave samples in a dessicator until ready to run.

For further information on filters and filter analysis, see Tech Brief 210.