Collecting samples for Total Organic Carbon (TOC) analysis

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1 Works for me This protocol is published without a DOI.

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ABSTRACT

This protocol describes collecting samples for Total Organic Carbon (TOC) analysis. The method is appropriate for samples in oligotrophic marine waters where the concentration of particulate organic material is low.

PROTOCOL CITATION

Krista Longnecker 2021. Collecting samples for Total Organic Carbon (TOC) analysis. **protocols.io** https://protocols.io/view/collecting-samples-for-total-organic-carbon-toc-an-bumhnu36

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MATERIALS TEXT

40 ml EPA vials with Teflon-lined septa.

Fisherbrand™ EnviroWare™ Assembled Borosilicate Glass EPA Vials **Fisher**

Scientific Catalog #03-339-14A

Teflon-lined septa are also required for the autosampler. Septa are not reusable, but the outer ring holding the septa onto the vial can be reused.

Pipet for **40 µl** of volume and tips.

Concentrated hydrochloric acid (12 M) in glass bottle. Do not use HCl in plastic bottles. This means purchasing smaller glass bottles of HCl or purchasing trace-metal grade HCl in Teflon bottles.

TOC analyzer: our lab uses a Shimadzu TOC-VCSH total organic carbon analyzer with a TNM-1 module for total nitrogen

Collecting samples for Total Organic Carbon (TOC) analysis 4h

1 The glass vials need to be combusted before use.

1.1 Set aside the caps that were sent with the vials because they cannot be combusted.

1.2 Wrap packs of glass vials in foil prior to combusting them.

1.3 Combust the glass vials at **450 °C** for at least **04:00:00** . 4h

2 Use electrical tape or lab tape to label the vials. Do not use too much tape as that causes problems with inserting the vials into the autosampler. We prefer 1/2 inch label tape, placed towards the top of the vial. Be sure to wrap the tape all the way around the vial in order to prevent the labels from falling off during sample processing.

3 

In the field, while wearing gloves, rinse the 40 ml glass vials 3x with sample water.

4 Fill each vial up to the shoulder with the sample (**40 mL**).

5 

Add **40 µl** of **12 M** hydrochloric acid to this vial.

6 Store the acidified samples at **4 °C** in racks/boxes that keep vials from knocking into each other.

One good idea is to process several MilliQ samples in the field the same way the water samples are processed to test for potential contamination in the field.