## STANDARD METHOD 5310C: Persulfate-UV or Heated-Persulfate Oxidation Method

### Method Summary

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| **Method Source** | Standard Methods |
| **Method Number** | 5310C |
| **Revision Information** | Standard Methods Online |
| **Method Name** | **Descriptive Name:** Total organic carbon by Persulfate-UV or Heated-Persulfate Oxidation<br>**Official Name:** Persulfate-UV or Heated-Persulfate Oxidation Method |
| **Media** | WATER |
| **Subcategory** | Organic |
| **Citation** | Standard Methods Online - Standard Methods for the Examination of Water and Wastewater |
| **Brief Method Summary** | Organic carbon is oxidized to $CO_2$ by persulfate in the presence of heat or UV light. The $CO_2$ produced may be purged from the sample, dried, and transformed with a carrier gas to a nondispersive infrared (NDIR) analyzer , or be coulometrically titrated, or be separated from the liquid stream by a membrane that allows the specific passage of $CO_2$ to high-purity water where a change in conductivity is measured and related to the $CO_2$ passing the membrane. |
| **Scope And Application** | This method covers the determination of total organic carbon in surface waters, domestic and industrial wastes. |
| **Applicable Conc Range** | 0.1 to 4000 mg/L |
| **Interferences** | Removal of carbonate and bicarbonate by acidification and purging with purified gas results in the loss of volatile organic substances. |
| **QC Requirements** | After every tenth analysis, analyze a blank and a laboratory sample prepared from a source of material other than the calibration standards, at a level similar to the analytical samples. Preferably prepare the laboratory control sample in a matrix similar to that of the samples. Alternatively, periodically make known additions to samples to ensure recovery from unknown matrices. |
| **Sample Handling** | If possible, rinse bottles with sample before filling and carry field blanks through sampling procedure to check for any contamination that may occur. Collect and store samples in glass bottles protected from sunlight and seal with TFE-backed septa. Before use, wash bottles with acid, seal with aluminum foil, and bake at $400^oC$ for at least 1 h. Wash uncleaned TFE septa with detergent, rinse repeatedly with organic-free water, wrap in aluminum foil, and bake at $100^oC$ for 1 h.<br>If a sample contains gross particulates or insoluble matter, homogenize until a representative portion can be withdrawn through the syringe needle, autosampler tubing, or sample inlet system of continuous on-line monitor. If dissolved organic carbon is to be determined, filter sample and reagent water blank through 0.45-um filter. To determine nonpurgeable organic carbon, transfer 15 to 30 mL sample to a flask or test tube and acidify to a pH of 2. |
| **Max Holding Time** | 7 days. Analyze immediately, or refrigerate and add HCl, $H_3PO_4$, or $H_2SO4$ to pH < 2 |
| **Relative Cost/Effort** | $51 to $200 |
| **Source** | Standard Methods |