



Aurora 1030W Total Organic Carbon Analyzer

O·Analytical 
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Accuracy and Productivity in



The Aurora 1030W Total Organic Carbon (TOC) Analyzer uses the proven heated persulfate wet oxidation technique to analyze organic contamination levels in aqueous samples. Virtually all organic compounds dissolved in water can be oxidized by heated sodium persulfate ($\text{Na}_2\text{S}_2\text{O}_8$). Concentrated solutions (1 or 1.5 M) can effectively oxidize organic matter present in the form of colloids, macromolecules, and suspended solids.

The Aurora 1030W can be programmed and calibrated to analyze samples containing organic carbon at levels as low as 10 ppb and up to 30,000 ppm. Depending upon method and application, up to 300 samples can be analyzed in a 24-hour period.

The reaction chamber of the Aurora 1030W is thoroughly rinsed between analyses to eliminate residue from the previous sample. This ensures the Aurora 1030W maintains the low system background necessary for high sensitivity TOC measurements. This contrasts with combustion TOC analyzers in which residual salts accumulate on catalyst surfaces, degrading oxidation efficiency and causing higher blanks and background contamination.

Test Methods Supported by the Aurora 1030W TOC Analyzer

The heated persulfate oxidation technique has been approved and adopted in numerous regulatory compliance methods, standards, and norms for water quality testing.

Method	Sample / Application
Standard Method 5310C	Drinking Water / Wastewater
USEPA 415.3	Drinking Water
USP <643> / EU 2.2.44	Purified Water
ASTM D 4779	Ultrapure Water
ASTM D 4839	Wastewater, Seawater
USEPA-DBPR	Disinfection Byproduct Rule
USEPA-SPCC	Spill Prevention & Control Countermeasures
ISO 8245	Drinking Water, Wastewater
EN 1484	Surface & Ground Waters, Potable Water

TOC Analysis

The Aurora 1030W can be equipped with a number of instrument options and automation accessories to improve sample throughput and productivity.

- An optional second oxidation chamber supports concurrent sample processing.
- An 88-position rotary autosampler fits directly underneath the 1030W to conserve bench space.
- A_{TOC} software provides 21 CFR Part 11 compliant data handling, security, auditing, and reporting capability.
- An optional validation package provides complete IQ / OQ / PQ documentation to validate an Aurora 1030W for use in pharmaceutical GLP/GMP applications.
- Multi-stream sampling module for at-line monitoring of up to four process streams.
- 1030S Solids Module operates in conjunction with a 1030W analyzer to combust solid materials for analysis of TC or TOC.
- Accessory kits to configure and interface a 1030W to an Isotope Ratio Mass Spectrometer (IRMS) or Cavity Ring Down Spectrometer to measure TOC and the $\delta^{13}\text{C}$ stable isotope ratio.



Applications

OI Analytical has been an innovator in TOC instrumentation since 1972. Hundreds of laboratories and industrial facilities rely on our TOC analyzers for their water quality monitoring applications.

Drinking Water

Pharmaceutical Cleaning Validation

Municipal Wastewater

Ground Water / Surface Water

Process Water

Boiler Feed Water & Condensate

Metal Plating Solutions

Ultrapure Water



Aurora 1030W Specifications

Operating Principle	Heated sodium persulfate oxidation
Measurement Technique	Non-dispersive infrared (NDIR) detection
Measurement Range	10 ppb C - 30,000 ppm C (multiple calibration ranges or dilution required)
Instrument Detection Limit (IDL)	2 ppb C
Operator Interface	Color LCD touchscreen display with Windows® CE-based software
Operating Modes	Standalone (Windows® CE), PC-controlled, or LAN/LIMS network connectivity
Basic Software	Single instrument operation with data transfer to PC
Optional A_{TOC} Software	Network LAN/LIMS operation, data management, custom reports, and 21CFR11 compliance
Autosampler	88 position rotary autosampler designed to fit directly underneath Aurora 1030W analyzer
Sample Injection	Manual syringe, sipper tube, autosampler, or multi-stream at-line sampling module
Certification	CE, EMC: EN61326 / Safety: IEC 61010-11 2001
Reagents Required	Sodium persulfate, 5% phosphoric acid, rinsewater
Sample Injection Volume	10µL - 10mL
Method TC	Acid and persulfate reaction
Method TIC	Acidification with Phosphoric acid and sparging
Method TOC	NPOC by heated persulfate oxidation or TC-TIC
Heating	Adjustable to 100 °C in 1°C increments
Repeatability	2.0% or 2 ppb, whichever is greater
Linearity	±1% FS or 2% relative, whichever is greater
Sample pathway	Color coded Teflon® tubing
Sample handling	Syringe with isolation loop to prevent contamination
Gas Supply	N ₂ (99.998%), zero-grade air, or O ₂ (99.998%)
Power Supply	Variable voltage, 100-240VAC, 50/60 Hz, 950W
Dimensions - Aurora 1030	42.5 cm H x 49.5 cm W x 41.9 cm D (16.75 in. H x 19.5 in. W x 16.5 in. D)
Dimensions - Aurora 1030 + 1088 Autosampler	26.75 in. H x 19.5 in. W x 23 in. D
Weight - Aurora 1030 + 1088 Autosampler	15.4 kg (34 lbs.), 34.5 kg (76 lbs.) 1030W + 1088



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Aurora 1030C Combustion TOC Analyzer

**The Aurora 1030C
analyzes TOC by high
temperature (680 °C)
catalytic combustion.**

