



Aurora 1030C Total Organic Carbon Analyzer

Aurora 1030C High Temperature



The Aurora 1030C employs high temperature (680 °C) catalytic combustion to oxidize and convert organic compounds present in aqueous samples to CO₂ for measurement by a solid state non-dispersive infrared (SS-NDIR) detector.

The high temperature combustion technique is most effective for analysis of samples containing high molecular weight, difficult-to-oxidize organics (e.g; humic acid) at levels > 500 ppb C.

The Aurora 1030C is equipped with a patented* two chamber combustion reactor that overcomes problems associated with TOC analyzers that use a single chamber reactor. The first chamber of the 1030C reactor contains a bed of quartz to protect the platinum catalyst in the second chamber from deposition of noncombustible constituents, and ensures consistent oxidation conditions for stable blanks. This reactor design extends catalyst life and reduces instrument maintenance costs.

*Patent: US 7,306,770 B2

Test Methods Supported by the Aurora 1030C TOC Analyzer

The high temperature combustion technique has been approved and adopted in numerous regulatory compliance methods, standards, and norms for water quality testing.

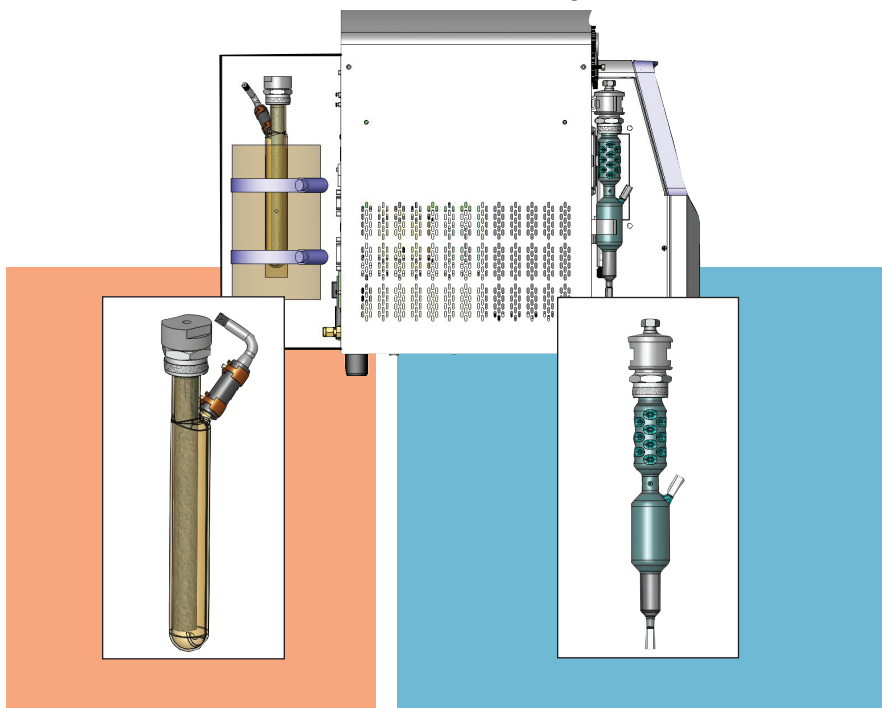
Method	Sample / Application
USEPA 415.1	Drinking Water
Standard Method 5310B	Wastewater, Ground & Surface Waters
USEPA 9060A	Wastewater, Ground & Surface Waters
USEPA-DBPR	Disinfection Byproduct Rule
ISO 8245	Drinking Water, Wastewater
EN 1484	Surface & Ground Waters, Potable Water
ASTM D7573-09	Water, Wastewater, Seawater

Combustion TOC Analyzer

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

- 1030D Dual Oxidation Mode Analyzer option performs both high temperature combustion and heated persulfate wet oxidation techniques on the same instrument (with manual adjustment).
- An 88-position rotary autosampler fits directly underneath the 1030C to conserve bench space.
- A_{TOC} software provides fully automated data collection, analysis, reporting, and storage in a LAN/LIMS environment.
- Multi-stream sampling module for at-line monitoring of up to four process streams.
- 1030S Solids Module operates in conjunction with a 1030C analyzer to combust solid materials for analysis of TC or TOC.

Aurora 1030D Dual Oxidation Mode TOC Analyzer



The diagram illustrates the internal components of the Aurora 1030D TOC Analyzer. It features a central main unit with two primary reaction chambers highlighted in colored boxes: an orange box for the High Temperature Combustion Tube and a blue box for the Wet Oxidation Reaction Chamber. The combustion tube is shown with a sample vial and a tube leading into it. The reaction chamber is shown with a complex internal structure and a tube leading into it.

High Temperature Combustion Tube

$$\text{Organic C} + \text{O}_2 \xrightarrow[\Delta \text{ Pt}]{680^\circ \text{C}} \text{CO}_2$$

Wet Oxidation Reaction Chamber

$$\text{S}_2\text{O}_8^{2-} + 2\text{H}_2\text{O} \xrightarrow{98^\circ \text{C}} 2\text{SO}_4^{2-} + 2\text{H}^+ + 2\text{OH}^-$$
$$\text{Organic C} + 2\text{SO}_4^{2-} + \text{OH}^- \rightarrow \text{CO}_2 + \text{H}_2\text{O}$$

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

Municipal Wastewater

Industrial Wastewater

Ground Water / Surface Water

Sewage Effluent

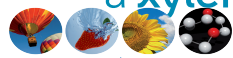


Aurora 1030C Specifications

Operating Principle	High temperature (680 °C) catalytic combustion
Measurement Technique	Non-dispersive infrared (NDIR) detection
Measurement Range	100 ppb C - 30,000 ppm C (multiple calibration ranges or dilution required)
Instrument Detection Limit (IDL)	50 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 for data collection, management and custom report generation
Autosampler	88 position rotary autosampler designed to fit directly underneath Aurora 1030C 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	Hydrochloric acid, rinsewater
Sample Injection Volume	10µL - 0.8 mL
Method TC	680 °C Pt catalyst, 900 °C non-catalyst packing
Method TIC	Acidification and sparging
Method TOC	NPOC, combustion of TIC-free sample, TOC-TIC
Furnace Temperature	Adjustable, 680 - 950 °C in 1 °C increments
Repeatability	3.0%
Accuracy	±2% FS or 2% relative, whichever is greater
Sample pathway	Color coded Teflon® tubing
Sample handling	Syringe with isolation loop to prevent contamination
Gas Supply	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



a xylem brand



SR
INSTRUMENTS

SOLUTION

Via alla Castellana, 3
20063 Cernusco s/N I MI
Tel. 02 9214 3258
Fax 02 9247 0901

www.srainstruments.com
info@srainstruments.com



151 Graham Road
PO Box 9010
College Station, Texas
77842-9010

(979) 690-1711
(800) 653-1711 USA/Canada
FAX (979) 690-0440

www.oico.com
E-mail: oimail@oico.com

Publication 39910413

Aurora 1030W Wet Oxidation TOC Analyzer

**The Aurora 1030W
analyzes TOC by the
heated persulfate wet
oxidation technique.**

