



# 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 CO<sub>2</sub> 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.

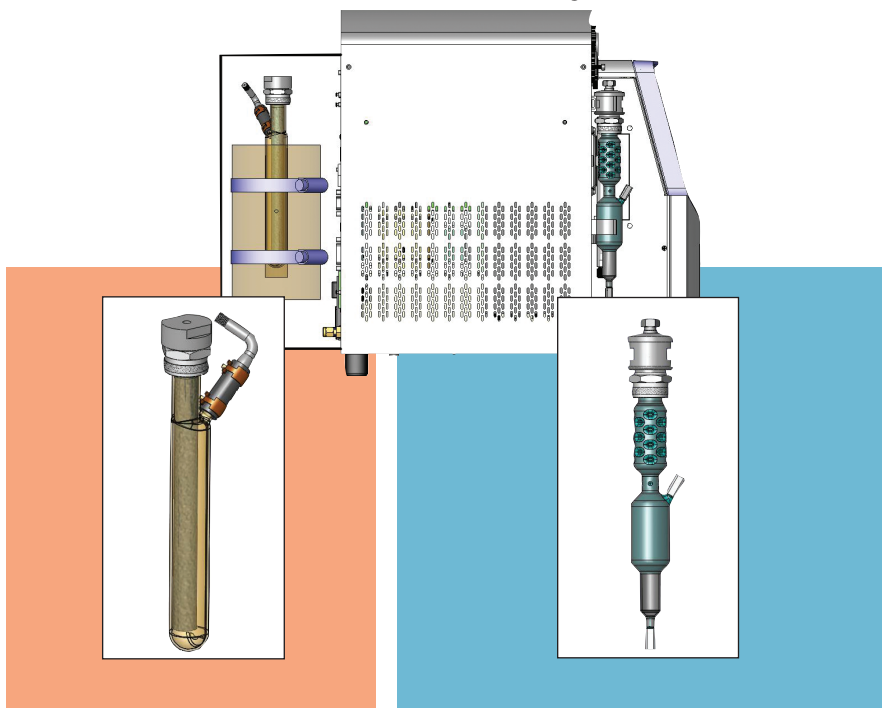
Method	Sample / Application
USEPA 415.1	Drinking Water
Standard Method 5310B	Wastewater, Ground & Surface Waters
USEPA 9060A	Wastewater, Ground & Surface Waters
USEPA-DBPR	Disinfection Byproduct Rule
ISO 8245	Drinking Water, Wastewater
EN 1484	Surface & Ground Waters, Potable Water
ASTM D7573-09	Water,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



**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

<b>Operating Principle</b>	High temperature (680 °C) catalytic combustion
<b>Measurement Technique</b>	Non-dispersive infrared (NDIR) detection
<b>Measurement Range</b>	100 ppb C - 30,000 ppm C (multiple calibration ranges or dilution required)
<b>Instrument Detection Limit (IDL)</b>	50 ppb C
<b>Operator Interface</b>	Color LCD touchscreen display with Windows® CE-based software
<b>Operating Modes</b>	Standalone (Windows® CE), PC-controlled, or LAN/LIMS network connectivity
<b>Basic Software</b>	Single instrument operation with data transfer to PC
<b>Optional A<sub>TOC</sub> Software</b>	Network LAN/LIMS operation for data collection, management and custom report generation
<b>Autosampler</b>	88 position rotary autosampler designed to fit directly underneath Aurora 1030C analyzer
<b>Sample Injection</b>	Manual syringe, sipper tube, autosampler, or multi-stream at-line sampling module
<b>Certification</b>	CE, EMC: EN61326 / Safety: IEC 61010-11 2001
<b>Reagents Required</b>	Hydrochloric acid, rinsewater
<b>Sample Injection Volume</b>	10µL - 0.8 mL
<b>Method TC</b>	680 °C Pt catalyst, 900 °C non-catalyst packing
<b>Method TIC</b>	Acidification and sparging
<b>Method TOC</b>	NPOC, combustion of TIC-free sample, TOC-TIC
<b>Furnace Temperature</b>	Adjustable, 680 - 950 °C in 1 °C increments
<b>Repeatability</b>	3.0%
<b>Accuracy</b>	±2% FS or 2% relative, whichever is greater
<b>Sample pathway</b>	Color coded Teflon® tubing
<b>Sample handling</b>	Syringe with isolation loop to prevent contamination
<b>Gas Supply</b>	Zero-grade air, or O <sub>2</sub> (99.998%)
<b>Power Supply</b>	Variable voltage, 100-240VAC, 50/60 Hz, 950W
<b>Dimensions - Aurora 1030</b>	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)
<b>Dimensions - Aurora 1030 + 1088 Autosampler</b>	26.75 in. H x 19.5 in. W x 23 in. D
<b>Weight - Aurora 1030 + 1088 Autosampler</b>	15.4 kg (34 lbs.), 34.5 kg (76 lbs.) 1030W + 1088



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## Aurora 1030W Wet Oxidation TOC Analyzer

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

