VEOLIA

Sievers* TOC-R3
Online TOC Analyzer

Robust. Reliable. Responsive.

WATER TECHNOLOGIES

TOC-R3:
Robust. Reliable. Responsive.

The Sievers TOC-R3 Online Total Organic Carbon (TOC) and Total Nitrogen (TN) Analyzer is designed to solve critical industrial and environmental water challenges.

Offering seamless operation, minimal maintenance, and enhanced uptime, the TOC-R3 uses highly efficient and reliable 1,200°C catalyst-free combustion oxidation.

From source water contamination and condensate leaks to wastewater optimization and discharge, the TOC-R3 is a peace of mind analytical tool that provides responsiveness and repeatability when you need it.

The TOC-R3 provides high instrument uptime so operators can focus on optimization and decision making with robust, responsive, and reliable data. It is flexible and customizable to meet specific application needs with options for automation, parameters, and enclosures.

300 00380 EN Rev. A

OVERVIEW:

COMBUSTION REDEFINED.

The TOC-R3 uses 1,200°C complete combustion oxidation followed by proven NDIR detection of the evolved CO_2. To maximize uptime, the TOC-R3 has a revolutionary industrial design with minimal moving parts and carries out sample combustion in a ceramic reactor with no catalyst needed, ensuring low maintenance and reducing cost of ownership.

- Measures total carbon (TC), total inorganic carbon (TIC), total organic carbon (TOC), and non-purgeable organic carbon (NPOC).
- Offers unique volatile organic carbon (VOC) detection through a reliable and accurate photoionization detector (PID).
- Provides additional total bound nitrogen (TN_b) detection using a simple, lightweight, and small electrochemical detector (ECD).

KEY FEATURES:

- Catalyst-free, high temperature combustion delivers complete oxidation at 1,200°C
- Minimal and simple maintenance due to modular design and status monitoring
- Self-cleaning and automated rinsing capability to tackle harsh samples
- Low chemical consumption for safety and lower cost of ownership
- Advanced data management and intuitive software for straightforward user experience
- Enhanced troubleshooting using predictive maintenance and remote control

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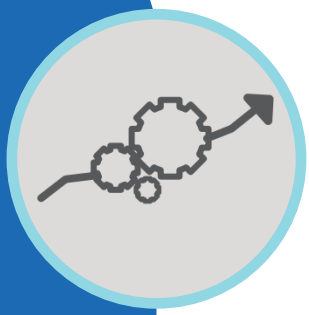
INDUSTRIES & APPLICATIONS:

Industries
Hydrocarbon Processing
Chemical Processing
Food & Beverage
Municipal Water & Wastewater

Applications
Source water: raw water, environmental water
Process water: ingredient water, rinse water, oil in water
Utility water: steam, condensate, cooling water
Wastewater: influent, effluent, reuse, stormwater, de-icing



Superior Robust Analytical Performance

- Predictive diagnostics and status monitoring
- Minimal and simple maintenance with modular design
- Broad analytical ranges and protection classes for environments

Ultimate Reliability

- Complete oxidation of hard to degrade compounds
- Elimination of interference and downtime due to catalyst failures
- Automated calibration, self-cleaning, and check standard capability

Enhanced Responsiveness

- Quick 3-5 minutes analysis time
- Optional Leak Detection Mode for alert of a leak
- Optional Broad Range Detector to detect high and low values

COMPLIANCE:

- **US EPA Method 415.1** – Method determines organic carbon in drinking, surface, and saline waters; domestic and industrial wastes
- **US EPA Method 415.3** – Measurement of total organic carbon, dissolved organic carbon, and specific UV absorbance at 254 nm in source water and drinking water
- **DIN EN 1484/ISO 8245** – Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC) in drinking, ground, surface, sea, and wastewater
- **ASTM D5173** – Standard Guide for On-Line Monitoring of Total Organic Carbon in Water by Oxidation and Detection of Resulting Carbon Dioxide
- **SM 5310B** – Standard Methods 5310B High-Temperature Combustion TOC Method
- **HJ 501** – Water quality - Determination of total organic carbon—Combustion oxidation nondispersive infrared absorption method
- **DIN EN 12260** – Determination of nitrogen - Determination of bound nitrogen (TN_b), following oxidation to nitrogen oxides

Adaptable for different applications

OPTIONS & ACCESSORIES

- Distinctive Photoionization Detector (PID) for Volatile Organic Carbon (VOC) Detection
- Total Nitrogen with Electrochemical Detector (ECD)
- Communication Box (Streamlined SCADA Connections)
- Air Box - Stand Alone Carrier Gas System (Avoid using plant air)
- Explosion Proof Enclosures: ATEX, IECEx, C1D2
- COD/BOD Conversion
- Automated internal dilution for range extension
- Particulate sampler for high particulate loaded streams
- Mounting Rack

Specifications

Operating Specifications	
Analysis Modes	TC, NPOC, TN_b, TOC_{diff}, POC/VOC, TIC
Ranges	NPOC/TOC: 0-10; 0-200; 0-2,000; 0-10,000 with dilution to 50,000 ppm; TN: 0-150 & 0-1,500 ppm; VOC: 0-25 ppm
Options/Accessories	Leak detection, Second stream, Particulate sampler, Air box, Communication box, Mounting rack
Features	Auto-calibration, Dilution, Check standard, Auto-rinsing, Remote control, Predictive maintenance
Precision	+/-2% End of detector range†
Linearity	$R^2 \geq 0.997$†
LOD	<1 ppm†
Analysis Time	3-5 min typically
Cycle Time	<1 min TC/TOC
Smallest Inner Diameter (ID)	2,000 µm tubing
Salt Tolerance	3-5% NaCl
Carrier Gas	CO_2 free air < 1 ppm CO_2 and <0.1 ppm hydrocarbon: 100-200 kPa @ 20-50L/hr flow rate (Optional: Air box)
Sample Temperature	2-60°C
Ambient Temperature	2-40°C
Minimum Sample Flow Rate	100 mL/min without particulate sampler or 200-3,000 LPH, 53-792.5 GPH with particulate sampler
Drain	Gravity, No-backpressure
Analyzer Specifications	
Communication protocols	OPC UA, Modbus
Inputs	4 Programmable relays
Display	7 in. Touch panel
Power	AC 110 – 230 V ±1 0 V 50/60 Hz Approx. 600 VA
Alarm Relays	Warnings, errors, measurement limit, instrument status
Outputs	OPC UA, Ethernet, 4-20 mA (6)
Installation/Overvoltage Category	II
Sample Stream	Single or Dual stream (Optional)
Dimensions	800 H x 600 W x 320 D mm, 31.5 H x 23.6 W x 12.6 D in
Weight	55 kg, 121 lb
Safety Certifications	CE, UL, CSA
Regulatory	DIN EN 1484 /ISO 8245, EPA 415.3, SM 5310B, ASTM D5173, HJ 501, DIN EN 12260
Environment	
Enclosure	IP 54 standard, Optional: ATEX & IECEx Zone 1&2 T4, C1D2
Maximum Relative Humidity	85% non-condensing

†Stated analytical performance achieved under ideal laboratory conditions.

Resourcing the world

Veolia Water Technologies
Please contact us via:
www.veoliawatertechnologies.com