

Sievers

900 Laboratory TOC Analyzer

The Sievers* 900 Laboratory Total Organic Carbon (TOC) Analyzer offers superior productivity for laboratory TOC measurements. Automated calibration and validation procedures, fast analysis time, automated reagent adjustment, and the high-capacity GE Autosampler combine for an unequalled level of efficiency, flexibility, and ease of use.

The 900 Laboratory Analyzer yields productivity gains with analysis times 30 percent faster than its Model 800 predecessor. The Analyzer enables complete unattended operation with an Autoreagent feature that calculates and applies the appropriate reagent flow rate for any sample without requiring user intervention. The GE Autosampler, featuring random access capability and up to 120 sample positions, also enhances productivity.

Engineered for ease of use and cost-effective operation, the Analyzer needs no external reagents or gas supplies and requires only a few hours of preventive maintenance per year. Twelve-month calibration stability frees analysts to perform other critical tasks. A large, color touch-screen display provides an intuitive menu to quickly establish operating parameters. A 19.2 cm (7.6 in) wide profile efficiently uses valuable bench space.

New refinements to the UV/persulfate oxidation method and patented Sievers Membrane Conductometric Detection Technology deliver unmatched accuracy and precision across the 900 Laboratory Analyzer's 0.03 parts per billion (ppb) to 50 parts per million (ppm) operating range. The 900 Laboratory Analyzer optimizes both specialized and general purpose TOC measurements, and meets or exceeds the most common pharmaceutical and USEPA regulatory requirements in force today. It is ideal for routine analysis of TOC samples, and is also well suited for testing laboratories that analyze a variety of sample matrices and concentrations.



Applications

Pharmaceutical

The 900 Laboratory Analyzer is designed to meet the most stringent pharmaceutical regulatory requirements. It is engineered to measure TOC as prescribed by USP and EP water monographs for Purified Water and Water for Injection and is equipped with menu-driven procedures for system suitability, calibration, and verification. For cleaning validation applications, the instrument's Autoreagent capability eliminates the time-consuming optimization process and allows for accurate analysis of samples with unknown organic content and concentration, all without requiring user intervention or data interpretation.

The optional DataGuard* software and firmware facilitate 21 CFR Part 11 compliance, including system security assurance, electronic signature capability, and the creation of an automatic, independently generated audit trail. The Analyzer, coupled with the GE Autosampler, features an automated validation protocol. Used with a full set of validation documents, this protocol streamlines the validation process, reducing the time, effort, and cost associated with instrument validation.

Municipal Water

The 900 Laboratory Analyzer monitors raw and finished water TOC for plant optimization and compliance reporting. It uses USEPA-approved methodology (Standard Method



5310C and USEPA Method 415.3) demonstrated to recover even the most difficult-to-oxidize organic compounds.

General Purpose TOC

Testing laboratories will benefit from the 900 Laboratory Analyzer's wide operating range, exceptional analytical performance, and ease of use. Water samples from a variety of applications with varying sample matrices and concentrations can be measured with the highest efficiency and accuracy.

Key Benefits

Advanced Productivity and Efficiency

The 900 Laboratory Analyzer combines automated operations, such as calibration and data analysis reports, with a four-minute analysis time for the most productive TOC analyzer available. Accuracy and precision extend across the 900 Laboratory Analyzer's 0.03 ppb to 50 ppm operating range. The Autoreagent feature eliminates the time-consuming optimization process, automatically establishing optimal flow rates for each sample. The optional GE Autosampler offers automated sample handling with up to 120 sample and 6 standards positions.

Enhanced Ease of Use

The 900 Series TOC Analyzers feature best-of-class ease of use in setup, operation, and maintenance.

Intuitive Menu-Driven, Touch Screen Interface

A large, color touch-screen display makes it easy to set up instrument parameters. Trend data is displayed in tabular or graphical form for at-a-glance monitoring in real time or over user-defined time periods.

Low Maintenance Requirements.

Users are prompted automatically to perform a few hours of recommended preventive maintenance each year. A state-of-the-art modular design facilitates fast consumables replacement and preventive maintenance.



The Sievers 900 Series TOC Analyzers

Self-Contained Enclosure

No external reagent or gas supplies are required, saving valuable lab space and time. The Analyzer utilizes self-contained Sievers internal reagent packs that can be installed in minutes to achieve three to six months of uninterrupted service, depending on the application.

Extended 12-Month Calibration Stability

The 900 Laboratory Analyzer offers 12-month calibration stability, unlike competing analyzers that require weekly or even daily calibration. Calibration can be conducted on site. On-screen prompts help users select from a variety of single- and multi-point calibration routines. For added convenience, calibration calculations are performed and constants updated automatically.

Reliability

The 900 Laboratory delivers superior reliability. Innovative design improvements and carefully selected materials and components ensure maximum uptime.

Expanded Data Access

The USB port allows data transfer from the 900 Laboratory Analyzer to a USB flash memory drive without interrupting analysis. Data files can be opened directly in Microsoft Excel[®] without the need to convert data with proprietary software. Standard serial and parallel ports are also provided.

Accessories and Options

GE Autosampler and DataPro 900 Software

The GE Autosampler provides random access capability with high sample capacity (up to 63 positions for 40- or 60-mL vials, or up to 120 positions for 35-mL test tubes or 17-mL vials). The Sievers DataPro 900 software integrates the GE Autosampler with the 900 Laboratory Analyzer to offer productivity-enhancing features such as automated calibration and validation protocols. DataPro 900 also gives users full sampling flexibility with custom sample protocols and user-defined sampling capabilities.



900 Inorganic Carbon Remover (ICR)

900 Inorganic Carbon Remover (ICR)

The 900 ICR reduces inorganic carbon levels in sample streams with high IC/TOC ratios to produce more accurate TOC results. The ICR is quiet, compact, and attaches to the side of the 900 Laboratory Analyzer.

DataGuard 21 CFR Part II Compliance Support

For pharmaceutical applications, the optional DataGuard feature, available within the DataPro 900 software for

900 Laboratory Analyzer with Autosampler configurations, or within the firmware for standalone units, offers comprehensive tools for compliance with electronic records regulations. Application features include user login security with multiple access levels, electronic signature capability, and audit trail functionality.

Specifications

Operation Specifications¹

Range	0.03 ppb to 50 ppm
Precision	< 1% RSD
Accuracy	± 2% or ± 0.5 ppb, whichever is greater
Sample Type	Autosampler or discrete grab sample
Display Readout	3 significant digits
Calibration	Typically stable for 12 months
Analysis Time	4 minutes
Sample Temperature	1–95° C (34–203° F)
Ambient Temperature	10–40° C (50–104° F)
Instrument Sample Flow Rate	0.5 mL/min

Analyzer Specifications

Outputs	Serial (RS-232) output (2); USB port (1); parallel printer port (1)
Display	Quarter-VGA, color touch-sensitive LCD display
Power	Universal Power Supply: 100–240 ±10% VAC, 50 W, 50/60 Hz
Dimensions	H: 48.3 cm (19.0 in); W: 19.2 cm (7.6 in); D: 48.0 cm (18.9 in)
Weight	14.3 kg (31.5 lb)
Safety Certifications	ETL, CE

Consumables

UV Lamp	6 months
Acid Reagent	As needed, typically for 6 months (285 mL)
Oxidizer Reagent	As needed, typically 3-month stability; available in 150- or 300-mL cartridge

* Trademark of General Electric Company; may be registered in one or more countries.

¹ Stated analytical performance is achievable under controlled laboratory conditions that minimize operator and standards errors.

The Sievers 900 Series TOC Analyzers are protected by one or more of the following US and foreign patents: US 6271043; US 6228325; US 5976468; US 5902751; US 5837203; US 5820823; US 5798271; US 5750073; US 5443991; US 5132094; EP 0897530; FR 0897530; GB 0897530; DE 69702516.0-08; EP 0471067. Other patents pending.



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