

The A10

Total Organic Carbon Monitor

ENSURES ULTRAPURE WATER FOR CRITICAL LABORATORY APPLICATIONS

Most ultrapure water systems on the market today, display resistivity as the only measure of water quality. While resistivity is an accurate way to measure and display the level of ionic contamination in product water, it gives no real indication of the level of dissolved organic compounds which may be present and which may cause research results to fail.

A10 TOC Monitor Gives Complete Picture of Water Purity

The Millipore A10 TOC Monitor was developed with Anatel® Corporation, the world leader in TOC measurement for high purity water. The A10 Monitor features a single-mode key which allows simple reporting of data and operating conditions. The Liquid Crystal Display (LCD) clearly shows the values and parameters.

▲ Key Benefits

- Easy, reliable means to detect TOC in ultrapure lab water
- Improves research results
- Developed with Anatel, leader in TOC water measurement
- Simple-to-change UV lamp – the only maintenance required

Measuring Resistivity Is Not Enough

Water at the theoretically pure limit of 18.2 Megohm-cm ($M\Omega$ -cm) may still contain high concentrations of neutral organic contaminants that may adversely affect analytical methods and cause analyses to fail. Most water purification systems exhaust their capacity to remove dissolved organics before they lose their capacity to remove ions. The resulting "organic breakthrough" goes undetected by the system's resistivity monitor. What cannot be seen, cannot be measured.

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Precise Lab Applications Demand Ultra-Low TOC in Water

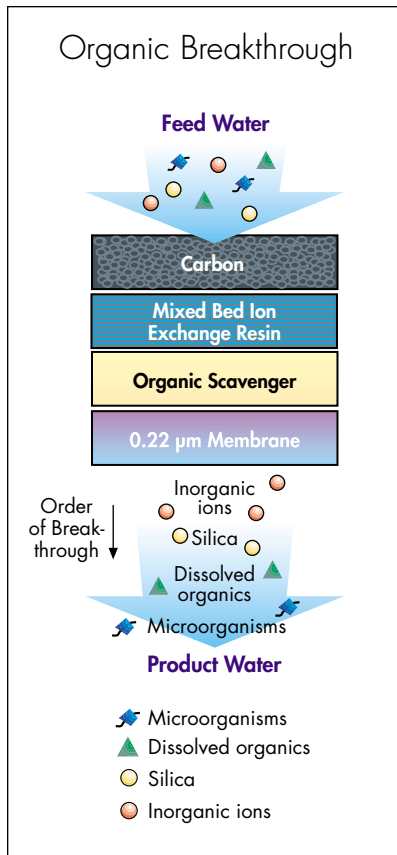
Dissolved organic contaminants interfere with numerous laboratory applications. TOC cannot be controlled unless it can be measured. The Millipore A10 TOC Monitor simply and reliably detects dissolved organics in ultrapure water.



Millipore's Milli-Q® Ultrapure Water Systems are available with a built-in A-10 Monitor that continuously measures organic purity of water during production. Call Technical Service for details.

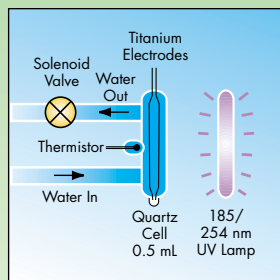
Research Lab Improves Test Results by Reducing TOC in High Purity Water

Medical researchers at a national research laboratory developed a sensitive HPLC method for measuring ascorbic acid by electrochemical detection. However, even low concentrations of TOC (~ 50 ppb) in the high purity water used to make the mobile phase, interfered significantly with the analysis and generated a high background and decreasing sensitivity. Reducing TOC in the water to < 5 ppb increased sensitivity and improved the baseline and quantitation by decreasing background levels.

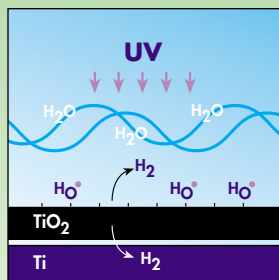


A high level of organic contamination (up to 1,000 ppb) can break through the final polishing system and end up adversely affecting procedures even though resistivity is unchanged.

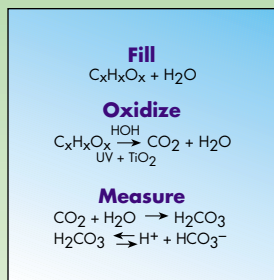
How the Patented A10 Monitor Works



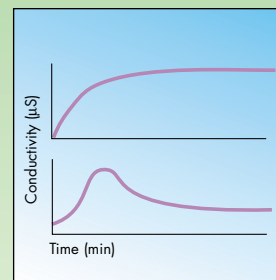
Water flows through analysis cell for 1, 2 or 3 minutes. Then solenoid valve closes, UV lamp is powered "on," and photocatalytic oxidation begins.



The 185 nm UV energy, combined with titanium oxide coating of electrodes and water, produces highly concentrated solution of OH radicals which oxidizes organics present.



End product of organic oxidation is carbon dioxide which dissolves in water and causes increase in conductivity (decrease in resistivity). This change in conductivity is continually monitored by electrodes and is temperature-compensated to 25 °C. Complex set of algorithms confirms complete oxidation, calculates TOC value, and displays result.



Different profiles of conductivity curves are possible depending on type and concentration of organics present. System compares mathematical profiles to ensure complete oxidation and most accurate results possible.

Specifications

Performance

Operating Range: 1-199 ppb as TOC

Display Resolution: Single ppb increments

Repeatability: $\pm 5\%$

Accuracy: $\pm 15\%$ or ± 1 ppb (whichever is greater)

Sample Water

Inlet Pressure: 70 psig max

Temperature: 5-35 °C (41-95 °F)

Resistivity: $> 5.0 M\Omega\text{-cm}$

Physical Characteristics

Operating Temperature: 15-30 °C
 (59-86 °F)

Size: 200 mm L x 127 mm W x 77 mm D
 (7.875" L x 5.00" W x 2.85" D)

Power Supply: AC/12 V DC Plug-In
 Adapter

Components

Display: 1-line x 16-character reflective LCD

UV Lamp: Low-pressure mercury vapor



Ordering Information

Description	Catalogue No.
Hardware	
Millipore A10 TOC Monitor	
115 V/60 Hz	ZFA1 060 01
220 V/50 Hz	ZFA1 050 01
Consumable	
A10 UV Lamp Assembly	ZFA1 0UV 01
Accessories and Spare Parts	
Milli-Q System A10 Upgrade Kit	ZMQ0 A11 KT
Compact Milli-Q System Fitting Kit	ZF20 A10 MQ
Power Supply	
120 V/60 Hz	FTPF 049 46
220 V/50 Hz	FTPF 049 47
User Guide	FTPF 049 48
Inlet/Outlet Tubing	
2 x 5' FEP Tubes with Luer® fittings 4.77 mm O.D./3.17 mm I.D.)	FTPF 049 45
25' roll	FTPF 049 49
Luer Fittings, 5 sets	FTPF 049 50

For additional information call your nearest Millipore office.

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To Place an Order or Receive Technical Assistance

For further information on TOC in ultrapure water, request Technical Brief No. TB1501EN00. Also ask for details on Milli-Q Ultrapure Water Systems with built-in A10 Monitor.

In the U.S. and Canada, call
1-800-MILLIPORE (1-800-645-5476).

In the U.S., Canada and Puerto Rico, fax orders toll-free to **1-800-MILLIFX (1-800-645-5439)**

or e-mail: tech_service@millipore.com

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AUSTRALIA

Tel. 1 800 222 111
or (02) 9888 8999
Fax (02) 9878 0788

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Fax (43) 1 877-1654

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Beijing:
Tel. (8610) 6500-8063
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Fax 02-205 14294

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Tel. (886-3) 571-0178
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U.K. AND IRELAND

Tel. (01923) 816375
Fax (01923) 818297

U.S.A.

Tel. (781) 533-6000
Fax (781) 533-3110

IN ALL OTHER COUNTRIES

Millipore Intertech (U.S.A.)
Tel. +1 (781) 533-8622
Fax +1 (781) 533-8630