ANATEL A643a

TOTAL ORGANIC CARBON ANALYZER

Reliable, robust performance

HACH ULTRA™

EXCELLENCE IN PROCESS ANALYTICS

www.hachultra.com

ANATEL A643a

- *Online and portable instrument configurations for maximum application flexibility and point-of-use validation*
- *Easy to install and immediate operation, without additional setup or configuration steps*
- *Integrated bottle sampling for validation testing using standards or a grab sample*
- *TOC levels from 1 to 1,000 ppb*
- *Optional UV Detect™ Technology for real-time diagnostics and enhanced PAT applicability*

The Anatel A643a offers reliable, robust performance in water system critical TOC monitoring.

Designed to specifically meet the needs of the pharmaceutical market, the Anatel A643a is fully compliant to industry methods including USP<643> and <645>, EP 2.2.44 and JP XV<60>.

Fully Compliant TOC Analysis

It is important to choose a TOC analyzer designed to fully comply with USP Chapter <643>, EP 2.2.44 and the JP XV <60>. The Anatel A643a employs a unique, patented, photo-catalytic, stop-flow technology to completely oxidize the water sample using UV light. Using proprietary algorithms, the A643a calculates the total organic carbon (TOC) level based on differential conductivity. Most TOC analyzers rely on timed oxidation that can lead to variations in results. The A643a uses a stop flow analysis cell with dynamic end-point detection that ensures each sample is trapped, fully oxidized and its end point is accurately determined based on a oxidation curve fit determined through conductivity change.

With a number of key features, including integrated bottle-sampling, UV Detect™ Technology, and portability, the A643a can be used across a range of applications. With the integrated bottle-sampling feature, the A643a allows for convenient system suitability testing as required by pharmaceutical TOC methods worldwide. All the necessary standards for calibration, validation, system suitability tests and conductivity verification are available in pre-measured, packaged kits. Results from these various tests are automatically calculated and formatted into reports for display, printing and archival.

All the features of the Anatel A643a can be applied at a dedicated point of use, or in a portable version that can be conveniently moved throughout the high-purity water system for multi-point monitoring, troubleshooting and diagnostics. A portable Anatel A643a is equipped with an integral printer and C80 controller for complete, self-contained operation without additional external components.

Networking Capability

Up to eight Anatel A643a analyzers can be linked to a single Anatel C80 controller. The network uses A-Net protocol to communicate key analyzer data over the network. Configuration, analyzer setup and standards tests are all performed using the menu-driven C80 controller. The C80 controller can be mounted wherever convenient to indicate the TOC levels at several key locations immediately available on a single display.

Anatel A643a analyzers are available in two versions – stationary or portable. Either version is available with the optional UV Detect™ Technology.

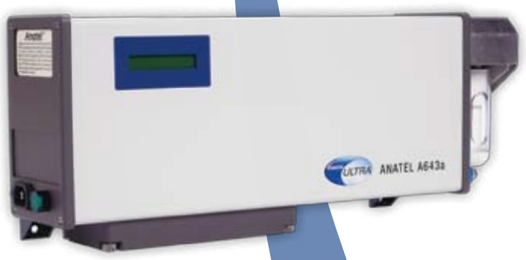
Stationary version. Designed to be mounted in a dedicated location with water inlet and outlet piped to the analyzer.

Portable version. All the functionality of the stationary version plus an integral printer and C80 controller for complete, self-contained operation without additional external components.

UV Detect™ Technology

The A643a is a reagent-less design that relies on sample oxidation using concentrated UV light. To provide an extra level of diagnostics, the Anatel A643a TOC analyzer can be purchased with optional UV Detect™ Technology. This unique sensor technology continuously monitors the output of the UV source, providing real-time diagnostics.

With UV Detect™ Technology you can be assured that the UV source is operating at an optimal level. The Anatel A63a is the only TOC analyzer available today with this critical diagnostic feature.



Benefits

- Specifically designed to meet the pharmaceutical market's requirement for TOC analysis of purified water and water for injection, with a range from 1 to 1,000 ppb.
- Unique, patented oxidation technology ensures full compliance to regulatory requirements and accurate, reliable TOC results.
- Plug and play operation means the unit will operate out of the box without additional configuration or setup.
- Integrated bottle sampling system allows for convenient calibration, system suitability and validation tests.
- Optional UV Detect™ Technology provides real-time monitoring of the UV source for a critical operational diagnostic.
- Password protection prevents unauthorized user access to any instrument configuration or control parameters.
- Allows validation to USP <645> conductivity specifications using a NIST traceable calibration standard for cell constant determination and meter electronics verification using a NIST traceable precision resistor.

Lit. No. N640-DS-0107

Performance Specifications

Operating Range	1 to 1000 ppb as carbon
Resistivity	0.2 to 18.2 MΩ-cm
Conductivity	0.05 to 5 µS/cm (@ 25 °C)
Display Resolution	1 ppb
Online Repeatability	1% or 1 ppb, whichever is greater (repeatability of reading on an individual instrument)
Maximum Input Conductivity	0.2 µS/cm for all waters, 1.0 µS/cm for all neutral waters, 5 µS/cm for water with CO_2 as the sole conductive species
Ambient Operating Temperature	15 °C to 35 °C (59 °F to 95 °F)
Sample Water Temperature	5 °C to 65 °C (41 °F to 149 °F) Optional heat exchanger required for operation above 65 °C
Sample Inlet Flow Rate	60 mL/min to 300 mL/min
Sample Inlet Pressure	10 psi to 100 psi (69 to 690 kPa)
Conductivity (Purge) Mode	Temperature compensated to 25 °C or uncompensated
Conductivity Range	0.05 to 150 µS/cm (@ 25 °C) Display Resolution: 0.01 µS/cm over full range 0.XX from 0.02 to 5 uS 0.X from 5 to 150 uS
Resistivity Range	0.01 to 18 MΩ-cm (@ 25 °C) Display Resolution: 0.01 to 14.9 MΩ-cm, 1.0 from 15 to 18.2 MΩ-cm X >= 14.95 0.XX >= 9.995 0.XXX < 9.995
Conductivity Accuracy	2% over full range (uncompensated)
Temperature Accuracy	± 0.5 °C; Range 0-100 °C

CALIBRATION AND VALIDATION

TOC Three-Point Calibration	0 ppb C (blank), 250 ppb C, 500 ppb C, 750 ppb C (all sucrose)
TOC One-Point Validation	500 ppb C (sucrose)
TOC Three-Point Validation	250, 500, 750 ppb C (sucrose)
TOC System Suitability	500 ppb C (sucrose), 500 ppb C (1,4-benzoquinone), Reagent Blank
Conductivity One-Point Calibration	100 µS/cm solution
Conductivity One-Point Validation of Meter	61.9 kΩ resistor

PHYSICAL SPECIFICATIONS

Installation Category	11, IEC 1010
Pollution Degree	2, IEC 664
Anet Network Type	RS-485
Maximum Sensors	8
Maximum C80 Controllers	8 (any configuration)
Maximum Network Length	1 km (3,000 ft)
Network Cabling	Shielded Twin-axial, Twist-Lock® BNC
Display	4-line x 16-character Super-Twist® LCD
Backlighting (adjustable)	Yellow LED
Character Height	0.163"
Operating Temperature	15 °C to 35 °C (59 °F to 95 °F), 100% RH maximum (non-condensing)
Maximum Altitude	4,000 m (13,125 ft)
Size (w/ sample assembly)	193 mm H x 489 mm W x 119 mm D (7.6" H x 19.25" W x 4.7" D)
Weight	8.85 kg (19.5 lb)
I/O Connections Analog	Opto-isolated 4–20 mA output, Non-isolated 12 VDC output @ 1/2 Amp maximum
Digital I/O	Two opto-isolated inputs, Two opto-isolated outputs
Serial Interfaces	RS-232 Data Acquisition, RS-232 Printer, RS-232 Diagnostics, RS-485 opto-isolated Network

Global Headquarters
6, route de Compois, CP 212
1222 Vésenaz, Geneva, Switzerland
Tel +41 (0)22 594 64 00
Fax +41 (0)22 594 64 99

Americas Headquarters
481 California Avenue
Grants Pass, Oregon 97526, USA
Tel 1 800 866 7889 / +1 541 472 6500
Fax +1 541 479 3057