

acquray® TOC

TOC analysis made simple



Ease of use



Great flexibility



High sensitivity



High data quality



acquray® TOC

*Performance meets
ease of use*

KEY FEATURES

- High sensitivity due to large injection volumes
- Automatic acidification for NPOC determination
- High-energy UV lamp for the digestion of TOC in liquids
- Optional autosampler with up to 111 positions
- Best price-to-performance ratio
- Low investment costs

The acquray® TOC from Elementar delivers precise and efficient Total Organic Carbon (TOC) analysis in liquid samples, designed to meet the demanding standards of the pharmaceutical industry. Using UV supported chemical oxidation, the system ensures complete digestion of organic carbon compounds, providing accurate and reproducible TOC measurements for purified water, WFI, process water, and cleaning validation samples.

Predefined methods, automated calibration, and intelligent maintenance alerts reduce operator workload and minimize downtime, ensuring consistent performance in routine laboratory environments. Fully aligned with global regulatory requirements such as USP, EP, and GMP, acquray® TOC supports reliable water quality monitoring and continuous quality assurance in pharmaceutical production and quality control laboratories.

🔍 acquray® TOC

Analysis of
Total Organic Carbon



Ease of use

The **acquray**® TOC is optimized to significantly simplify the daily routine operation. Clearly arranged, easily accessible system components minimize maintenance efforts. Thus, customers can enjoy smooth and fast analyses with reliable results.

A workhorse for any laboratory

The **acquray**® TOC is designed for maximum robustness and minimal maintenance effort, thus providing industry-leading system uptime. For unattended overnight operation, optional autosampler configurations with up to 111 positions are available.

High Precision TOC

The **acquray**® TOC, delivers exceptional sensitivity with a detection limit as low as 2 ppb, enabling precise monitoring of ultra-clean water and low carbon liquid samples.

This high sensitivity ensures reliable detection of trace organic contaminants, supporting stringent quality control, regulatory compliance, and accurate analysis in pharmaceutical and industrial applications where even minimal carbon levels are critical.

Made in Germany

All TOC and elemental analyzers are developed and manufactured in-house at the Elementar headquarters near Frankfurt ensuring high quality German engineering. High performance components and strict quality control yield industry-leading quality and reliability. Therefore, we grant a 10-year guarantee on the IR detector and a 3-year guarantee on the UV lamp. Our team's singular devotion and investment to elemental analysis guarantees a superior experience that any user will appreciate.

TOC BY WET CHEMICAL OXIDATION



The oxidizing process is supported by irradiation with UV light at a wavelength of 185 nm and 254 nm and heat. Additionally, a strong oxidation agent, such as sodium persulfate, can be added to the sample. The peroxydisulfate forms hydroxyl radicals that oxidize all carbon in the liquid sample to carbon dioxide. Carrier gas (e.g., N₂ or air) then transports the generated CO₂ through an infrared detector (IR). In the end, the TOC concentration is calculated from the IR signal using a pre-determined calibration curve.



INTUITIVE SOFTWARE

The Elementar **acquray**® TOC software is designed for ease of use and efficient operation, featuring a user-friendly interface with easily arranged windows and immediate evaluation of results. It includes pre-defined methods for TOC, TIC, and TC analysis, while also allowing users to create, save, and manage an unlimited number of custom methods.

To support resource saving and time optimization, the software offers an editable sleep/wake-up function, and its maintenance auto-alert function helps ensure reliable performance by notifying users when service actions are required.

Water analysis has never been easier!

SAMPLE	RECOVERY [%]	REL. SD
SUCROSE	99.3	0.26
BENZOQUINONE	99.6	0.65
BARBITURIC ACID	102.6	1.58
DODECYL-SULPHATE	95.6	0.65
ALBUMIN	97.2	0.98
HUMIC ACID	97.2	1.67

Sample: 10 ppm

COMPLIANCE YOU CAN TRUST

acquray® TOC provides precise and reliable Total Organic Carbon (TOC) analysis in liquid samples, supporting compliance with Good Manufacturing Practice (GMP) in pharmaceutical environments. TOC monitoring is essential for ensuring the quality of pharmaceutical water, including purified water and Water for Injection (WFI), by controlling organic contamination. In cleaning validation, accurate TOC measurement confirms effective removal of residues, reducing cross-contamination risks, while ultrapure water monitoring ensures process stability and regulatory compliance. Integrated software designed for 21 CFR Part 11 compliance supports secure data handling, audit trails, and electronic records, helping laboratories maintain full regulatory integrity and quality assurance.

IN ACCORDANCE WITH STANDARDS

The **acquray**® TOC operates in full compliance with all relevant national and international norms or standards such as ISO 8245, EPA 415.3, ASTM D4839-03, SM 5310 C and EN 1484.

IDEAL SOLUTION FOR

- Pharmaceutical Laboratories
- Academic research groups
- Quality control laboratories

SAMPLE TYPES ANALYZED

- Ultra-pure water
- Drinking water
- Pharmaceutical Water
- Cleaning validation



Ease of use

Easy, labor-saving instrument operation and sample preparation. Simplified maintenance.



Great flexibility

Range of optional extra modules available for special applications. Upgradeable at any time.



High sensitivity

Outstanding sensitivity thanks to high performance, state-of-the-art technology.



High data quality

Outstanding precision and accuracy through high performance components.

Elementar – your partner for excellent elemental analysis

Elementar is one of the world leader in high performance analysis of organic and inorganic elements. Continuous innovation, creative solutions and comprehensive support form the foundation of the Elementar brand, ensuring our products continue to advance science across agriculture, chemical, environmental, energy, materials and forensics markets in more than 80 countries.

Supported by:



on the basis of a decision by the German Bundestag

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