

Thanks to its ability to switch between techniques, the HiPerTOC gives you more choice to measure different samples. The analyzer is particularly suited to the following applications:

Applications

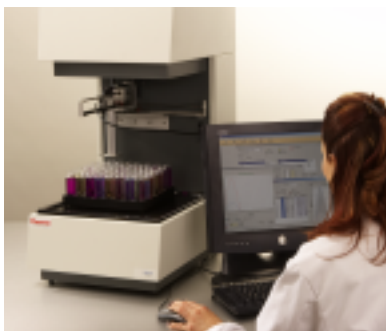
APPLICATION	HIGH TEMP	TECHNIQUE		OZONE PROMOTED
		UV/ PERSULFATE	UV (ULTRAPURE)	
Ground water	✓	✓		✓
Drinking water	✓	✓		✓
Surface water	✓	✓		✓
Waste water	✓			
Cooling water	✓	✓		
High purity water			✓	
Pharmaceutical		✓	✓	
Sea water				✓
Solid waste	✓			

What's in it for you?

FEATURE	ADVANTAGE	BENEFIT
4 oxidation techniques in one analyzer	Fulfil customer's application needs	Lower investment cost certainty of TOC data
Integrated 55 positions auto sampler	High sample throughput	Lower cost per analysis, major productivity gain, time saving
Benchtop model	Small footprint	Saves benchspace
Autocalibration	Accurate, precise results	Continuously validated results
Two NDIR detectors	High and low range IR, broad span of analysis	High and low results in one and the same queue
Windows based ThEuS analytical software	Transparent and Customized methods, self explaining, Excellent Support tools	Powerful flexibility and easy-to-use
Meets EPA, ASTM, ISO, standards	Compliant with international standards	Customer satisfaction

ThEuS Analytical Software – Ensuring Intuitive and Smooth Control of Your HiPerTOC Analyzer

The advanced user interface of the Thermo Electron Software (ThEuS) ensures the smooth operation of the HiPerTOC with user-friendly controls and operation. ThEuS assists the user to achieve routine TOC analyses in an efficient, fast and reliable way. Instrument operation remains simple with the incorporation of clear and user friendly icons. This resourceful software makes it possible to modify sample queues, evaluate data and calibrate lines completely independently. Results can be presented in customized print reports or exported in a variety of data formats.



Key features of ThEuS include:

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FEATURES	BENEFITS
One software solution for all trace Elemental analyzers	Reduces complexity and improves productivity
Real time measurement curves	Maximal analysis control, easy to compare samples at a glimpse
Multi-Elemental analysis	Optimal analysis control and time saving procedure
Selectable user and service levels	Security and data integrity
Customized application and analysis methods	Full control of the analysis/system, flexible method structure
Fully multi-tasking	Efficiency, user friendly and time saving

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BR42000_E01/05

Total Organic Carbon analyzer HiPerTOC



Total Versatility, Total Productivity for all your TOC Analyses

Laboratory Solutions Backed by Worldwide Service and Support

Tap our expertise throughout the life of your instrument. As an industry leader in analytical instruments, Thermo extends its support throughout our worldwide network of Thermo-trained and certified engineers who are experts in laboratory technologies and applications. Put our team of experts to work for you in a range of disciplines, from system installation, training and technical support, to complete asset management and regulatory compliance consulting. Improve your productivity and lower the cost of instrument ownership through our product support services. Maximize uptime while eliminating the uncontrollable cost of unplanned maintenance and repairs. When it's time to enhance your systems, Thermo also offers certified parts and a range of accessories and consumables suited to your application.

To learn more about our products and comprehensive service offerings, visit our Web site at www.thermo.com.

The HiPerTOC will satisfy the specific TOC needs of the following industries:

- Drinking water
- Environmental QC labs
- Utilities
- Chemical & Petrochemical
- Food & Beverage
- Semiconductor
- Pharmaceutical
- Mining
- Government

HiPerTOC analyzer

Four TOC solutions for today's laboratories

High performance Total Organic Carbon (TOC) analyzer, incorporating 4 sample destruction techniques for improved versatility and productivity.

HiPerTOC – Total Versatility, Total Productivity for all Your TOC Analyses

Thermo Electron Corporation has pioneered the next generation of TOC instrumentation providing a total customer solution by removing the need to choose between the four common TOC analytical techniques.

TOC analysis is fast becoming the analytical backbone in many water treatment and quality control laboratories. Measuring TOC is crucial to determine the presence of organic carbon compounds that can potentially interfere with wastewater treatment processes and impact the production of safe drinking water. The technique is routinely used in the water, textile, pulp and paper, pharmaceutical, semiconductor and food and beverage industries to ensure compliance with environmental regulations.

Thermo's HiPerTOC answers all your TOC analytical needs by directly measuring organic carbon in a matter of minutes.

A Truly Integrated TOC Solution for Today's Laboratory

Choosing the most suitable TOC technique is dependent on two key factors:

- the sample matrix and/or
- the legislative context and standards that analyses will need to comply with

Thermo has rethought the approach to TOC analysis and adapted its analyzer to accommodate these parameters. The HiPerTOC has therefore been designed as a

compact bench top analyzer incorporating the most advanced multifunctional capabilities in one user-friendly instrument.

HiPerTOC – 4 Oxidation Techniques in One Instrument

The HiPerTOC is a unique high performance TOC bench top analyzer featuring four different oxidation techniques for improved versatility and productivity in today's environmental laboratory. The HiPerTOC offers a total customer solution by removing the need to choose between the four common TOC techniques:

- High temperature oxidation
- UV/Persulfate
- UV (Ultra Pure)
- UV/Ozone promoted

Total Analytical Power for Improved Analysis

Thermo's HiPerTOC reduces the cost per analysis by ensuring major productivity gains and time savings are constantly achieved thanks to its integrated 55-position XYZ auto sampler.

The multifunctional TOC analyzer provides accurate and precise results at both high and low concentration levels in a wide variety of sample types. They range from particle loaded wastewater to clean drinking water. The HiPerTOC's main features include:

- Improved productivity with integrated auto sampler
- Two NDIR detectors deliver high and low level TOC results simultaneously in the same queue
- Dynamic range 25 ppb – 20,000 ppm
- Measurement of TIC and TOC in one run
- Small footprint saves bench space



One Principle, Four Choices

All four TOC techniques follow the same principle. Carbon compounds are converted into CO₂. The concentration of CO₂ is measured by a Non-Dispersive Infrared Detector (NDIR). What distinguishes the four techniques is the way in which they employ the oxidation method.

Thermo's HiPerTOC is unique insofar as it allows the technician to switch between methods effortlessly depending on the sample analyzed.

High Temperature Oxidation for Fast and Simple Analysis

With this method, the destruction of the bonded carbon into CO₂ occurs at 680°C with the assistance of a catalyst. Alternatively this can also be achieved with a temperature setting of 1000°C without any need for a catalyst.

The temperature source is sample matrix dependable.

The main benefit of this oxidation technique is that it allows fast and strong oxidation. It can be applied to all kinds of organic substances, including suspended particulate organic substances.



UV/Persulfate for Samples without Suspended Particles

This method relies on the synergistic oxidative power of both persulfate and ultraviolet light. The oxidation is considerably more powerful because the dissolved organics are ionized. This also produces highly reactive sulfate radicals and hydroxyl free radicals.

This oxidation technique is particularly suitable for TOC analysis of samples without suspended solid particles ranging from low to high ppm.

UV (Ultra Pure) for Reliable Pure Water Analysis

With this method, the sample is exposed to UV light from a mercury vapor lamp. When the sample has been sufficiently exposed to the light, all the dissolved organics are oxidized to yield CO₂.

This oxidation technique offers the most reliable low maintenance method for TOC analyses of ultra pure water samples.



UV/Ozone promoted for High Salt Concentrations

The oxidation capacity of carbon compounds is dramatically reduced when using the persulfate method in samples with high salt concentrations. This occurs due to competing halogen reactions. Increasing the pH suppresses these halogen reactions. The production of hydroxyl radicals – a very effective oxidizer – is then possible.

This oxidation technique is extremely suitable for TOC samples high in salt content.

TOC Analysis – New Design, New Technology, Faster Results!

The HiPerTOC Analyzer offers a range of features to make your analyses more accurate and reliable. The following table summarizes some of its key benefits:

TOC TECHNIQUE	TECHNICAL STRENGTHS
High temperature oxidation	<ul style="list-style-type: none"> • Excellent technique for difficult to oxidize and non-saline samples • Destructive technique for both particulated liquid and solid samples • No use of reagents
UV / Persulfate	<ul style="list-style-type: none"> • Ideal for routine environmental and drinking water samples • Waste water samples (depending on particle load) • Large sample volumes handling, and direct TOC analysis method
UV (Ultrapure)	<ul style="list-style-type: none"> • Extremely sensitive down to ppb level • No use of reagents
Ozone promoted	<ul style="list-style-type: none"> • Powerful analytical technique for analysis of acids and industrial salts up to % range

