

Thermo Scientific HiPerTOC

Total Organic Carbon analyzer
with TN-CLD and Solids options

The Thermo Scientific HiPerTOC high performance Total Organic Carbon (TOC) analyzer is designed to offer customers a dedicated TOC solution. This multi-purpose analyzer includes high temperature and UV destruction techniques for flexible and versatile TOC analyses. This system fully meets the needs of today's busy laboratories and ensures productivity and accuracy over a large variety of water and solid samples.



The choice is yours...

The Thermo Scientific HiPerTOC analyzer has 3 different destruction techniques in one single benchtop instrument to give you the most flexibility when running TOC analyses. The most suitable destruction technique is determined by the matrix of the sample:

1. High temperature oxidation

This is an excellent technique for fast results in difficult to oxidize and low salt concentration samples. High temperature oxidation is the best choice for analyzing samples containing particulates as well as real solids in the field of TOC analysis. For TN_b analysis, high temperature oxidation is used and the furnace is adjusted to a temperature that allows oxidation of nitrogen compounds to ensure complete combustion.

2. UV/Persulfate

This is the ideal oxidation technique for accurate results in routine environmental and seawater samples up to 5% salt

concentration. This direct TOC analysis method is capable of handling large sample volumes and provides fast, accurate results day in day out.

3. UV/Ozone promoted

Ozone promoted UV oxidation is a powerful technique capable of oxidizing carbon in water containing inorganic chlorides and salt matrices up to 28% concentration.

These versatile destruction techniques make TOC analysis using the HiPerTOC system simple and efficient. The HiPerTOC analyzer is supported by the Thermo Scientific ThEuS Software to control the instrument and analyze accurate TOC data. The standard HiPerTOC instrument also features:

- a fully integrated 63-position XYZ-sampler with 2 specially designed sampling needles for the automatic introduction of water samples into the instrument. Acidifying of samples in case of NPOC analysis is also made simple by design.

- stirrer module which ensures complete sample homogeneity and enables customers to analyze samples containing particulates with diameters up to 700 µm.
- high and low range NDIR detectors which are software controlled to automatically select the correct calibration range for a given sample concentration without the need for user interaction. The system is fully configurable for any oxidation technique or combination thereof.

These features allow the Thermo Scientific HiPerTOC analyzer to easily run samples requiring different oxidation techniques and calibration ranges in one sample queue sequence automatically.

TN-CLD module

The capability of the HiPerTOC analyzer can be extended with a TN-CLD module to measure TOC and TN_b in one run. This compact add-on module incorporates a chemiluminescence detector (CLD), ozone generator and killer and is fully controlled by the versatile ThEuS software. The TN-CLD module is fully compliant with stringent DIN and EN 12260 methods for water sample analysis at 720 °C using a catalyst.



Specifications

Model	HiPerTOC bench-top analyzer with ThEuS software	
Dimensions:	800 x 600 x 400 mm, 31 ¹ / ₂ x 23 ¹ / ₂ x 15 ³ / ₄ inch (HxDxW)	
Weight:	50 kg	
Type of analyses:	TC, TIC, TOC, NPOC, TN _b (optional)	
Type of Detector	Dual Beam Non-Dispersive Infrared (NDIR) (optional: chemiluminescence (TN-CLD))	
Oxidation Techniques:	High Temperature at 720 °C with catalyst High Temperature at 1000 °C without catalyst UV/Persulfate UV/Ozone promoted	
Typical sample volumes:	High Temp:	0.25 – 2.0 mL
	UV/Persulfate:	1.0 – 7.0 mL
	UV/Ozone promoted	0.25 – 3.0 mL
Measurement ranges*:	High Temp:	500 ppb – 10,000 ppm
	UV/Persulfate:	250 ppb – 10,000 ppm
	UV/Ozone promoted	500 ppb – 10,000 ppm
Detection Limits (LOD):	High Temp:	200 ppb
	UV/Ozone promoted	100 ppb
	UV/Persulfate	100 ppb
Typical Analysis time:	High Temp:	3 minutes
	UV/Ozone promoted	4 minutes
Communication	RS-232	
Software	ThEuS operating software version 1.4 or higher	
Compliance	ASTM D4839, ASTM D2579, EPA 415, ISO 8245, EN 1484	

Autosampler Specifications

Sampler type:	XYZ robot with stationary rack design and 2 needles. 63 positions for 20/40 mL VOA vials
Stirring module	standard for High Temp configuration and optional for UV configuration

Facility Requirements

Ambient temperature	15 – 35 °C
Relative Humidity	20-80 %
Power	115 +/- 10 % VAC, 50/60Hz or 230 +/- 10 % VAC, 50/60Hz
Oxygen/Pre-purified Air	300 ml/min (max.) at 2 bar (typical 250 ml/min), grade 5 (99.999 %)

Options

Total Nitrogen (TN _b)	TN-CLD Module Chemiluminescence detector (TN-CLD) EN 12260 compliant Measurement range: 0.1 – 25 ppm (linear) Oxidation technique: 720 °C with catalyst Dimensions: 250 x 520 x 195 mm, 10 x 20 ¹ / ₂ x 7 ³ / ₄ inch (HxDxW)
Solids analysis	HiPerTOC SA Module Manual sample introduction Furnace temp 1000 °C EN 13137 compliant Measurement range 10 ppm – 50 % (1 µg – 35 mg C absolute) Dimensions: 185 x 650 x 220 mm, 7 ¹ / ₄ x 25 ¹ / ₂ x 8 ³ / ₄ inch (HxDxW)

* Depends on typical application

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