TOC SYSTEMS INC

StarTOC

Semi-Auto Benchtop TOC

SEMI-AUTOMATIC TOC

- Stand-Alone (No External Computer)
- Simple to Operate
- Multi-Sample Sparge Station
- Rapid Analysis

- UV/Heated Persulfate
- High Temperature Combustion (Option)
- Fully Compliant with EPA & Standard Methods
- Accurate Results

UV/HEATED PERSULFATE METHOD
&
HIGH TEMPERATURE COMBUSTION METHOD

Available Oxidation Methods

UV/Heated Persulfate

Excellent TOC accuracy from low parts-per-million to 1,000 ppm undiluted TOC concentrations, with minimum maintenance.

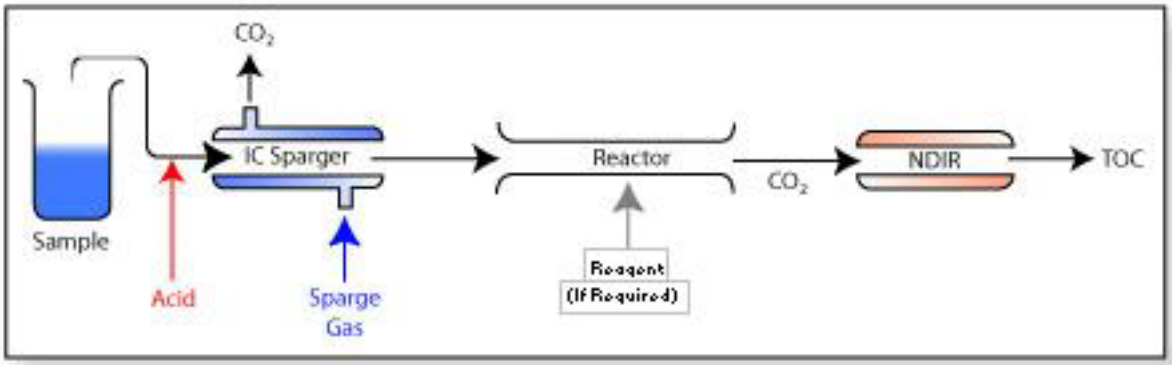
High Temperature Combustion

For difficult to oxidize or high TOC concentration samples requiring good accuracy of analysis.

DESCRIPTION:

TOC Systems' Semi-Automatic Benchtop is a low-cost, accurate TOC analyzer which utilizes components and software from TOC Systems' family of computer-controlled automated TOCs. Since operation and maintenance are very simple, this model may be the analyzer of choice when less than 20 samples per day are to be analyzed.

The StarTOC Semi-Automatic analyzer is capable of TOC, TIC, and TC analysis using the following methods:



Sample is mixed with acid, lowering the pH to 2.0. This converts the inorganic carbon to dissolved CO_2, which is Air/O_2 stripped out of he solution. Reagent is added if required and the remaining organic carbon is then oxidized in the Reactor to form CO_2, which is detected by the NDIR as a direct correlation to TOC.

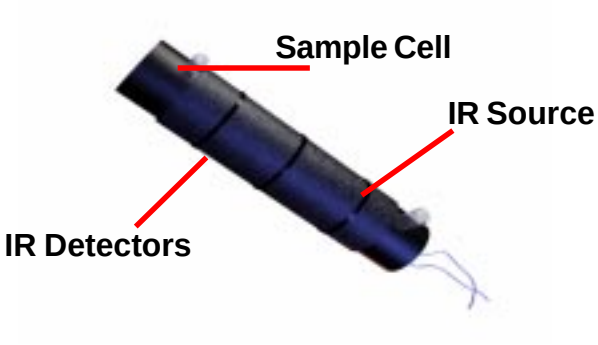
UV/HEATED PERSULFATE

Operation:

1. Turn power switch on.
2. Add 0.2 ml acid to sample tube and sparge Three minutes (TOC).
3. Draw sample into syringe and place at sample injection port.
4. Inject sample as prompted by computer.
5. Read TOC value.

HIGH TEMPERATURE COMBUSTION

NDIR (The key component for reliable TOC analysis.)

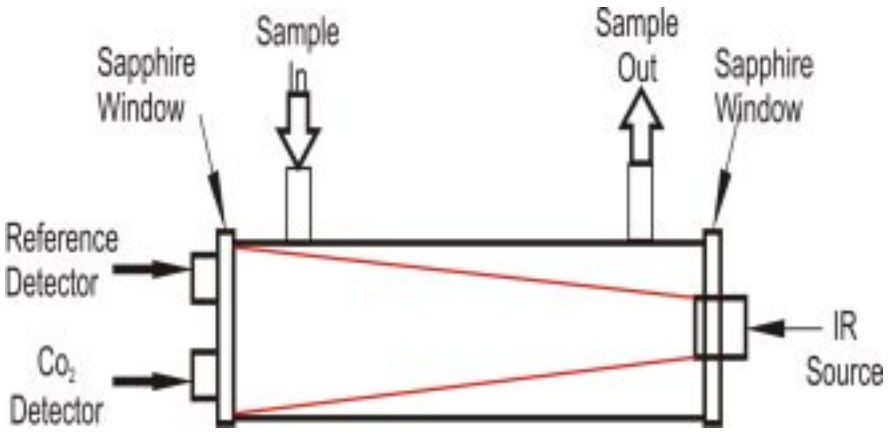


- Specific, Interference-Free CO_2 Detection
- Single-Beam
- Dual-Wavelength Ratioing Compensates for Drift
- Computer-Controlled for Accuracy
- Sapphire Protected Optics
- Non-Corrosive, Non-Reflective Sample Cell (Borosilicate)

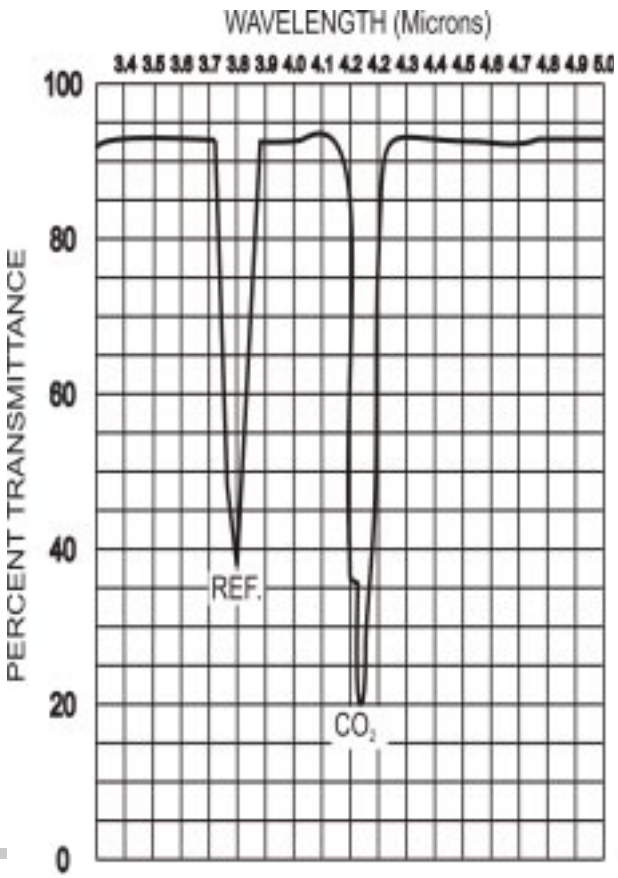
- No Moving Parts for Easy Maintenance and Service
- No Critical Realignment Required

Detection Technique

The NDIR CO_2 detector uses a solid-state, dual-wavelength system with a single borosilicate glass sample cell that requires no wall reflectivity or removal of acid gases. There is a reference and a CO_2 specific detector in the sample path. Use of the true zero filter eliminates water vapor interference. An infrared source is cycled on and off to avoid mechanical choppers required in alternate NDIRs. The Star NDIR has **no moving parts**.



Automatic gain control (AGC) is employed during the reference/ sample cycle to compensate for such factors as IR source deterioration, dirty optical windows, and detector gain changes. All critical optics are protected by sapphire windows. The sample cell can be easily removed and the windows cleaned within 3 minutes, without realignment or the use of any tools.



- **5 Year Warranty on NDIR Sample Cell**
- **2 Year Warranty on Complete NDIR**

StarTOC

Semi-Automatic/Computer-Controlled

TOC Benchtop Analyzer

Specifications (Nominal, at 25C)

Operation	Characteristics
Measurement/Methods	TC (Total Carbon) - UV/Persulfate Oxidation; TOC (Total Organic Carbon) manual acidification and sparging to eliminate inorganic carbon interference. High Temperature Combustion Method (Option)
Measurement Ranges (std.)	0-20 through 0-1000ppm (Std.), Other ranges available
Display	LCD, Operator Menu Prompting
Data Handling	RS-232C
Performance	
Response Time	TC: 2 minutes after injection (nominal) TOC: 3 minutes sparge (Manual)
Repeatability	+/- 2% FS
Zero/Span Stability	+/- 2% FS
Linearity	+/- 2% FS
Suspended Solids	500 microns (max.)
Reagents (UV/Heated Persulfate)	Sodium Persulfate: 1.6 ml/min while operating (approx 5 ml/sample)
TOC Mode for TIC Removal	Phosphoric Acid, 10% v/v: 0.2 ml/sample (nominal)
Calibration	DI zero and one point span, chemical standard, computer-stored calibration curves
Physical Characteristics	
Dimensions (HxWxD) Weight	20x20x10 inches, 51x51x25 cm 30 lbs., 14 kg.
Facility Requirements	
Power	115 +/- 10% VAC, 50/60 Hz (15 Amp Service) or 220 +/- 10% VAC, 50/60 Hz (15 Amp Service)
O_2 / Air Flow Rate	20-300 cc/min. (depending on application)
Drain	Gravity drain vented to atmosphere
The analysis range and precision are affected by sample introduction, sample homogeneity, sample container cleanliness, reagent purity, chemical standards preparations, gas purity and operator skill.	

Purchasing Specifications:

A) The analyzer shall provide Semi-Automatic analysis of Total Organic Carbon by a manual acidification and sparge to eliminate inorganic carbon interference and by direct operator injection for automatic TOC analysis.

B) It shall incorporate a Solid State, Dual Wavelength Ratioing, Non-Dispersive Infrared Analyzer (NDIR) to measure the Carbon Dioxide (CO_2) generated in the oxidation phase of analysis. The NDIR shall be completely computer controlled and have no moving parts. It shall have a non-reflective, borosilicate sample cell, impervious to corrosion and be self-calibrated.

C) The computer shall be integral to the analyzer. No external computer shall be *required* for operation or data display. Self-prompting menu software shall be included.

D) UV/Heated Persulfate Method shall be used, which is fully compliant with EPA 415.2.

E) High Temperature Combustion Method fully compliant with EPA 415.1 shall be furnished (Option).

STARTOC OTHER BENCHTOP ANALYZERS

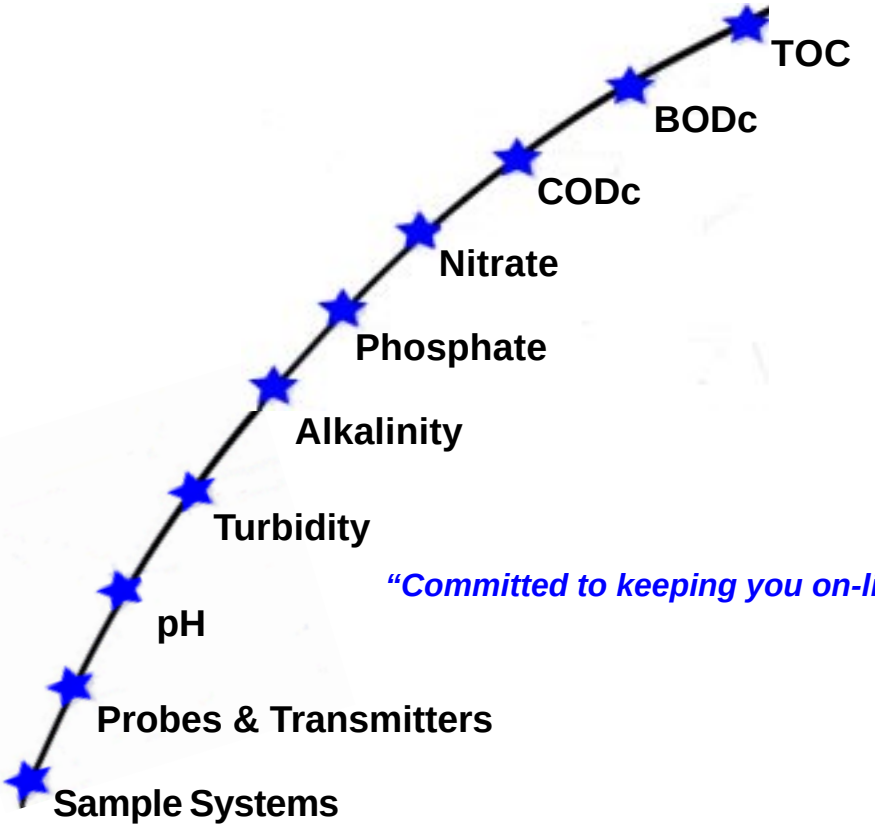
AUTOMATIC TOC/TN ANALYZER
(See Detailed Brochure)

A Truly Automatic TOC Analyzer offering Five Oxidation Methods, 103 Sample & 1 Wash Stations, Dual NDIRs & Easy Operation with Windows.Net Software.

SOLIDS ANALYZER
(See Detailed Brochure)

Allowing True “Stand-Alone” Liquids, Solids & Slurry analyses, with dual integral NDIRs. External PC is required.

We also Offer Complete, On-Line Turn-Key Analyzer & Sample Systems



"Committed to keeping you on-line."

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- **Waste Treatment**
- **Drinking Water**
- **Process Monitoring**
- **Panels & Small Shelters**
- **Custom Packages**