Standard Specifications

Model	Total Organic Carbon Analyzer TOC-300V
Samples	Water Samples (Drinking, Industrial Waste, Environmental)
Method	Oxidative Combustion/NDIR Detection
Furnace	max. 900℃
Measurement Items	TC, IC, TOC, NPOC (optional TN)
Measurement Range	0.1 to 1000mg/L (TC, IC). Auto-dilution for >300mg/L.
Sample Amount	50 to 500µl
Measurement Time	<4min. (depends on sample amount and parameters)
Autosampler	60 positions
Measurement Accuracy	Concentration TC・IC (mg/L) / Sample amount (µl) / RSD (%) n=5 1.0 / 100 / <8 10 / 100 / <5 100 / 100 / <3 TC: Potassium Hydrogen Phtalate Standard Solution IC: Na_2CO_3/$NaHCO_3$ Standard Solution
Gas	High purity air or standard air. Oxygen necessary for optional TN measurement (O_2 >99.7%).
Power	Main Unit : AC100 to 240V, 500VA Autosampler : AC100 to 240V, 80VA
Dimensions	750(W) x 530(D) x 1003(H)mm, 66kg

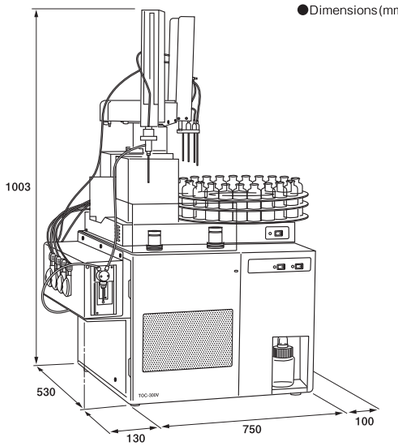
Optional Unit

Nitrogen Detector ND-210

By attaching our well-proven ND-210 (developed for trace nitrogen analysis) to the TOC-300V system, total nitrogen and TOC can be measured simultaneously.

Method	Oxidative Combustion/Chemiluminescence Detection (Reduced Pressure Method)
Power	AC 100 to 240V
Dimensions	220(W) x 375(D) x 500(H)mm
Weight	22kg

●Dimensions(mm)



*The contents of this brochure are subject to change without notice.
*Company and product names contained herein are the trademarks or registared trademarks of the company concerned.

MITSUBISHI CHEMICAL ANALYTECH CO., LTD.
Instruments Division
370 Enzo, Chigasaki, Kanagawa 253-0084, Japan.
Tel: +81-467-86-3864 Fax: +81-467-86-3862
URL: http://www.mccat.co.jp

1202TOC300V1K

DIRECT INJECTION therefore TOUGH

TOC-300V

Total Organic Carbon Analyzer

MITSUBISHI CHEMICAL ANALYTECH CO., LTD.
Instruments Division

Are your current TOC analyzers giving you the TRUE results?
Especially when it comes to samples with high amount of particulates?

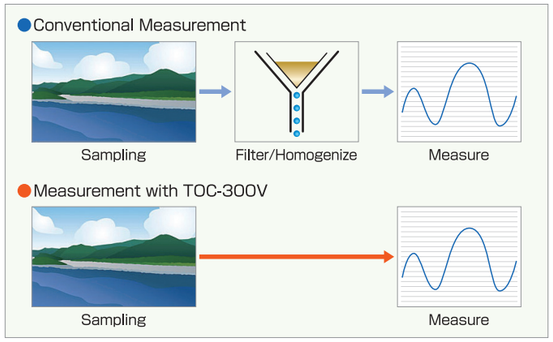
We have developed a new TOC analyzer with DIRECT INJECTION METHOD. This makes our instrument predominantly TOUGH against samples with particulates. Our proficient combustion technology and stable detection technology will also contribute to bring you the TRUE results.

Official Test Methods: ISO 8245 (EN1484), EPA 415.1, EPA 9060A, Standard Methods 5310, ASTM D7573

Characteristics

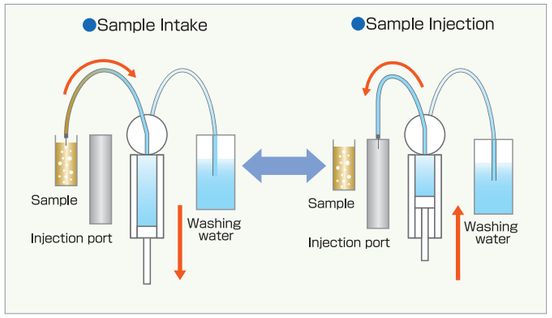
TOUGH therefore FAST

Using the standard equipped autosampler and newly developed DIRECT INJECTION method, samples containing particulates can be measured without any pre-treatment.
(patent pending)



TOUGH therefore CLEAN

The complete sample channel is VALVE FREE and the sample never enters the syringe. You are free from worries about clogging and cross contamination.



TOUGH therefore ACCURATE

The system easily passes the so-called 'Cellulose Test' (ISO 8245, Annex B3). Stable recovery of organic carbon in suspended solids (SS) can be achieved without any special treatment.

1. Test Suspension
225mg/L Cellulose powder
(=100mg/L as TC)

2. Test Criteria
Recovery within ±10%
RSD < 10%

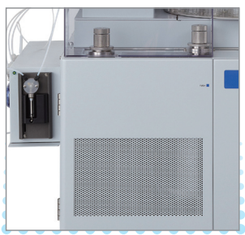
Reps	Recovery
1	95.8
2	96.7
3	95.3
4	96.5
5	96.7
Average	96.2
RSD(%)	0.64

TOUGH therefore FRIENDLY

Simple configuration and icons of the software makes the system easy to use even at first sight.
Our environmentally friendly design philosophy has resulted in a small furnace with low electricity consumption.

TOUGH therefore SIMPLE

By simply opening the front door of the main unit, reagents, combustion tube, waste bottle, and tubings are all easily accessible for checking and maintenance.



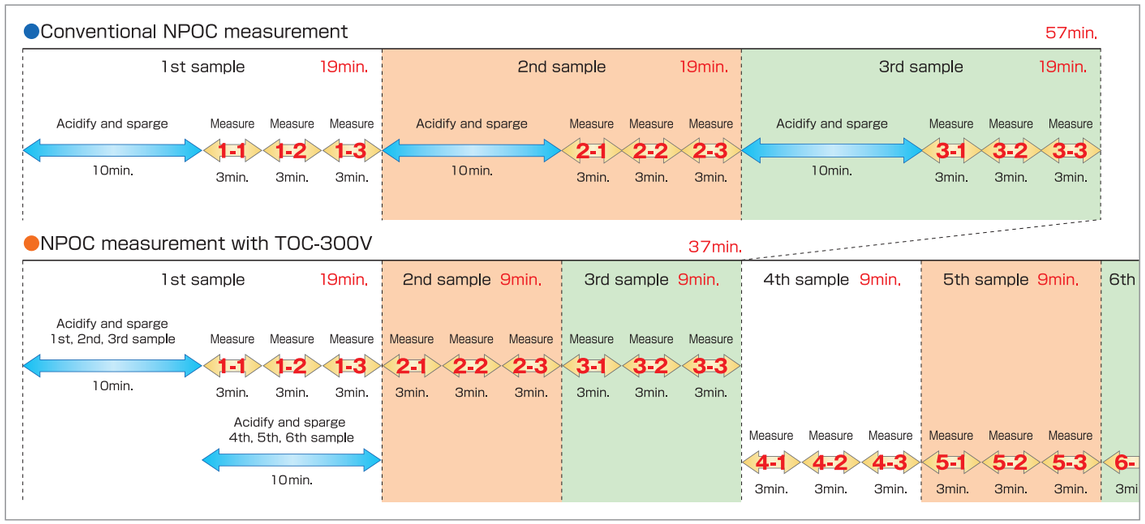
TOUGH therefore CONVENIENT

Just set your sample and start! The auto-dilution function will automatically dilute your unknown sample in case the initial result exceeds the calibration range.

TOUGH and FAST for NPOC Measurements

The TOC-300V has achieved the FASTEST NPOC measurement in the industry with the auto acid addition and 3-vial simultaneous pre-treatment.

※n=3



Applications

Sample	Mode	Reps			Average (mg/L)	RSD (%)
		1	2	3		
River water A	TOC	3.256	3.354	3.211	3.273	2.23
River water B	TOC	1.266	1.232	1.388	1.295	4.99
River water C	NPOC	2.187	2.283	2.214	2.228	1.93
River water D	NPOC	3.541	3.721	3.748	3.670	2.80
Industrial waste water A	NPOC	4.357	4.620	4.452	4.476	2.13
Industrial waste water B	NPOC	1.007	1.115	0.990	1.038	4.92
Potassium Hydrogen Phthalate	TOC	98.54	99.12	99.31	98.99	0.41

*100mg/L

Measurement Principles

Oxidative Combustion-NDIR Detection Method

Organic compounds in the sample are combusted at high temperature in high purity air in the presence of oxidation catalyst. The carbon dioxide resulting from the combustion is detected by NDIR to measure TOC.
TOC = TC - IC

What is NDIR (Non-dispersive Infrared Sensor)?

CO_2 molecules selectively absorb infrared rays with 4.26 micron wavelength. This absorption is proportional to the concentration of CO_2. This characteristic is used to quantify CO_2 with NDIR.

TC (Total Carbon) Measurement

All carbon (organic and inorganic) in the sample is either combusted or decomposed to carbon dioxide (CO_2) by injecting the sample into a high temperature combustion tube filled with oxidation catalyst. The CO_2 is detected by NDIR and detection signal is converted to a peak. The TC concentration in the sample can be obtained by correlating the peak area to a calibration curve created from standard solutions.

IC (Inorganic Carbon) Measurement

Sample is injected into an IC reaction chamber which is filled with IC reaction solution (25% Phosphoric Acid). Due to the acidic environment, only the inorganic carbon in the sample is converted to CO_2. The CO_2 is again detected by NDIR and IC concentration is calculated in the same way as TC concentration.

NPOC (Non-Purgeable Organic Carbon) Measurement

Obtaining TOC by subtracting IC from TC can result in high error, especially for samples containing high amount of IC and relatively low amount of TOC. To avoid this error, NPOC is often used as a substitute and in many cases regarded as 'equivalent' to TOC. To run an NPOC measurement, sample is first treated with acid, then sparged to remove IC, followed by a TC measurement.