SHUOBODA instruments

Shuoboda Instruments (Hunan) Co., ltd

CONTENTS

◎ Total Organic Carbon Analyzer Test method and its principle

In Part II of The People's Republic of China Pharmacopoeia (2010 edition) issued by the state pharmacopoeia commission, both online and offline methods are recommended. For the general requirements of the test instrument of total organic carbon, there are a variety of methods that can be used for the determination of total organic carbon. These technologies, as long as meeting the following conditions, can be used for the determination of total organic carbon in water.

(1) The determination technology of total organic carbon should be able to distinguish between inorganic carbon and organic carbon, and be able to rule out the interference of inorganic carbon for the determination of organic carbon.

(2) It should meet the requirements of system adaptability test.

(3) It should have enough detection sensitivity (the minimum detection limit is that the carbon content is equal to or less than 0.05 mg/L in every liter).

To test the concentration of organic matter in sample, the organic molecules must be decomposed and converted to be measurable single molecule form, so the organic matter must be oxidized into carbon dioxide and the resulted carbon dioxide will be measured. At present, there are four types of oxidation methods: first, burning method; Second, photo-oxidation method; Third, wet oxidation; Fourth, photochemical method.

The testing methods of organic carbon after oxidation include two kinds of subtraction and direct method.

Among them, the expression of subtraction method is TOC = TC - TIC, that is, total organic carbon is the difference between total carbon (TC) and inorganic carbon (TIC).

The oxidation method used by TA-1.0 Analyzer is photo-oxidation method:

$H_2O+hn(185nm) \rightarrow OH\bullet + H\bullet$ $OH\bullet$ + organic matter -> CO_2+H_2O

The measuring way for carbon dioxide is subtraction method: TOC = TC-TIC

◎ System suitability verification

System suitability verification is a kind of test method to inspect the oxidation ability of TOC analyzer, where the computation formula is as follows:

The instrument response efficiency (%) =(rss-rw)/(rs-rw) * 100%

◎ Where

rss —— response value of 1-4 benzoquinone reference solution;

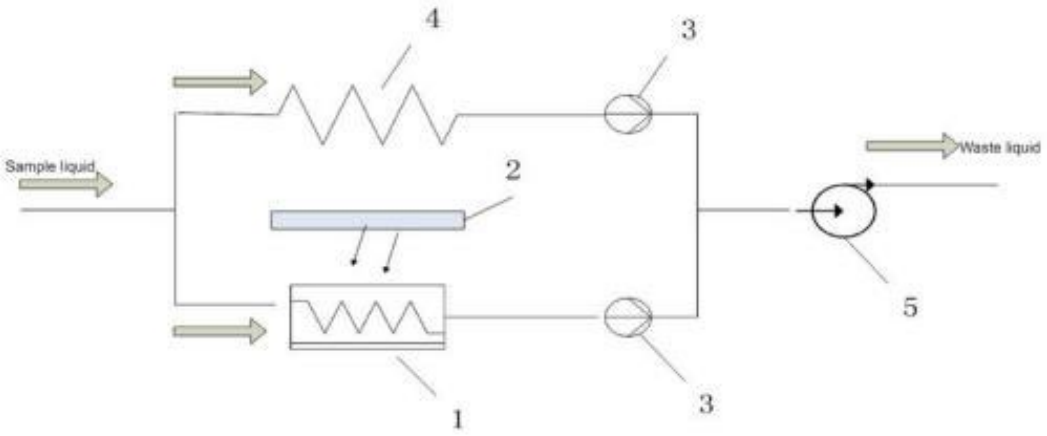
rs —— response values of sucrose reference solution;

rw —— blank response value of water to detect total organic carbon;

The condition that the instrument passes the test

85% < response efficiency < 115%

◎ The principle diagram of system



1.Delay pipe
2.Oxidation unit
3.Inorganic carbon conductivity Electrode
4.Organic carbon conductivity Electrode
5.Peristaltic pump

1. TOC-1.0 Portable TOC(total organic carbon) Analyzer (Offline Test & cleaning validation)

Meet the requirements of TOC testing regulated by the Chinese Pharmacopoeia (2010 version) for pharmaceutical grade water

TOC-1.0 TOC tester is designed for the online and offline test of pharmaceutical grade water, WFI (water for inj.), ultra-pure water, and deionized water and etc. Based on the conductivity difference technology, it is being of high-precision capacity and short response-time, also meets the regulation standards issued by government.

Applications

Pharmaceutical water (purified water, water for injection) on-line monitoring and laboratory testing and cleaning validation;
Environmental testing, electronic industry, food industry and so on.

Working Principle

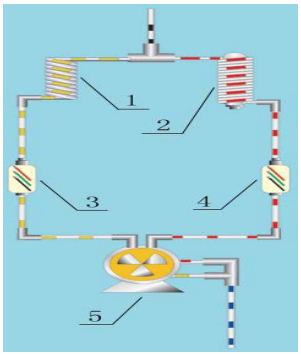
This tester adapts the UV-oxidation method, to oxide the sample organic contaminants into carbondioxide gasthoroughly which dissolve into liquid phase instantly,this will result the conductivity difference signal between test tube and control tube,and the final TOCvalue can be converted out by the below formula:TOC=TC(total carbon in test tube)- TIC(total inorganic carbon incontrol tube).

Features of product:

1. Low costs of operating ,the whole process does not require the use of any supplies, such as working gas, reagents, and other parts.
2. Friendly interface ,easy and convenient operation
3. Two mode, optional online or offline mode with the choice of automatic injector.

4. Large capacity memory disk.
5. Portable design, suitable for use in variety occasions.
6. Automatic alarm, under the circumstance of sample TOC concentration exceeding limit.
7. Electronicsignature,aswellasusergrademanagement.
8. Good reproducibity of testing, supported by the high-precision sampling chip.
9. GMP & FDA certificated, meets well with the regulation of Chinese Pharmacopoeia(2010version) issued by government.

Schematic Diagram of Direct Conductivity Method

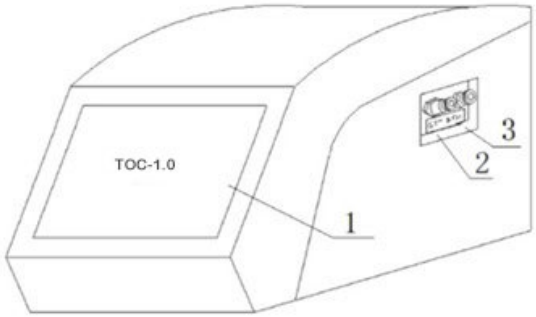


1. Delay line
2. UVlamp and quartz tube
3. Conductivity sensor
4. Conductivity sensor
5. Pump

Specifications:

Model	TOC-1.0
Power requirements / power	100-240VAC, 50HZ, 120W
TOC detection range	1μg / L ~ 1000 μg / L (1~1000ppb)
Conductivity detection range	0.055μs / cm-8.000μs / cm
Detection limit	0.001mg / L
Accuracy	≤3% test range
Repeatability error	≤ 3%
Zero drift	≤ ± 5%
Sample temperature	1- 99 ℃
Ambient temperature	5-65 ℃
Power / Frequency	100-240VAC / 50HZ; 120W
Dimensions	410 * 240 * 310mm
equipment weight	8.5kg
Display	Color touch screen
Resolution	0.001mg / L
Measuring range	0.001mg / L-1mg / L (1000ppb)
measurement accuracy	± 3%
Response time	Within 5 minutes
Scope of application	Offline laboratory, cleaning verification
Audit trail	≥5 years storage
authority management	Username & password login, level 4 permissions, meeting FDA 21 CFR PART 11
Print function	External mini printer
history record	≥5 years storage
data backup	Support U disk export data
Display	Color touch screen

Overall dimensions (mm)	400 × 240 × 270 (length × width × height)
PC software	able to provide



Front view of analyzer

Background view of analyzer

1 —— Color liquid crystal touch display;
3 —— Gas out pipe connector;
5 —— 25 pin printer interface;
7 —— Power socket;
9 —— Radiating hole;

2 —— Gas inlet pipe connector;
4 —— RS232 interface;
6 —— Ethernet interface;
8 —— Case back cover;

Function comparation

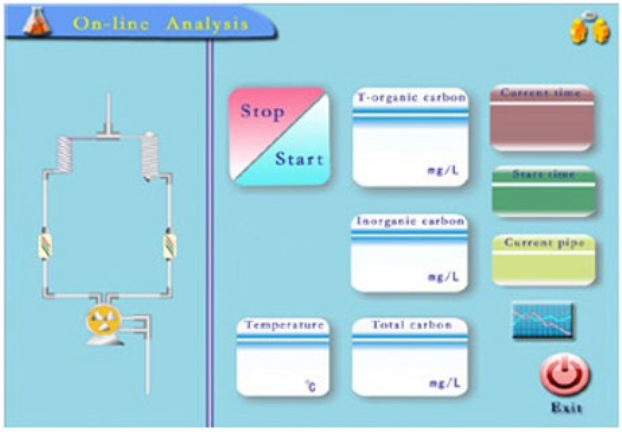
Model	TOC-1.0	TOC-2.0	TOC-3.0
Temperature measurement	●	●	●
Online analysis	◎	●	●
Offline analysis	●	●	◎
Zero calibration	●	●	●
Adaptive verification	●	●	●
Pipe flushing	●	●	●
Pump tube replacement	●		
Automatic decompression		●	●
Control output			●
Telecommunication			
Wireless alarm			
Audit trail	◎	◎	
Auto sampler	◎	◎	

● Standard ◎Optional

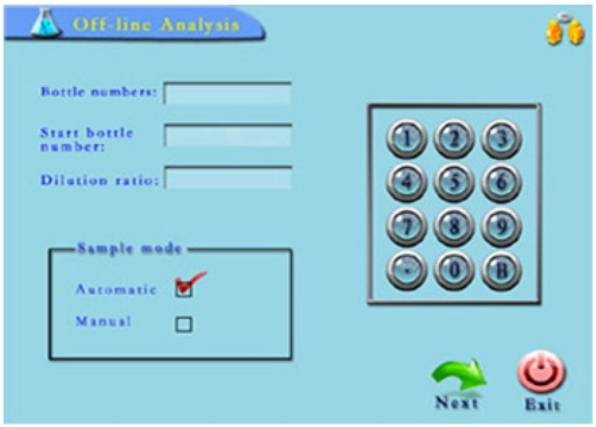
Interface

Menu

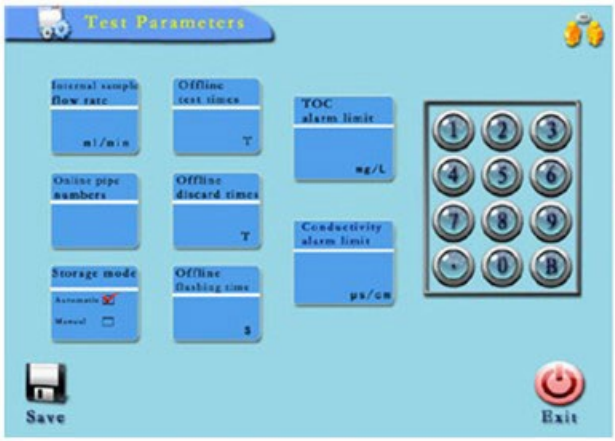
User login



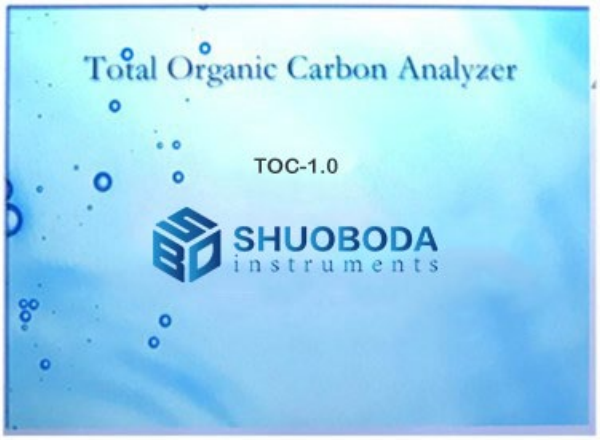
On-line Analysis Process



Offline analysis flow



Parameters setting



Main interface

2. TOC-2.0 Real Time/Off-line Dual Use TOC Analyzer (total organic carbon tester, cleaning verification)

Applications

On line monitoring and laboratory testing of pharmaceutical water (purified water, injection water), and cleaning validation; Environmental testing, electronic industry, food industry, etc.

Main features:

- A large number of technological upgrading on the basis of TOC-1.0, which have no pump pipe and no need to configure the valve device online testing.
- The new high performance CPU processor improves the processing speed and precision.
- The instrument can save 500 records.
- No pump pipe design, which not only reducing consumables, but also simplifying the installation procedure, and make flow rate more stable.
- With automatic alarm function, when the data is abnormal, it will remind;
- Color touch screen, user-friendly interface, easy to control;
- No need to add acid reagent, oxidizing agent and carrier gas, so it can reduce the cost of daily use.
- On-line and off-line test of two modes can be free to switch, it is convenient to use in different occasions.
- Fully meet the "Chinese Pharmacopoeia", USP < 643 > and < 2.2.44 > EP on system suitability test, simple and reliable operation;
- Independent R&D team, can design various specific programs according to the needs of customers.

Operation principle

oxidation organism by UV lamp and convert organic stuff into carbon dioxide, which detection adopted by direct conductivity method. The total organic carbon is the difference of the total carbon (TC)concentration in samples tested

after oxidation and not oxidation of the sample total inorganic carbon(TIC), namely: TOC = TC- (TIC).

Schematic Diagram of Direct Conductivity Method

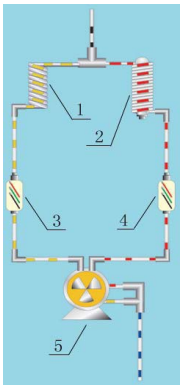
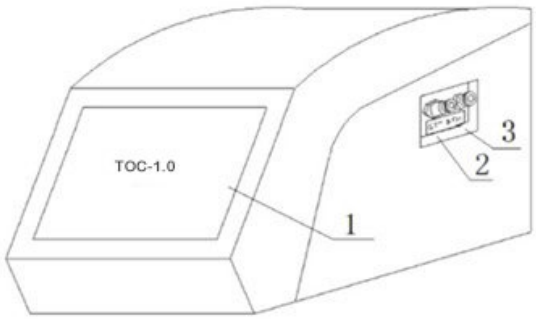


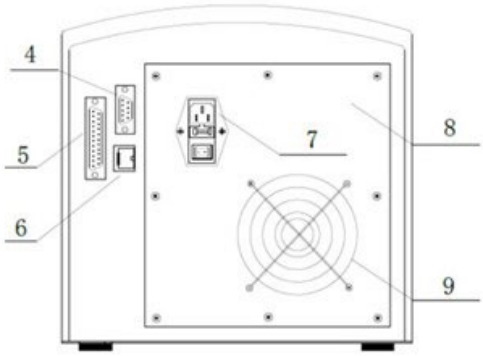
Illustration:
1---delay line;
2---Oxidation unit;
3---Inorganic carbon conductivity electrode;
4---Total carbon conductivity electrode;
5--- ceramic pump

Specifications:

Model	TOC-2.0
Power requirements / power	100-240VAC, 50HZ, 120W
TOC detection range	1μg / L ~ 1000 μg / L (1~1000ppb)
Conductivity detection range	0.055μs / cm-8.000μs / cm
Detection limit	0.001mg / L
Accuracy	≤ 3% test range
Repeatability error	≤ 3%
Zero drift	≤ ± 5%
Sample temperature	1- 95 ℃
Ambient temperature	5-65 ℃
Power / Frequency	100-240VAC / 50HZ; 120W
Dimensions	410 * 240 * 310mm
equipment weight	8.5kg
Display	Color touch screen
Resolution	0.001mg / L
Measuring range	0.001mg / L-1mg / L (1000ppb)
measurement accuracy	± 3%
Response time	Within 5 minutes
Scope of application	Online, Offline laboratory, cleaning verification
Audit trail	≥5 years storage
authority management	Username & password login, level 4 permissions, meeting FDA 21 CFR PART 11
Print function	External mini printer
history record	≥5 years storage
data backup	Support U disk export data
Display	Color touch screen
Overall dimensions (mm)	400 × 240 × 270 (length × width × height)
PC software	able to provide
Analysis time	Continuous analysis
Expansion interface	Ethernet port, 232 serial port, power output port, 4-20mA signal output



Front view of analyzer



Background view of analyzer

1 —— Color liquid crystal touch display;
2 —— Gas inlet pipe connector;
3 —— Gas out pipe connector;
4 —— RS232 interface;
5 —— 25 pin printer interface;
6 —— Ethernet interface;
7 —— Power socket;
8 —— Case back cover;
9 —— Radiating hole;

Function comparation

Model	TOC-1.0	TOC-2.0	TOC-3.0
Temperature measurement	●	●	●
Online analysis	◎	●	●
Offline analysis	●	●	◎
Zero calibration	●	●	●
Adaptive verification	●	●	●
Pipe flushing	●	●	●
Pump tube replacement	●		
Automatic decompression		●	●
Control output			●
Telecommunication			
Wireless alarm			
Audit trail	◎	◎	
Auto sampler	◎	◎	

● Standard ◎Optional

3. TOC-3.0 TOC Analyzer, online continue water monitor system, GMP

Introduction:

TOC-3.0 TOC Total organic carbon analyzer realizes t he water supply system on-line, continuous real-tim e detection, both to meet your application, and can save investment.

This instrument adapts the principle of UV oxidation, TOC= TC - TIC

Features:

1. Used stainless steel 304 as external material.
2. The use of modular design, according to the cu stomer's system needs to function configuration
3. Provide customers with two options, both single-point real-time and multi-point time-sharing online monitoring;
4. With waterproof splash design, can work under high humidity environment and high temperature.
5. Using the latest high performance CPU processor, the expansion of the instrument function, improve the processin g speed and accuracy
6. Large capacity storage space, guarantee the long-term storage of historical records
7. High precision flow control design, which ensures the stability of the TOC test accuracy and oxidation process
8. With automatic upper limit alarm output function, the data is abnormal, timely reminder
9. Touch screen design, user-friendly man-machine interface, simple operation

Technical parameters:

Model	TOC-3.0
Power requirements / power	100-240VAC, 50HZ, 120W
Conductivity detection range	0.055μs / cm-8.000μs / cm
Measuring range	0.001mg / L-1.0mg / L (1000ppb)
measurement accuracy	± 3%
Resolution	0.001mg / L
Response time	Within 5 minutes
Detection limit	0.001mg / L
Sample temperature	1-95 ℃
Ambient temperature	5-65 ℃
Scope of application	online test
authority management	User password login, level 4 permissions, meeting FDA 21 CFR PART 11
Print function	External mini printer
history record	≥5 years storage
data backup	Support U disk export data
Display	Color touch screen
Overall dimensions (mm)	300 × 210 × 250 (length × width × height)
weight	8.5KG

Function comparation

Model	TOC-1.0	TOC-2.0	TOC-3.0
Temperature measurement	●	●	●
Online analysis	◎	●	●
Offline analysis	●	●	◎
Zero calibration	●	●	●
Adaptive verification	●	●	●
Pipe flushing	●	●	●
Pump tube replacement	●		
Automatic decompression		●	●
Control output			●
Telecommunication			
Wireless alarm			
Audit trail	◎	◎	
Auto sampler	◎	◎	

● Standard ◎Optional

4. TOC-5.0 TOC Multi-point Analyzer, GMP

Product Description:

TOC-type Total Organic Carbon Analyzer is SHUOBODA independent research and developed instrument for the determination total organic carbon concentration in the water samples. It can detect the TOC concentration from 1ppb to 1000ppb of the water samples, with high sensitivity and accuracy.

TOC-5.0 Total Organic Carbon Analyzer consists of a TOC-5.0 Total Organic Carbon (TOC) data terminal and many total organic carbon (TOC) detection unit. The data terminal is responsible for collecting and displaying the data of each detection unit, with data storage, printing, alarm and other functions. Each test unit has its own oxidation detector, respectively detection the TOC of various water samples monitoring point.

Application areas:

Can be used to detect the concentration of total organic carbon in purified water, water for injection and deionized water in the pharmaceutical industry. It can monitor the water system of the pharmaceutical industry, the ultrapure water preparation system and the wafer process of the semiconductor industry, the preparation process of deionized water in power plant, can also be used for semiconductor industry, power plants, scientific research units, laboratories and other ultra-pure water TOC detection.

Main feature:

1, Adopt super large 10-inch touch screen, can control maximum 8 sets detection unit;
2, Adopt 485 communication interface;
3, Query according to the time and delete the history;
4, Detection according to the UV static oxidation principle;
5, Inner diameter of the inlet and outlet water tube is 1mm Teflon tube, configure 50 pcs quick connector;
6, Ultra-low detection limit;
7, Best data stability.
8, Matching micro printer, real-time printing.

Technical Parameters：

Model	TOC-5.0
TOC detection range	0.001mg/L-1.5mg/L（1500ppb）
Conductivity detection range	0.055 μS/cm ~6.000 μS/cm
TOC detection limit	1 μg/L (0.01mg/L)
TOC detection accuracy	±5%
Response time	Within 30 min
Repeatability error	≤ 3%
Zero point drift	±5%
Measuring Range drift	±5%
Sample temperature	0~100℃
Ambient temperature	5~65℃
Relative humidity	≤ 85%
Power supply	220V±10%
Power frequency	50Hz±1Hz
Detection unit rated power	50W

5. TOC Auto Sampler for 19 bottles

Parameter specification

Power：220V AC/50Hz
Number of sampling bottles：19 pcs
Sampling method： Auto mode, Manual mode, Passive mode

Applications

- On line and laboratory tests for pharmaceutical water (purified water, injection water), and cleaning certificates;
- Water quality analysis in environmental protection, electronics, food and other industries
- Special sampling requirements for precision analytical instruments.

Main Features

Automatic sampler can be used in conjunction with TOC analyzer，In multi sample analysis， can do automatic sample positioning and liquid level analysis, frees testers from the tedious process of waiting for the results of the analysis.

Product characteristics

- Pure English touch screen design, easy to operate;
- Intelligent design, free to determine the liquid level to avoid air pumping;
- Modular design, core components are imported devices;
- Small and lightweight, no personnel on duty during sample testing.

6. TOC Auto Sampler for 71 bottles

Introduction

The autosampler is matching with TOC analyzer produced by SHUOBODA for the multi sample analysis, positioning the sample level analysis automatically, so the operation persons can be free from the boring waiting for analysis.

Parameters

Power Supply AC 220V /50Hz
Sample Bottles NO. 71 bit
Sampling Method: Automatic mode, Manual mode, Passive mode
Dimension(mm):510*480*520

Futures

- The touch screen, simple and convenient operation;
- The modular design, the core components are imported;
- compact, portable, unattended when sample testing.
- Online monitoring and experimental testing and cleaning validation of pharmaceutical water (purified water, WFI water).
- Water quality analysis of environmental protection, electronics, food and other industries;
- Special sampling requirements for precision analysis instruments.

7. Total Organic Carbon Analyzer TOC-100/TOC-100A

TOC (Total Organic Carbon), which directly shows the total organic content, is regarded as a key factor to evaluate

pollution potentials of organic compound in water. patent laws, our TOC can meet requirements for application in water analysis, environment monitoring, pharmaceutical production, quality control, processing control etc.

So far, we launch 2 models TOC: TOC-100A (Catalytic combustion oxidation) and TOC-100 (Wet chemical oxidation by UV) which are widely used for quality control of drinking water, industrial water, sewage and waste water. Meanwhile, it has wide application in monitoring of river, lake, sea and surface water.

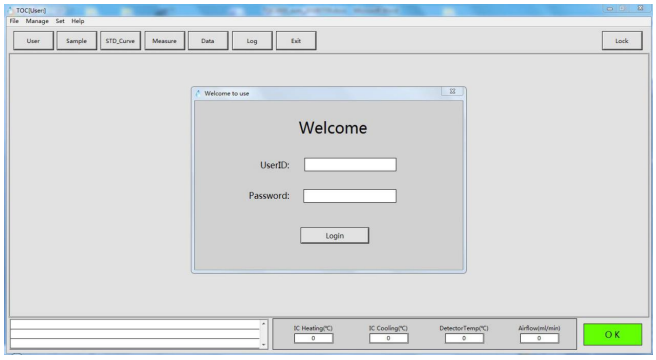
Application

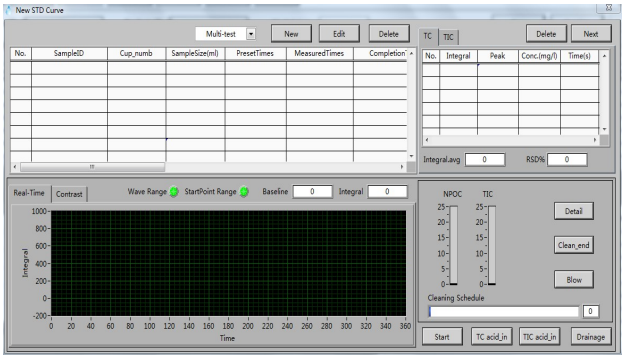
Widely used in drinking water, industrial water, sewage, wastewater, and monitoring of rivers, lakes and oceans, surface water etc.

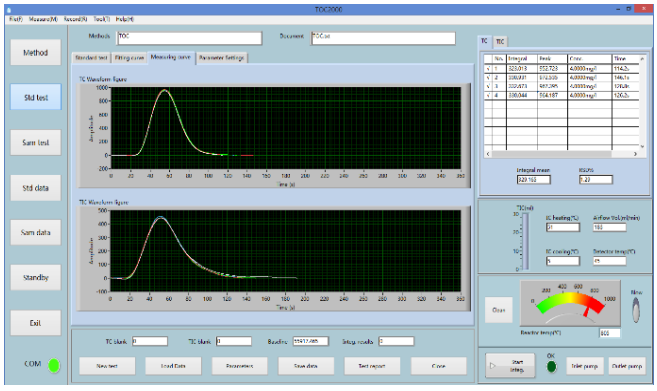
Main features:

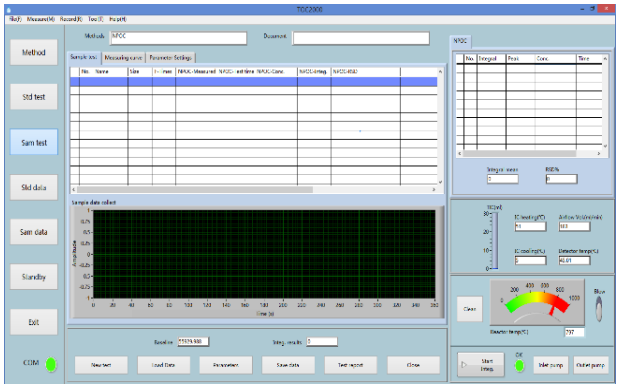
1. Signal management system with our own patent law which has great advantages of online setting, real-time monitoring, self-testing and flow speed control to ensure high performance and safe operation.
2. Low current system design also ensures operation safety.
3. Different temperature setting for various samples ensures complete sample digestion so as to get more accurate measuring data.
4. Adjust cooling module power according to sampling volume which improves drying performance to ensure dry gas into the detector.
5. Automatic leak check system to avoid operation mistakes and improve instrument performance, so as to ensure operation safety and instrument's safety
6. TOC detector with 24 bits data solution extends monitoring range. Controlling system with 32bin processing technology greatly improves performance.
7. TIC reaction pool heating, refrigeration, dehydration, liquid level monitoring of 4 in one, so that the air flow, liquid flow path is simple, save a lot of analysis time, while the detection limit to broaden;

Software interface









Specifications:

Model	TOC-100A	TOC-100
Method	Catalytic combustion oxidation	Wet chemical oxidation by UV
Detector	NDIR	NDIR
Parameters	TC, TIC, TOC, DOC, POC	TC, TIC, TOC, DOC, NPOC
Digestion Mode	High Temperature Combustion	UV / persulfate oxidation
Operation Mode	PC Control	PC Control
Application	Liquid Sample, Gas Sample, Solid Sample	Liquid Sample, Gas Sample(Optional)
Gas require	Oxygen, Nitrogen≥99.995%	Oxygen, Nitrogen≥99.995%
Measure Range	0-30000mg/l (0~30000ppm) (0-30000000ppb)	0-10000mg/l (0~10000ppm) (0-10000000ppb)
Detection Limit	50 μg/l (ppb)	50 μg/l (ppb)
Repeatability	3%	3%
Max. Salinity	85g/l	85g/l
Power	220±10V,50/60HZ, 1KW	220±10V,50/60HZ, 1KW
Size	430*455*440mm	430*455*440mm

Auto sampler (Optional)

product description

The autosampler is designed to meet the requirements of modern analytical experiments. It is durable and cost-effective. Under the management of the PC software, 19 different samples of TOC can be tested at one time to achieve unattended automatic measurement. The autosampler processor continuously monitors the motion state of its components during the injection sequence. The processor defines a specific time window and mechanical range of motion for each motion. If a specific step in the injection sequence cannot be successfully completed, a fault message is generated and uploaded to the host computer.

Technical Parameters

Power supply	100~240V, 50Hz/60Hz

Power	120W
Ambient temperature	0~40°C
Relative humidity	<85%
Product size	285*385*390mm
Sampling arm move distance	85mm
Max support sample number	19

Packing list of auto sampler:

No.	Item name	Qty
1	Auto sampler	1 set
2	Power line	1 set
3	Power adapter	1 pc
4	USB line	1 pc
5	Sampling tray	1 pc
6	Sampling bottle, 30ml, 27*80mm(D*H)	22 pcs
7	Connector	1 set
8	Software	One copy
9	User manual	1 copy




8. TOC-200 Large Range Total Organic Carbon Analyzer

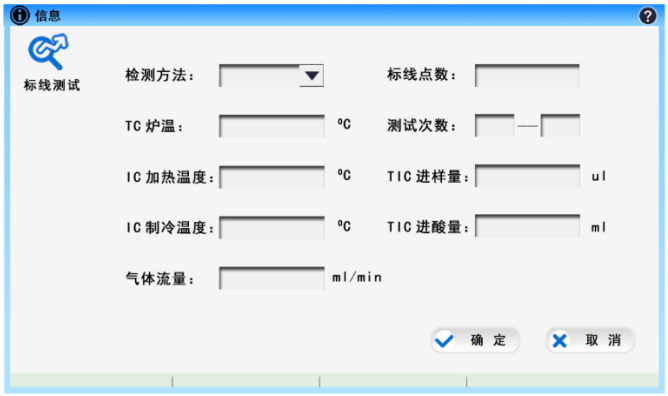
Application

Widely used in drinking water, industrial water, sewage, wastewater and monitoring of rivers, lakes and oceans, surface water etc.

Main Features

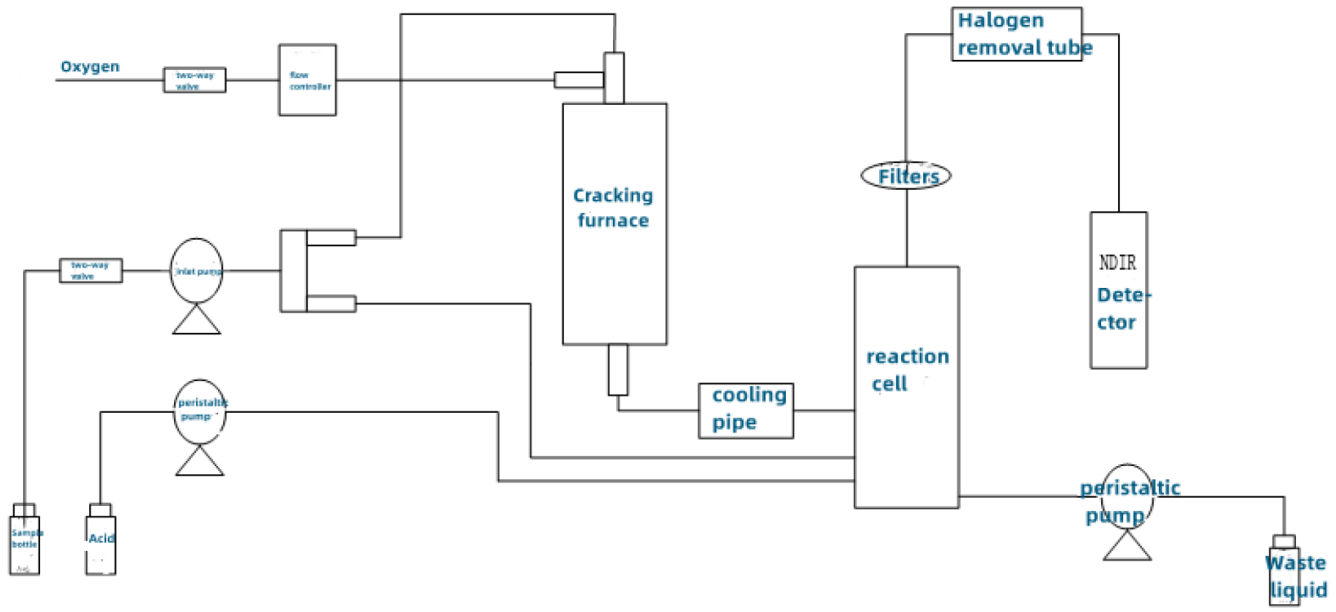
- Signal management system with our own patent law which has great advantages of online setting, real-time monitoring, self-testing and flow speed control, ensuring high performance and safe operation.
- Low current system design also ensures operation safety.
- Different temperature setting for various samples ensures complete sample digestion so as to get more accurate measuring data.
- Adjust cooling module power according to sampling volume which improves drying performance to ensure dry gas into the detector.
- Automatic leak check system to avoid operation mistakes and improve instrument performance, so as to ensure operation safety and instrument's safety.
- Flow rate controlling system to avoid any effect caused by flow rate fluctuation which ensures accurate data.
- TOC detector with 24 bits data solution extends monitoring range.
- Controlling system with 32bin processing technology greatly improves performance

System operation interface



Standard parameters input interface

Schematic Diagram of Instrument System



Specifications

Model	TOC-200
Detector	NDIR
Parameters	TC,TIC,TOC,NPOC
Digestion Mode	High Temperature Combustion
Operation Mode	PC Control
Application	Liquid Sample
Gas Requirement	0xygen, Nitrogen ≥99.995%
Measurement Range	0~30000mg/l (more than 1000 mg/l Dilution required)
Detection Limit	50μg/l
Repeatability	3%
Maximum Salinity	85g/l
Power	100 - 240 VAC
Data storage	150000 sample test record, 1 million audit trails and quickly query, can create 1000 user names
Data export	PDF test report
Dimensions (mm)	655*455*510
Weight	20kg

Packing List

No.	Subject	Unit	Quantity
1	TOC Analyzer	kit	1
2	Cracking furnace	Kit	1
3	Cerium oxide catalyst	Bag	1
4	Quartz plate	Pack	1
5	Quartz wool	Pack	1
6	Halogen complement	Bottle	1
7	Sample pad	Piece	2

8	Filter membrane	Piece	2
9	0-ring	Pcs	6
10	Combustion tube	pes	2
11	Condenser Coil	Pcs	1
12	Sample bottle	Pc	1
13	Acid bottle	Pc	1
14	Waste bottle	Pc	1
15	Teflon joint (6 to 3)	Kit	1
16	Stainless elbow (8 to 8)	Kit	1
17	Screw (M5)	Pcs	2
18	Connecting pipe (3.2*1.6mm)	Meter	8
19	Oxygen decompression device	Set	1
20	Power cord	Pc	1
21	Touch pen	Pc	1
22	Manual	Pc	1
23	Qualified Certificate	Pc	1
24	Warranty Card	Pc	1
25	Aftersales Commitment Letter	Pc	1

Optional

No.	Subject	Unit	Quantity
1	20 place auto samplers	kit	1
2	72 place auto samplers	Kit	1

9. TOC-1000 Total Organic Carbon Analyzer (offline), With software and computer

TOC-1000 is a high-precision offline total organic carbon analysis instrument independently developed by our company. The product uses ultraviolet oxidation and direct conductivity difference detection technology, with high detection accuracy and short response time. The instrument fully complies with the requirements of the National Pharmacopoeia, and can meet the offline testing requirements of deionized water such as pharmaceutical water (water for injection and purified water) and ultrapure water.

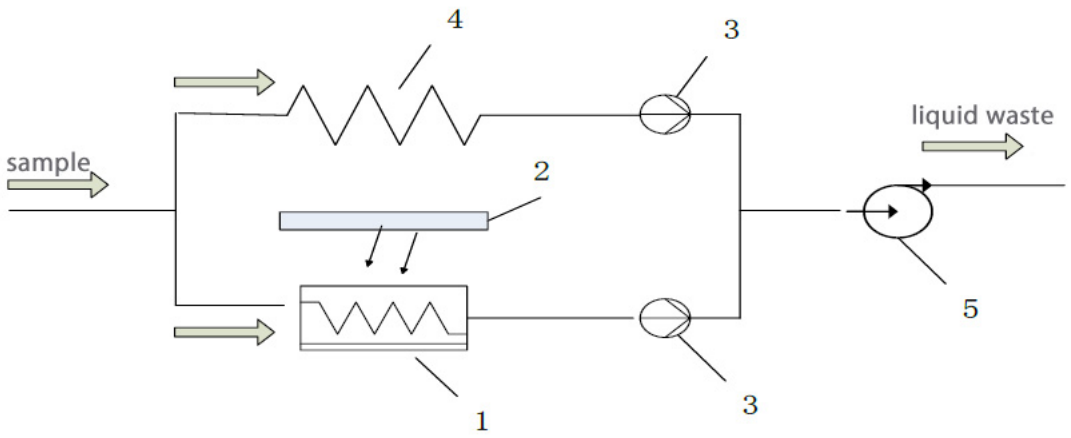
APPLICATION

It can be used to detect the concentration of total organic carbon in purified water, water for injection and deionized water in the pharmaceutical industry; it can also be used to detect the TOC of ultrapure water in the semiconductor industry, power plants, scientific research units, laboratories, etc., and is clean in the pharmaceutical and biochemical fields During the verification process, it can be used to verify the cleaning effect.

CHARACTERISTICS

1. No need for nitrogen, oxygen, acid reagents and oxidants, simple operation and low cost of use;
2. It can be used in offline laboratory to meet the test and clean ing verification of organic carbon in water for injection and purified water;
3. Instrument audit trail, simple verification and easy to query;
4. High degree of intelligence, equipped with autosampler, system adaptability verification can be completed automatically;
5. Limit alarm design, when the test sample exceeds the specified limit, the instrument will automatically alarm;
6. It complies with the test plan stipulated in the new edition of the national pharmacopoeia, and can provide IQ/OQ/PQ verification services;
7. Equipped with functions such as electronic signature, audit trail, original data traceability, etc., to meet the verification requirements of GMP, Chinese Pharmacopoeia and 21CFRPART11 computerized system

WORKING PRINCIPLE



1. Rotating quartz glass tube coated with titanium dioxide 2. Ultraviolet lamp
3. Conductivity sensor 4. Delay coil 5. Peristaltic pump

SPECIFICATIONS

Model	TOC-1000
Power	100 -240 VAC, 50HZ, 120W
Measuring range	0.001mg/L~1.5 mg/L(1~1500ppb)
Conductivity detection range	0.055us/cm~8us/cm
measurement accuracy	± 3%
Resolution	0.001mg/L
RSD	Repeatability<2%
Sample temperature	0~99°C
noise	<60dB
Detection principle	Using ultraviolet oxidation, direct conductivity principle detection
sample	Has a sample database
Analysis time	Continuous analysis
Response time	Within 5 minutes
Detection limit	0.001 mg/l
Sample temperature	1-99°C
Scope of use	Offline laboratory, cleaning verification
Audit trail	≥25 years Multiple event logs, which can be queried according to time (optional)
authority management	User name and password login, level 4 authority, meet FDA 21CFR PART 11requirements
Password management	Timed password replacement function
Lock screen function	Timed lock screen function
Program management	You can set your own test plan
Alarm function	have
Print function	External printer
history record	≥25 years storage
data backup	With backup function
control	Computer control
weight	8KG
Hard drive capacity	Above 500G
laptop	Standard (windows 10)

controlling software	Standard

10. TOC-800B Total Organic Carbon Analyzer

Product introduction

TOC-800B Total Organic Carbon Analyzer is an analytical instrument used to determine the concentration of total organic carbon in water samples. The principle adopts the high-temperature catalytic oxidation-NDIR detection principle. The high-performance oxidation catalyst in the combustion furnace fully burns and decomposes the sample into carbon dioxide and water at high temperature. The water vapor is removed after being cooled by the condenser.) measurement, so as to determine the content of total carbon TC in the sample; the inorganic carbon in the sample is decomposed into carbon dioxide and water by acid reagent, the water vapor is removed after being cooled by the condenser, and the carbon dioxide is measured by a non-dispersive infrared detector (NDIR) to determine The content of total inorganic carbon TIC in the sample; total organic carbon TOC=TC-TIC.

Application range

A) domestic sewage, industrial wastewater
B) Cleaning validation for the pharmaceutical industry
C) Tap water, surface water, river, lake water
D) Chemical water (cleaning water, cooling water, recycling water, etc.)
E) Laboratory research

Standards

International standard ISO8245;
National environmental protection standard HJ501-2009 of the People's Republic of China;
National Metrology Verification Regulations of the People's Republic of China JJG 821-2005

Features

1. 7-inch touch screen, user-friendly interface, simple and convenient operation
2. Three-pass electronic condensation dehydration ensures the dehydration efficiency of the whole system
3. Highly reflective gold-plated gas chamber, highly concentrated infrared light source and highly

sensitive infrared detector ensure the excellent performance of NDIR; the measurement of ppb level data has sufficient sensitivity and accuracy

4. The temperature can reach 1100℃, and different catalysts (such as CeO, Pt, CuO) can be selected and different temperatures can be set according to the sample

5. The detection curve can be seen in real time, more intuitive

6. Automatic injection of liquid samples, precise electromagnetic metering pump, to ensure the accuracy and stability of the injection volume

7. Real-time self-monitoring of temperature, pressure and flow in multiple places

8. The heating of the combustion furnace adopts multiple protections, and the overheating can automatically cut off the heating to improve product safety performance

9. The inorganic carbon reaction pool is designed with a heating device, which eliminates the tailing of the sample peak and shortens the sample determination time.

10. Built-in dot matrix printer to reduce space occupation

11. 2-year data storage capacity, easy to query, and can be queried by time period

12. With password protection function

Technical parameters

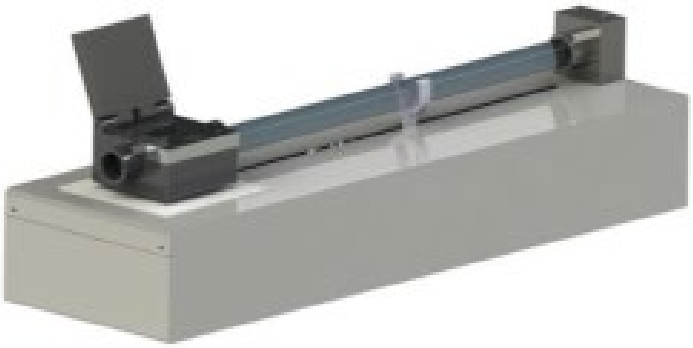
TOC-800B	
Measuring principle	High temperature oxidation-NDIR detection principle
TOC detection range	0.050～35000mg/L
TOC detection accuracy	0.050mg/L
Test items	TC, IC, TOC, NPOC
Furnace temperature	1100℃
TOC accuracy error	≤±5%
Sample volume	20～1000μl
Analysis time	3～8min
Zero drift	±2%/D
Range drift	±2%/D
Test Conditions	Acid Reagent: Phosphoric Acid Solution Carrier gas: high-purity oxygen (≥99.999%)
Ambient temperature	0-40℃
Relative humidity	0-85%RH
Power supply	220V AC≤±10% 50Hz
Power	800W
Size	600m×430m×420mm
Weight	40kg

Autosampler for water

Technical Features:

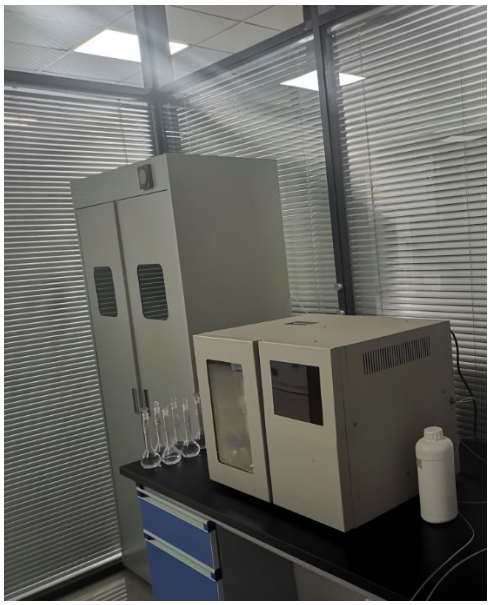
- 24 sampling bottles to meet the detection of daily water samples.
- It is used online with the TOC analyzer, and the automatic sampler is controlled by the TOC analyzer to change samples, so that it is fully automatic and unattended, saving manpower and material resources.
- The operation is stable and reliable, and the position control of the sampling needle is precise.
- Touch screen design, easy and convenient operation.

Autosampler for Solid



Features:

- Maximum injection volume 100mg
- Electronically cooled sampling boat, multi-level sampling speed is optional, to meet the needs of different samples Application range:
- Solid, semi-solid and liquid polymers
- Particulate sample
- rocks, agricultural soil
- Wastewater sludge, mud, sediments from estuaries, lakes and rivers




11. TOC standard solution

◎Features

2015 China pharmacopoeia general chapters has strict rules for the water to check total organic carbon and the preparation of reference solution, requiring that the calibrated instrument should be used for on-line monitoring or off-line laboratory determination for the water system, this requiring that the calibration and System Adaptability Verification must be carried out regularly for the TOC analyzer. SHUOBODA is based on the powerful technical strength of military academy of medical sciences, and the configuration of TOC analyzer calibration kit has reached the international leading level, not only satisfying the provisions of China pharmacopoeia in 2015, but also conforming to the relevant regulations of FDA.

◎Product packaging

TOC-gc001	125ml Zero Water /1Bottle	TOC-gc002	40ml Zero Water/1Bottle
	125ml0.5ppmSucrose/1Bottle		40ml0.5ppmSucrose/1Bottle
	125ml0.5ppm1,-4 benzoquinone/1Bottle		40ml0.5ppm1,-4 benzoquinone/1Bottle

◎Matters needing attention

- One-time use is advised when the bottle is opened each time;
- This kit is sold in a complete set, temporarily not sold by pieces;
- Because the validity of the reagent itself is shorter, please buy according to the need, to avoid unnecessary loss;
- Different packaging may be customized according to requirements.

12. UV Lamp

◎ Matters needing attention

It can't directly illuminate to a person's skin, especially a person's eyes;
Do not use your hand to directly contact with the tube;
Please wear sterile gloves before using and use alcohol to wipe the quartz tube;
Please contact the manufacturer in time of use;

◎ Features

- This product is imported from abroad with original packaging.
- The effective service life of 5000 hours for the quartz tube can be ensured.
- It is in line with the electrical interface definition of the international electrotechnical standards association.
- It is compatible with the oxidation unit of TOC analyzer from abroad.
- Service voltage: 12VDC.
- Wavelength: 185nm and 245nm dual-wavelength.

◎ Introduction

1.Flexibility, the hose can quickly recover the shape of the radial compression;
2. Abrasion resistance, toughness, good tear resistance;
3. Good air tightness, no leakage;
4. Adsorption, low temperature resistance, not easy to aging, swelling, corrosion resistance, low precipitation;
5. According to different manufacturers, peristaltic pump match various.