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AppliTOC®

TOTAL ORGANIC CARBON

MATRIX：Industrial waste water, Municipal waste water and Surface water

DESIGN on-line **AppliTOC®** （设计）：

The **AppliTOC® ECO** is designed having two completely separated compartments that are easily accessible:
➲ compartment for the chemical analysis (wet part)
➲ compartment for the electronics and the built-in industrial PC

The **AppliTOC® ECO** has an ergonomic, corrosion resistant analyzer housing, designed for operation in industrial environments. Purging with instrument air is possible in case of risk of accumulation of corrosive gases or extreme humidity. The hardened Plexiglas door assures instant visual inspection of the wet-chemical part.
Even with the wet-part front door open, the analyzer has a IP55 protection rating. The batch-wise operating principle guarantee you following advantages:

➲ allows you to program the analysis sequence according to your needs
➲ limited loading
➲ rinsing and cleaning after each analysis cycle (easy adjustable by user!)

The **AppliTOC® ECO** has an outstanding reliability and accuracy thanks to the use of first class and robust wet-part components such as low-speed peristaltic pumps, ideal Gas Liquid Separator (GLS) and a robust manifold with sample-zero-span-clean valves.

ADVANTAGES on-line **AppliTOC®** （优点）：

➲ The **AppliTOC® ECO** on-line TOC analyzer works according the official TOC methodologies
- EPA nr. 4152 UV/Persulfate

- CEN/TC 230/WG I/TG 6 N10 Water quality – Guidelines for the determination of total organic carbon

➲ The **AppliTOC® ECO** on-line TOC analyzer wet-part has automatic cleaning
→ The user can program the sequence and interval of the analysis and Cleaning cycles

➲ The **AppliTOC® ECO** on-line TOC analyzer has an automatic validation/calibration
→ The user can program the sequence and interval of the analysis and validation/ calibration cycles. A validation/calibration can be performed with a validation/calibration solution with known concentration in order to check the analysis program and the analyzer

➲ The **AppliTOC® ECO** on-line TOC analyzer High Sensitivity by continuous high liquid sampling
→ **suitable** for High & Low range TOC applications
→ NO Need for high sensitive INFRARED analyzer (1% instead of low ppm range = robust)
→ NO Need for continuous Micro Filtration of sample
→ Oxidizes samples with particles up to 300 µm

➲ The **AppliTOC® ECO** on-line TOC analyzer has a Constant Oxidation efficiency
→ NO need for Catalyst

➲ The **AppliTOC® ECO** on-line TOC analyzer is Capable of running Samples with Salt contents for up to 2%

➲ The **AppliTOC® ECO** on-line TOC analyzer has a Low maintenance
→ UP-times > 98% FIELD PROVEN Technology

➲ The **AppliTOC® ECO** on-line TOC analyzer has a high oxidation velocity
→ Good oxidation efficiency
→ Similar Oxidation efficiency as High Temp. Combustion Catalyst method

➲ The **AppliTOC® ECO** on-line TOC analyzer needs NO External PC. The results can be recorded on a memory stick and used in a spreadsheet program such as Excel or any other data processing software
➲ Result & Alarm data export (1.000 results including sample stream, date & time)
➲ **AppliTOC®** program up- & download

➲ The control of the on-line **AppliTOC® ECO** analyzer touch screen can remotely be taken over by another PC over a Local Area Network (LAN) using commonly available VNC™ Ethernet software.

➲ The **AppliTOC® ECO** on-line TOC analyzer has a Unique INFRARED detector
- No moving parts
- Automatic ZERO calibration
- Dual wavelength
- Corrosion – resistant construction
- Single beam, dual wavelengths detector
- No mechanical Chopper Wheel

AppliTek has included a built-in **ZeroCarb®** Analyzer Instrument Air (IA) Purification System (CO_2 removal purifier). This carbon-free IA system can be used instead of oxygen (O_2) gas bottles. This system produces instrument air without CO_2, which can be used for the **AppliTOC® ECO** TOC analyzer. The system uses a selective membrane and an absorber.

Specifications:

CO_2 content:	< 2 ppm
Pressure dew point:	- 40°C
Max. flow:	3 l/min
Max. input air temperature:	65 °C
Inlet air pressure:	3 – 8 bar

AppliTek offers the option include a built-in **EZ-HomogeniZer®**
To reach low detection limits for some hydrocarbons in the water, it can be necessary to homogenize the sample before it enters the **AppliTOC® ECO** on-line TOC analyzer. For this reason the sample can be mixed by an ultrasonic bar which is installed in a SS316 chamber (~50 ml). This chamber is installed in the sample inlet pipe of the **AppliTOC® ECO** analyzer.

➲The **AppliTOC® ECO** has a UNIQUE HUMAN INTERFACE:
The Industrial touch-screen PC with flash disc that is incorporated in the instrument controls the **AppliTOC® ECO** and memorizes trends, alarms, results and data log files.
specifications Industrial touch-screen PC:
- Ethernet 10 M (RJ45) NE 2000 compatible, Compact flash slot,
- IP65 flat screen → diameter (5 ¾") **color TFT touch screen**
- 1 x USB port for memory stick access

Principle （测量原理）：

样品连续抽入，并与酸和汽提气在无机碳的洗涤器混合。通过添加酸使 pH 降低，可促使无机碳转换成二氧化碳汽提移除。然后用氧化剂过硫酸钠、载气与汽提过的液体混合。此混合液被转移到紫外反应器，紫外线和氧化剂把有机碳转换成二氧化碳。再利用红外线侦测器（NDIR）测量二氧化碳的浓度，计算出总有机碳的含量。

Chemical reactions:

Scrubbing of inorganic carbon (HCO_3^- + CO_3^{2-}):

CO_3^{2-} + 2 H_3O^+ (Acid) → H_2CO_3 → H_2O + CO_2 (removed by stripping gas)

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ⓘ REMARK：Whether the carbonates are in the form of bicarbonate or carbonate will depend on the pH of the sample solution.

干扰: 含盐> 2 g/l
一些极易挥发的有机物质可能蒸发，而逃脱被氧化。

摘要: 总有机碳分析被定义为一种非特异性分析方法用来测定水体中有机物。它固有的准确度和速度，加之低的购置成本使其在很多国家和行业，被作为一种首选的标准分析方法。

仪器水力测量流程图：

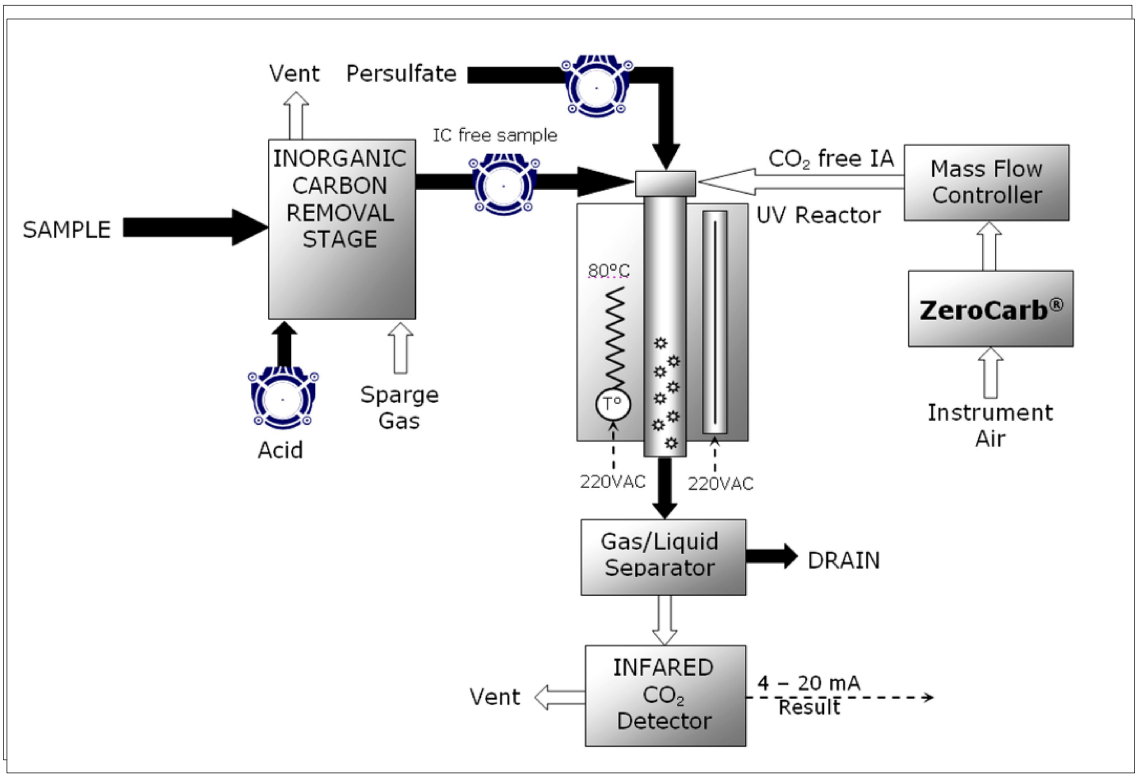

图 1. 总有机碳的测量

电气特性：

传输信号：4-20mA，直到 2AO
通信输出：以太网（标准）， RS232 或 MODBUS(可选的)
报警：故障报警，结果报警
数字输入：最多 2 个
独特卖点：TCP/IP，自动校准/验证/清洗

样品要求：

进样压力：大气压至 0.1bar(更高进样压力请咨询)
流速：10-30 ml/min
温度： 5-60 °C
悬浮固体：最大尺寸 200 微米，总量少于 0.1g/L
含盐：< 2%

设备需求：

电源：220/240 VAC, 50/60 Hz, 110/120 VAC (应要求)

仪表气源：干燥&无油，依据 ISA-S7.0.01-1996 质量标准
载气：质量流量调节
排水：大气压，通风，最小 64mm 管
去矿物质水：冲洗，校准和稀释（可选的，量程决定）
接地：干净的地极提供良好的接地（低抗阻< 1 ohm），使用接地电缆> 2.5mm²

分析柜信息：
柜材质，铰链：热力塑型
-底部：渗漏检测
-门：抗静电树脂玻璃
柜材质，柜体：镀锌钢，黑色亚光处理
防潮材料：PE / PTFE / PP / PFA
占地面积：高：1000mm ；深 850mm
重量：65kg
外壳：防护等级 IP55

环境条件：
一般使用，干净，室内
相对湿度：5-95%（无冷凝）
温度：10-30°C （± 4 °C 偏差）
试剂温度：10-30°C （± 4 °C 偏差）

维护

任务	每天	每月	每季度	每年
检查有无泄漏和异常情况	X			
检查载气气流量	X			
检查报警	X			
观察汽提气气泡	X			
检查流量计流量	X			
检查试剂和再充满容器		X		
用新鲜标液重新校准仪器		(X)	X	
检查膜空气干燥器		X		
如果仪器变脏，执行清洗		(X)	(X)	X
更换全部蠕动泵管材			X	
更换红外线侦测器(NDIR)的滤尘器			X	
更换洗涤剂			X	
检查紫外灯，紫外灯表面需干净。重新装配紫外反应器时，更换 O 型圈				X

技术指标：

项目	技术规格
检测方法	紫外-过硫酸盐法测量
测量标准	符合 USEPA 415.2 / ISO 8245 / DIN-EN 1484
测量范围	0 – 100 mg/l TOC 0 – 200 mg/l TOC 0 – 500 mg/l TOC 0 – 1 000 mg/l TOC
检出限	优于 25 µg/L (量程 0 - 5 mg/L TOC)
检测精度	优于 2% 满量程标液测量
测定周期	6 - 12 分钟 (量程决定)
报警形式	故障报警、结果报警等
仪器外壳	IP55
绝缘电阻	20MΩ
输出信号	Modbus, 4-20mA
电源	220V 50 HZ
尺寸	100 cm x 60 cm x 55 cm (高 x 宽 x 深)
重量	65 Kg 公斤
认证	CE 认证
其他	自动清洗，自动校准，自动验证

订购指南：

随机发货：

1. AppliTOC 仪器一台
2. K0100301 5”7 寸彩色触摸屏 （内含）
3. 4-20 mA 通讯（选项：Modbus）
4. 试剂桶
5. 一年备品备件

CONSUMABLES FOR 1 YEAR OPERATION

Item	Qty	Reference	Description
1	1	B0011500	Tubing size 14, norprene (15m)
2	1	B0011600	Tubing size 16 Norprene (15m)
3	1	B0011605	Tubing size 16 Tygon (15m)
4	1	F0000201	Filter for CO2 detector : 0-1% type 1
5	1	G0000100	UV lamp
6	1	H0000100	Membrane air dryer/1
7	1	P0000100	O-ring Kalrez UV-reactor

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