



uniTOC

TOTAL ORGANIC CARBON
ANALYZER



UNITOC SYSTEMS - THE PRECISE HIGH DEFINITION INSTRUMENTS FOR THE ON- LINE AND OFF-LINE DETERMI- NATION OF TOC FROM DRIN- KING WATER TO ULTRA PURE WATER.

Two innovative instruments uniTOC online and uniTOC lab combine high end analytical components according to DIN EN 1484.

The graphical control with the 10" touchscreen display and the data management of the control and analysis software fulfill all international standards for the determination of TOC. The instruments are designed for monitoring i.e. process water in the pharmaceutical industry, microelectronics, chemistry as well as the production of potable water or ultra pure water.

membraPure provides with the uniTOC analyzers the perfect instruments to meet the demands of the existing regulations.

uniTOC instruments - the principle of operation

Both instruments use the UV/persulfate oxidation procedure followed by NDIR measurement. Dependent on the sample matrix the oxidation process can even be performed reagent-free. **uniTOC online** and **uniTOC lab** guarantees high reproducibility of results as well as a high sensitivity. Measuring times are short and the continuous self-cleaning procedure of the reactor avoids any cross-contaminations. Since the quality of the sparging gas can be low, the use of pressurized air saves money and is available as option. The non-dispersive infrared detector (NDIR) system is absolutely selective to carbon dioxide and therefore independent of the sample matrix. These measurements are independent from conductivity and sample temperature.



uniTOC system calibration

TOC determination requires calibration which is completely automatised. **uniTOC lab** works with multipoint calibration and autosampler with auto dilution to measure also higher concentration of TOC. Also the software allows the automatised System Suitability Test (SST).

System Suitability Test - SST

The verification of the TOC measurements according to requirements of USP and Ph.Eur are realized by the frequent performance of the System Suitability Test. The oxidation efficiency ("response efficiency") of a hard to oxidize substance (benzoquinone) compared to an easily oxidizable substance (sucrose) and must be within a range of 85 % to 115 %. The software of the uniTOC allows the automatic procedure and data evaluation of the test.

Monitoring low or high TOC concentrations

The **uniTOC online** is made for pure and ultra pure water monitoring in industrial and pharmaceutical applications. The display shows the results of online-measurements of ultra pure water even with low TOC concentration. With **uniTOC lab** you will be able to measure between 15 and 40.000ppb.



UNITOC ADVANTAGES

- ALL FLUIDIC LINES OF THE INSTRUMENTS ARE MANUFACTURED BY MATERIALS OF HIGHEST PURITY LIKE PEEK, PFA OR PTFE WITH ALMOST NO DEAD VOLUMES.
- DOSAGE OF SAMPLES IS ACCOMPLISHED BY A CORROSION FREE PERISTALTIC PUMP.
- TWO INLETS OFFER THE MONITORING OF TWO DIFFERENT MEASURING POINTS OR MEASURING OF ONE GRAB SAMPLE DURING THE ON-LINE ANALYSIS.
- UV RADIATION IS GENERATED BY A HIGH ENERGY, LOW PRESSURE UV LAMP, WHICH GUARANTEES A LIFESPAN OF MINIMUM 12 MONTHS.
- THE CO₂ CONCENTRATION IS MEASURED WITH A NDIR DETECTOR SYSTEM WHICH IS CO₂ SELECTIVE AND INDEPENDENT FROM SAMPLE TEMPERATURE.
- AN INTERNAL PC WITH TOUCH SCREEN OPERATION (WINDOWS 7) CONTROLS AND REGISTERS ALL INSTRUMENT PARAMETERS AND ALLOWS THE REALTIME VISUALIZATION OF THE TOC VALUE IN A CHART.

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TECHNICAL SPECIFICATIONS

uniTOC-online

- analysis mode UV oxidation with NDIR-detection
- working range ≤ 5 ppm (5000ppb)
- detection limit 3ppb
- analysis time 5-7 min
- sample inlet 2 separated Ports (3 different sample modes)
- sample volume 20 ml loop
- calibration two point
- enhanced oxidation with reagent (configurable)
- carrier gas compressed air, nitrogen, oxygen
- user interface 10" TFT Display touchscreen
(or key board with mouse)
- data acces USB / LAN / analog out 4-20mA
- IQ/OQ available
- norms USP 643 / DIN EN 1484 / Pharm EU 2.2.4
- power supply 230VAC <120W
- degree of protection IP 45
- dimensions 400x250x600 mm

uniTOC-lab

- analysis mode UV oxidation with NDIR-detection
- working range $\leq 40\text{ppm}$ (40.000ppb)
- detection limit 15ppb
- analysis time 7min
- sample inlet 1 port or auto sampler
- sample volume 10ml syringe
- calibration multi point
- enhanced oxidation with reagent (auto range)
- carrier gas compressed air, nitrogen, oxygen
- user interface 10" TFT Display, key board
- data acces USB / LAN / analog out 4-20mA
- autosampler 36 Sample with 30ml vials
- IQ/OQ available
- norms USP 643 / DIN EN 1484 / Pharm EU 2.2.4
- power supply 230VAC <120W
- degree of protection IP 45
- dimensions 400x250x600 mm (without auto sampler)





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