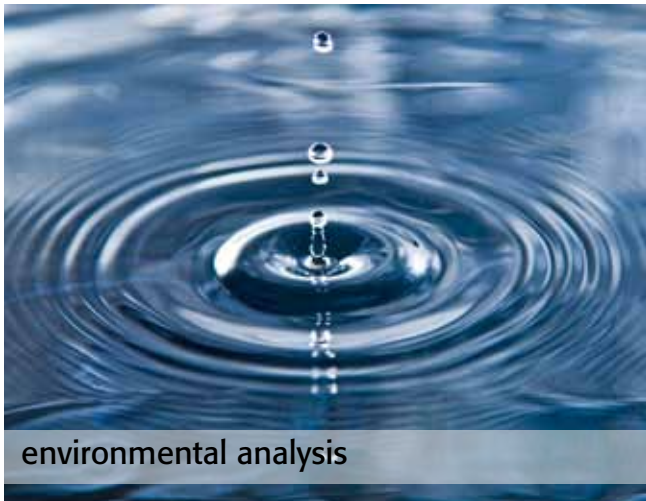




## Applications for environmental analysis



The safety of the environment has gained increasingly in importance during recent decades and is also going to play a key role in the future. Monitoring natural resources, in particular drinking water and soil, and the targeted treatment and control of waste and waste water are important tasks for authorities and private bodies.

Here, the sum parameter analysis for the quantitative detection of TOC and  $TN_b$  is an established method producing fast reliable results using a highly automated analysis technology. The detection of total and dissolved organic carbon (TOC and DOC) in aqueous samples is regulated by DIN EN 1484 and internationally by ISO 8245. These permit both methods for TOC detection, the direct method based on the NPOC method, after first acidifying and purging the TIC, and the differential method where TC and TIC are measured in 2 separate analysis steps and the TOC value is calculated from the individual results.

With the **TOC analyzers of the multi N/C® series** both versions are usually available and the procedure can be adapted flexibly to the requirements of the sample at any time.

Water samples with a high particle load, saline samples, complicated industrial waste water – (almost) nothing is impossible!

Due to innovative components, such as the integrated Focus Radiation NDIR detector, samples with very low concentrations, such as e.g. surface or raw water for drinking water treatment up to ultrapure water samples can be analyzed. The special detector combines high detection accuracy with a large dynamic measuring range. Diluting samples becomes obsolete.

In addition an intelligent rinsing technology and a variable design of the sample volumes permit the analysis of the most different samples and concentrations within a single sequence without carry-over.

Using additional modules the scope of the device can be expanded at any time, e.g. for TOC detection in solids in accordance with DIN EN 13137 or the  $TN_b$  detection in accordance with DIN EN 12260, using chemiluminescence (CLD) or electrochemical detection (ChD).

# multi N/C® – Applications for environmental analysis

## Drinking water analysis with the multi N/C® series

- 2 digestion technologies, catalytic high temperature digestion and wet chemical UV digestion, are available
- Ideal for this application are the flow injection systems with high detection accuracy multi N/C® 3100 & multi N/C® UV HS
- High sample throughput and short measuring times through parallel purging and analyzing in the NPOC method during autosampler operation with up to 116 sample positions
- **Easy Cal** function enables the comfortable safe calibration using a multi point calibration by varying the injection volume from only a single standard solution thanks to the patented **VITA® Flow Management System**. This saves on the preparation of TOC standards with low concentrations which is often prone to errors.

## Connate water / eluate analysis with the multi N/C® series:

- Here, the often low sample volumes available make the direct injection device multi N/C® 2100 S the perfect analyzer
- Sample volumes of 50 – 500 µl are drawn directly into a microliter syringe and injected directly into the combustion tube without any laborious rinsing of valves and hoses
- 60 samples in 8 ml vials or 112 samples in 2 ml vials are homogenized optimally by magnetic stirring during autosampler operation and are automatically acidified and purged for NPOC operation
- Optimum particle handling through the use of syringe canulas with large interior diameter
- Septum-free direct injection through the use of a pneumatic furnace head (always gas-tight) guarantees a trouble-free TOC analysis
- Simultaneous TOC/ TN<sub>x</sub> analysis through extension with a CLD or ChD detector for nitrogen

## Waste water or landfill leachate analysis with the multi N/C® series:

- Catalytic high temperature combustion at temperatures up to 950°C guarantees the complete sample digestion even for samples rich in particles
- Efficient magnetic stirring on the autosampler rack and automatic acidification and purging of the samples ensure a comfortable and representative sample feed into the reactor
- At the flow injection device multi N/C® 3100 and the direct injection device multi N/C® 2100 S a large interior diameter in all device components ensures an optimum particle handling
- Special intelligent rinsing methods prevent the clogging of the sample path effectively
- Using the **Focus Radiation NDIR detector** makes sample dilution obsolete and the analysis of the original sample leads to precise and accurate results
- Simultaneous detection of TOC and TN<sub>x</sub> and parallel purging and analyzing make the TOC analyzer an efficient and economic device in the laboratory



## Recommendations

Device models	multi N/C® 2100 S, multi N/C® 3100, multi N/C® UV HS
Accessories/options	- chemiluminescence detector (CLD), electrochemical N detector (ChD), POC module, TIC solids module, HT 1300, double furnace solids module - autosampler APG 60 (also rack of 112) for multi N/C® 2100 S - autosampler APG 10, 21, 49, 64 (also rack of 116) for multi N/C® 3100 and multi N/C® UV HS

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Subject to changes in design and scope of delivery as well as further technical development!