

New Technology TOC Analysis
in Pharmaceutical Water

liquiTOC trace



compact high performance

- cleaning validation
process water
water for injection
- high temperature digestion
for up to 4 ml sample amount
- detection limit 3 ppb
- conformity with
Pharmacopeia
USP 24, 643 (2000),
EP, Suppl. 2000, 2.2.44
- validation IQ, OQ, PQ
- conformity with 21 CFR Part 11



elementar
Analysensysteme GmbH

German Technology
for quality and environment control

The new way of high temperature TOC trace analysis

Ultra pure water analysis of TOC down to the ppb range requires the analysis of large sample amounts of a few milliliters to reach the required sensitivity. The use of UV-persulfate digestion may not secure the complete digestion of some compounds or particles.

liquiTOCtrace combines the advantage of 100% TOC recovery by means of high temperature digestion with the analysis of large sample amounts and reaches a detection limit of 3 ppb. Thus, the requirements of the Pharmacopeia (USP 24, 643 (2000) and EP, Suppl. 2000, 2.2.44) for detection limit and recovery of 1.4 benzochinone are exceeded significantly.

Special features of liquiTOCtrace:

- A newly developed reactor principle (patent applied for) allows the direct measurement of TIC, POC, NPOC and TOC out of one and the same sample injection with up to 4 ml volume. Absolute reproducible measuring conditions by means of electronic massflow control without the necessity of additional value correction.
- Quantitative TOC recovery due to catalytic high temperature digestion at 850°C also for difficult samples.
- Two-zone combustion with matrix separation for protection of Pt-catalyst and long reactor lifetime.
- The software is in compliance with the special requirements of pharmaceutical quality assurance like validation, 21 CFR Part 11 and AQS records.

Specification

method:	thermal-catalytic oxidation at 850°C and determination of the formed CO ₂ with NDIR-detector
measuring modes:	TOC, NPOC, TC, TIC, POC directly from one sample injection
in accordance with Pharmacopeia:	USP 24, 643 (2000) and EP, Suppl. 2000, 2.2.44
in accordance with standards:	EN 1484, US STAND.METH. 5310 A, ISO 8245, 21 CFR Part 11 (option)
measuring range:	TOC: < 50 µg/l up to 100,000 µg/l
detection limit:	3 µg/l C
sample volume:	0.02 up to 4 ml
autosampler:	magazine for 36, 53 or 89 positions (optional)

Issue 03/2003 · Subject to alterations, deviations due to application possible.



Nitrogen/Protein-Macro Analyzers · CHNOS Universal Analyzers
TOC/TN_b-Analyzers for Liquid and Solid Samples
Schöniger Digestion Units for Halogens and other hetero atoms