

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



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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.



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