TOC HR M. TT 381

50 - 800 mg/l TOC[b)]

H_2SO_4 / Persulphate / Indicator

Instrument specific information

The test can be performed on the following devices. In addition, the required cuvette and the absorption range of the photometer are indicated.

Instrument Type	Cuvette	λ	Measuring Range
MD 600, MD 610, MD 640, MultiDirect	ø 16 mm	610 nm	50 - 800 mg/l TOC[b)]
SpectroDirect, XD 7000, XD 7500	ø 16 mm	596 nm	50 - 800 mg/l TOC[b)]

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
TOC Spectroquant 1.14879.0001 tube test [d)]	25 pc.	420756

The following accessories are required.

Accessory	Packaging Unit	Part Number
Screw caps TOC	1 pc.	420757

Application List

- Drinking Water Treatment
- Waste Water Treatment
- Raw Water Treatment

Preperation

1. Before performing the test, you must read through the original instructions and safety advice that is delivered with the test kit (MSDS are available on the homepage of www.merckmillipore.com).

Notes

1. This method is adapted from MERCK.
2. Spectroquant® is a registered trademark of the company MERCK KGaA.
3. Appropriate safety precautions and good laboratory technique should be used during the whole procedure.
4. Sample volume should always be metered by using a volumetric pipette (class A).
5. TOC = Total Organic Carbon.

Implementation of the provision TOC HR with MERCK Spectroquant® Cell Test, No. 1.14879.0001

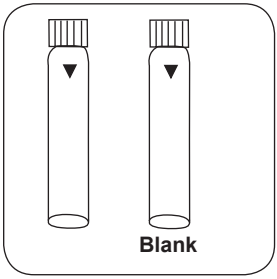
Select the method on the device

For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500

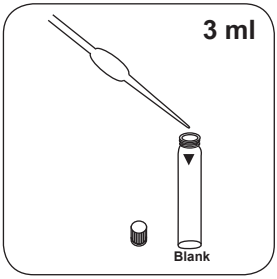
Skip steps with Blank.

• Use two clean suitable glass vessels. • Mark one glass vessel for zeroing.

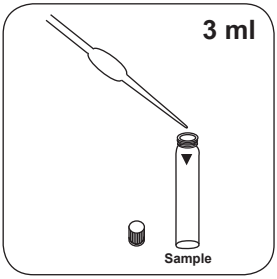
1. Put **10 ml deionised water** in the zero sample.
2. Put **1 ml sample and 9 ml deionised water** in the sample vessel and mix.
3. Add **2 drops of reagent TOC-1K** and mix.
4. The pH value of the sample should be under 2.5. If necessary, add sulphuric acid.
5. Stir for **10 minutes** at a medium speed. (Magnetic stirrer, stirring stick)



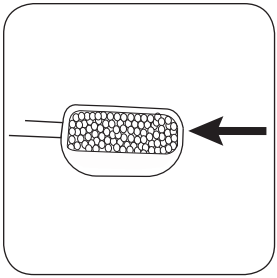
Prepare two **reaction vials**. Mark one as a blank.



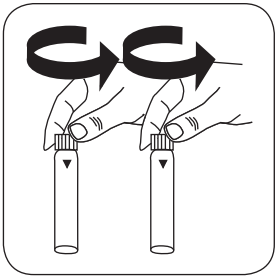
Place **3 ml of prepared zero sample** in the blank.



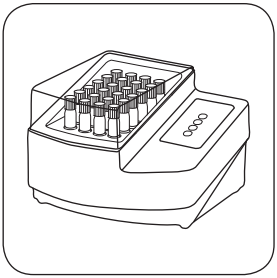
Place **3 ml of prepared sample** in the sample vial.



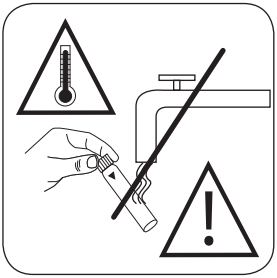
Add exactly **one level microspoon TOC-2K**.



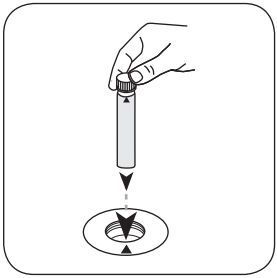
Close the vial(s) **immediately** with the aluminium caps



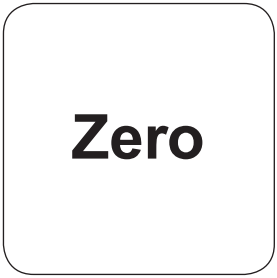
Warm vial for **120 minutes at 120 ºC** in a pre-heated thermoreactor **in inverted position** .



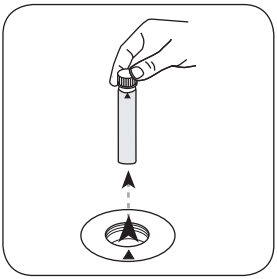
Allow vial to stand inverted for 1 hour and to cool. **Do not cool it with water!** After cooling down, rotate it and measure in the photometer **within 10 min** .



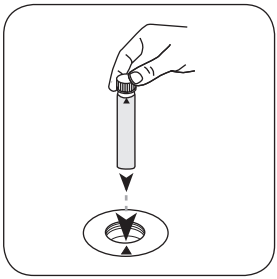
Place **blank** in the sample chamber. • Pay attention to the positioning.



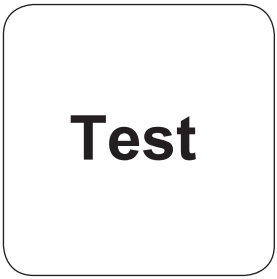
Press the **ZERO** button.



Remove **vial** from the sample chamber.



Place **sample vial** in the sample chamber. • Pay attention to the positioning.



Press the **TEST** (XD: **START**) button.

The result in mg/l TOC appears on the display.

Chemical Method

H_2SO_4 / Persulphate / Indicator

Appendix

Interferences

Interference	from / [mg/l]
Ca	1000
Mg	1000
NH_4-N	1000
TIC (total inorganic carbon)	250
NaCl	25
$NaNO_3$	100
Na_2SO_4	100

Method Validation

End of Measuring Range	800 mg/l
Sensitivity	6 mg/l
Confidence Range	25 %
Standard Deviation	10.3 µg
Variation Coefficient	2.40 %

Derived from

EN 1484:1997
Standard Method 5310 C

[a] determination of free, combined and total | [b] Reactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C) | [c] MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75) | [d] Spectroquant® is a Merck KGaA Trademark | [e] alternative reagent, used instead of DPD No.1/No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity | [f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine | [g] Reagent recovers most insoluble iron oxides without digestion | [h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$ | [i] high range by dilution | [#] including stirring rod, 10 cm