

**TOC LR M. TT****380****5 - 80 mg/l TOC<sup>b)</sup>****H<sub>2</sub>SO<sub>4</sub> / 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, XD 7000, XD 7500	ø 16 mm	610 nm	5 - 80 mg/l TOC <sup>b)</sup>
SpectroDirect	ø 16 mm	596 nm	5 - 80 mg/l TOC <sup>b)</sup>

### Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
TOC Spectroquant 1.14878.0001 tube test <sup>d)</sup>	25 pc.	420761

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

### Preparation

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](http://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 = **T**otal **O**rganic **C**arbon

## Implementation of the provision TOC LR with MERCK Spectroquant® Cell Test, No. 1.14878.0001

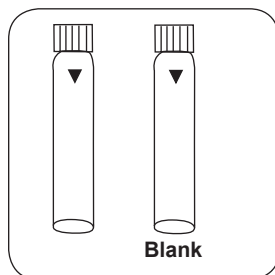
Select the method on the device

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

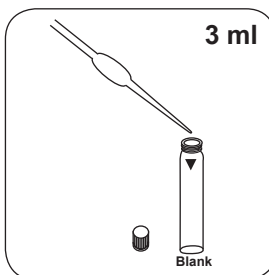
Skip steps with Blank.

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

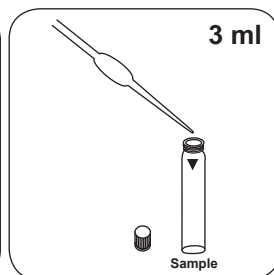
1. Put **25 ml deionised water** in the zero sample.
2. Put **25 ml sample** in the sample vessel.
3. Add **3 drops of reagent TOC-1K** and mix.
4. The pH value of the sample should be under 2.5. If necessary, add sulphuric acid.
5. Stir for **10 minutes** at a medium speed. (Magnetic stirrer, stirring stick)



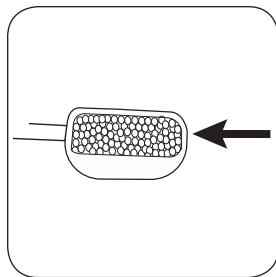
Prepare two **reaction vials**.  
Mark one as a blank.



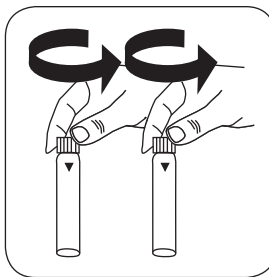
Place **3 ml of prepared zero sample** in the blank.



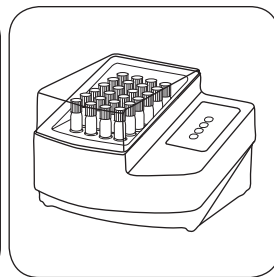
Put **3 ml sample** in the sample vial.



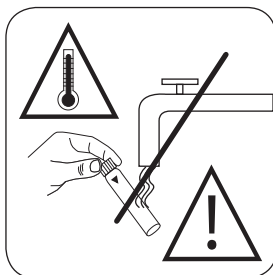
Add exactly **one level microspoon TOC-2K**.



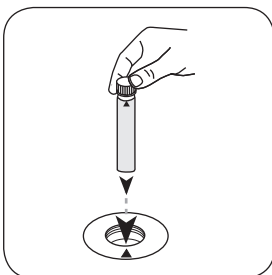
Close the vial(s) **immediately** with the aluminium caps



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



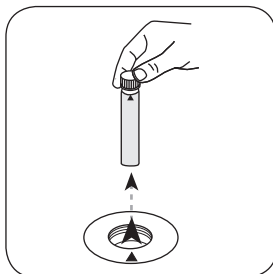
Allow vial to stand inverted for 1 hour and to cool. **Do not cool it with water!** After cooling down, rotate it and measure in the photometer **within 10 min**.



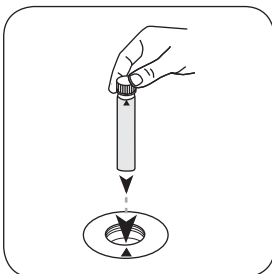
Place **blank** in the sample chamber. • Pay attention to the positioning.

# Zero

Press the **ZERO** button.



Remove **vial** from the sample chamber.



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

# Test

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

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

## Chemical Method

H<sub>2</sub>SO<sub>4</sub> / Persulphate / Indicator

## Appendix

### Method Validation

<b>End of Measuring Range</b>	80 mg/l
<b>Sensitivity</b>	0.6 mg/l
<b>Confidence Range</b>	2.10 %
<b>Standard Deviation</b>	0.85 µg
<b>Variation Coefficient</b>	2 %

### Derived from

EN 1484:1997

Standard Method 5310 C

<sup>a)</sup> determination of free, combined and total | <sup>b)</sup> Reactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C) | <sup>c)</sup> MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75) | <sup>d)</sup> Spectroquant® is a Merck KGaA Trademark | <sup>e)</sup> 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 | <sup>f)</sup> additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine | <sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion | <sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub> | <sup>i)</sup> high range by dilution | <sup>j)</sup> including stirring rod, 10 cm