

## 30–300 mg/L Total Organic Carbon (TOC)

LCK386

**Scope and application:** For wastewater, surface water and process water.



### Test preparation

#### Test storage

Storage temperature: 2–8 °C (35–46 °F)

Store package in an upright position.

#### pH/Temperature

The pH of the water sample must be between pH 3–10.

The temperature of the water sample and reagents must be between 15–25 °C (59–77 °F).

#### Before starting

**Contamination by ambient air:** Never leave the blue indicator cuvettes open, as CO<sub>2</sub> in the air can cause high-bias results to be obtained. Wait until the sample preparation in the digestion cuvette is complete and then open the indicator cuvette and screw on the double cap. Then close the digestion cuvette **immediately** with the indicator cuvette.

**Expulsion of TIC:** The **TOC-X5** shaker must be used.

**Thermostat (HT200S):** Set the digestion conditions (**95 °C (203 °F), 2 hours**) on the instrument. Insert the cuvette combination and start the instrument. Other dry thermostats: Pre-heat to **100°C (212 °F)**. When the desired temperature is reached, insert the cuvette combination and start the time (**2 hours**).

**Formation of crystals:** The formation of crystals in the digestion cuvette **does not affect** the result.

Be sure to set the required temperature to **100 °C (212 °F)** (at **148 °C (298.4 °F)** the cuvette combinations may **break apart**). Please note that cuvette combinations must be handled **with care** after the reaction is completed, because oxygen is formed under the digestion conditions and this results in a build up of pressure in the cuvette combination. If the cuvette combinations are subjected to strong mechanical stress after the digestion reaction, e.g. if they suffer a blow or a fall, they may shatter.

Do **not** screw the cuvette combinations apart when the analysis has been completed, but press them back into the blister pack.

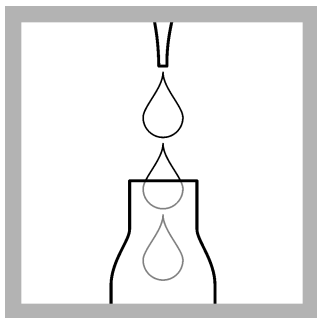
**If the sample contains particles the manufacturer recommends diluting the sample before analysis.**

Review safety information and expiration date on the package.

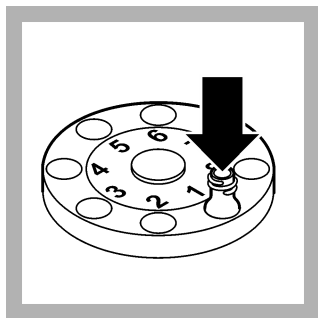
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

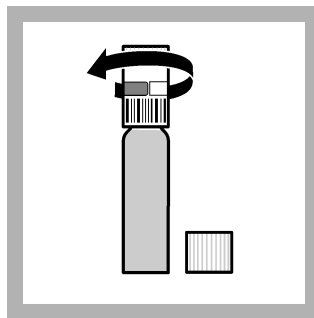
## Procedure



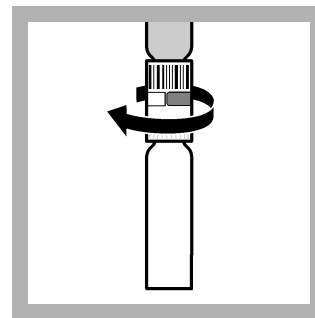
1. Pipet **1.0 mL** sample into the digestion cuvette.



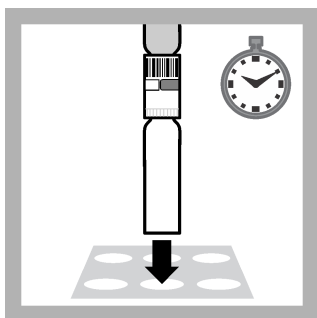
2. Insert the **open** digestion cuvette in the TOC-X5 shaker, pushing it down as far as possible. Position the fan cover over the cuvette. Switch on the instrument. After **5 minutes** an acoustic signal is emitted.



3. When the sample preparation is complete, open the blue indicator cuvette and **immediately** screw on the membrane double cap tightly. (The barcode label must point towards the indicator cuvette).

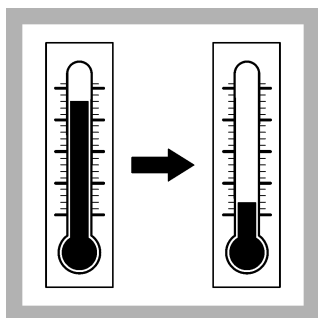


4. **Immediately** close the digestion cuvette tightly with the prepared indicator cuvette. Hold cuvette combination vertically. **Do not invert.**

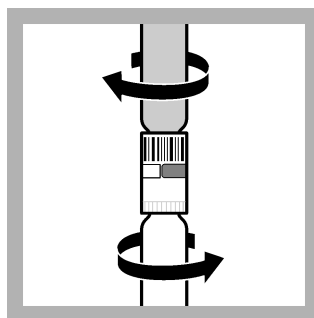


5. Heat in the thermostat (**blue indicator cuvette upwards**).  
**HT 200 S: 2 hours at 95 °C (203 °F)**

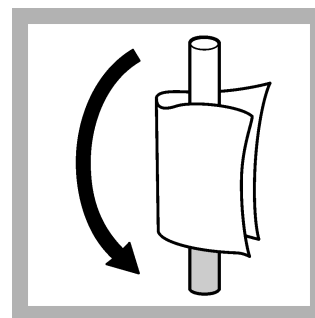
**LT:** In the preheated thermostat (**100 °C (212 °F)**): **2 hours at 100 °C (212 °F)**



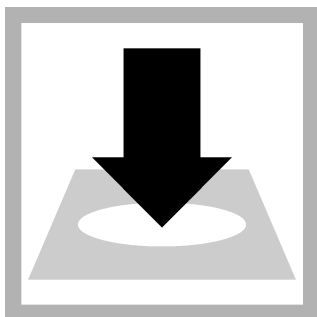
6. Then allow to **cool** to room temperature.



7. Tighten the cuvette combination again before inverting it.



8. Invert cuvette combination, thoroughly clean the outside of the indicator cuvette and evaluate.



9. Insert the cuvette combination into the cell holder (blue indicator cuvette downwards).  
DR 1900: Go to LCK/TNTplus methods. Select the test, push **READ**.

## Interferences

The ions listed in the table have been individually checked against the given concentrations and do not cause interference. The cumulative effects and the influence of other ions have not been determined.

The measurement results must be subjected to plausibility checks (dilute and/or spike the sample). Use only carbon-free water to dilute the sample.

Interference level	Interfering substance
2000 mg/L	Ca <sup>2+</sup> , Mg <sup>2+</sup> , NH <sub>4</sub> -N
1400 mg/L	Cl <sup>-</sup>
250 mg/L	TIC

## Summary of method

In a two-stage process, the total inorganic carbon (TIC) is first expelled with the help of the TOC-X5 shaker, then the total organic carbon (TOC) is oxidized to carbon dioxide (CO<sub>2</sub>).

The CO<sub>2</sub> passes through a membrane into the indicator cuvette, where it causes a color change to occur, which is evaluated with a photometer.



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