LCW510 Chlorine/Ozone

DOC312.53.94389

0.03–1.50 mg/L Cl_2/O_3, Series-Test LCW510

Scope and application: For drinking water, swimming bath water (pools) and wastewater.

Test preparation

Test storage

Storage temperature: 15–25 °C (59–77 °F)

Protect against light.

pH/Temperature

The pH of the water sample must be between pH 4–8.

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

Before starting

Chlorine dioxide and oxidizing agent mixtures

Chlorine dioxide and oxidizing agent mixtures do not always react in the same way with DPD; the reaction depends on the specific conditions. The manufacturer has prepared an application report on these additional evaluation methods, and this will be supplied free of charge by your local agency on request.

Reagent blank reading

If the chlorine or ozone concentration is less than 0.1 mg/L, it is recommended to take a reagent blank reading to increase the accuracy of the measurement.

To obtain the reagent blank reading result, follow the procedure used with a sample cuvette.

Calculating of the chlorine and ozone concentrations

Result from water sample (mg/L) - result from reagent blank reading (mg/L) = chlorine or ozone concentration (mg/L)

Determination of total chlorine and free chlorine

The cuvettes must be thoroughly cleaned, as even traces of potassium iodide can interfere with the determination of free chlorine.

The samples must not be pipetted, as this causes losses due to gas emission.

For special attention

Close the chlorine powder reagent with the original cap for storage.

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.

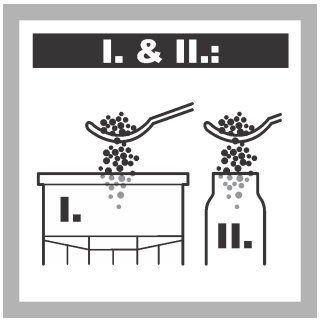
Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

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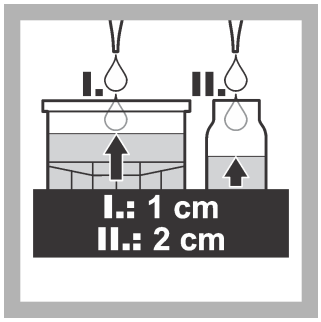
Procedure—Free Chlorine



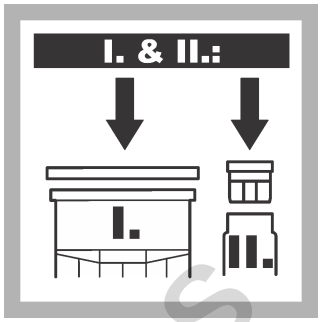
1. Preparation of the **zero cuvette**: Fill a round cuvette or a 50 mm rectangular cuvette with **sample**.



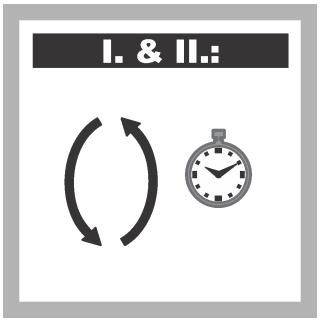
2. Sample preparation: Add **1 dosage** of **chlorine powder reagent** to a round cuvette or a 50 mm rectangular cuvette.



3. Add the **water sample** until the cuvette is filled to about **2 cm** (round cuvette) or **1 cm** (50 mm rectangular cuvette) below its mouth.



4. Close the cuvette.



5. Invert **carefully** for **1 minute** (do **not** shake).



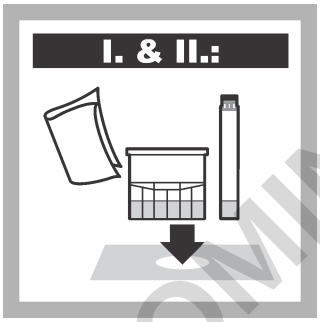
6. Wait **30 seconds**.



7. Thoroughly clean the outside of the **zero cuvette** and insert the cuvette into the cell holder.
Go to **Stored Programs**.
Select the test, push **ZERO**.



8. Remove the zero cuvette.



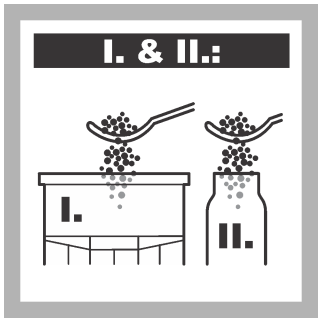
9. Thoroughly clean the outside of the **sample cuvette** and insert the cuvette into the cell holder.
Push **READ**.

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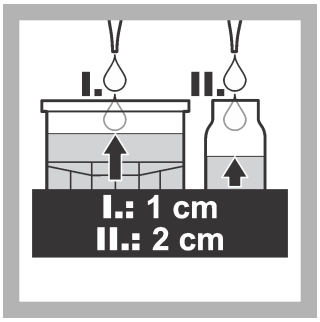
Procedure—Total Chlorine



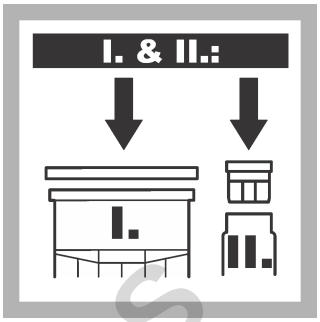
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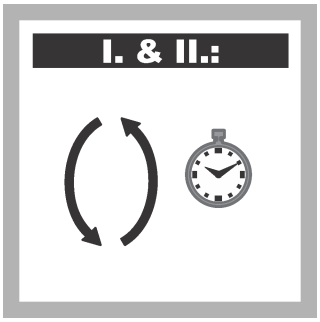
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4. Close the cuvette.



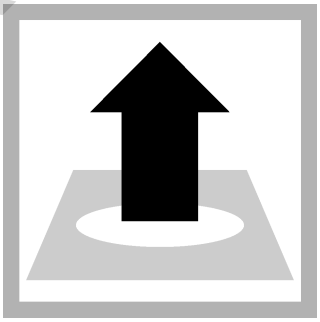
5. Invert **carefully** for **1 minute** (do **not** shake).



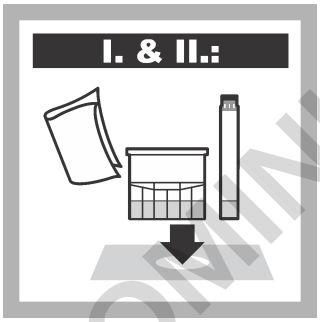
6. Wait **30 seconds**.



7. Thoroughly clean the outside of the **zero cuvette** and insert the cuvette into the cell holder.
Go to **Stored Programs**.
Select the test, push **ZERO**.



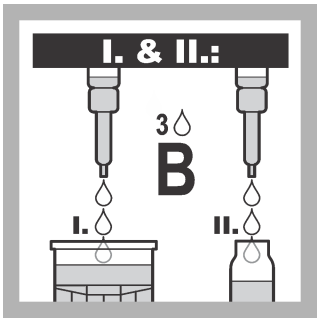
8. Remove the zero cuvette.



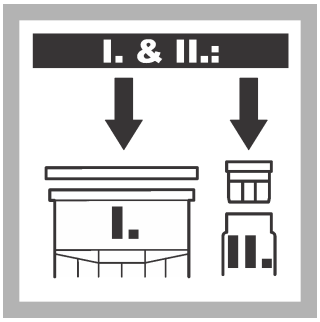
9. Thoroughly clean the outside of the **sample cuvette** and insert the cuvette into the cell holder.
Push **READ**.



10. Remove the sample cuvette.

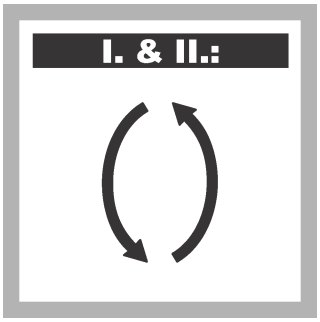


11. Add **3 drops** of **reagent B**.



12. Close the cuvette.

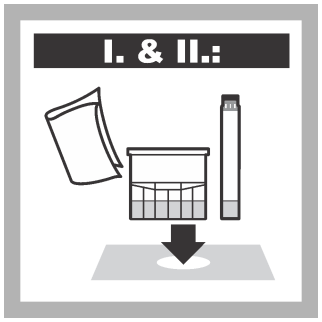
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13. Invert a few times.



14. Wait **2 minutes**.

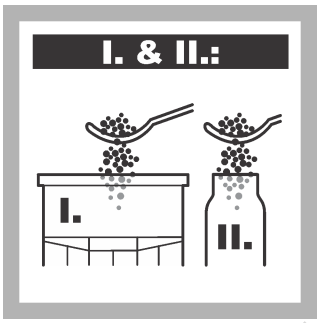


15. Thoroughly clean the outside of the cuvette and insert the cuvette into the cell holder.
Push **READ**.

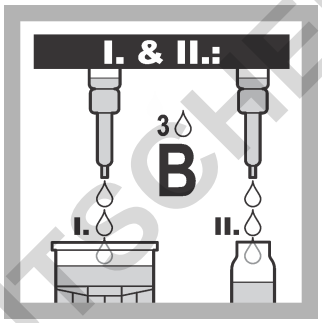
Procedure—Ozone



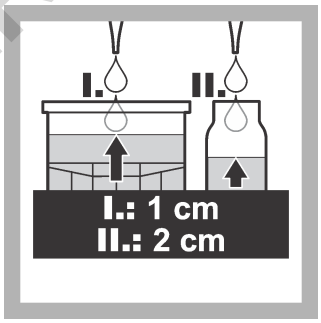
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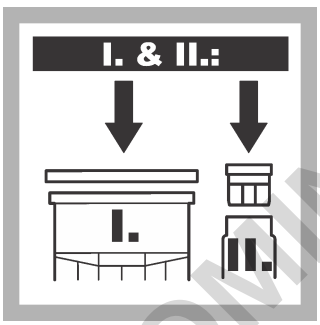
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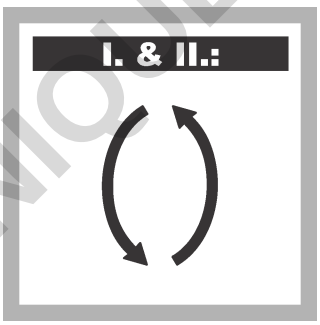
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4. Add the **water sample** until the cuvette is filled to about **2 cm** (round cuvette) or **1 cm** (50 mm rectangular cuvette) below its mouth.



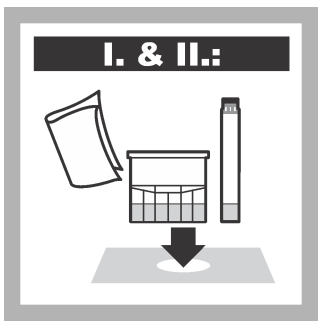
5. Close the cuvette.



6. Invert a few times.

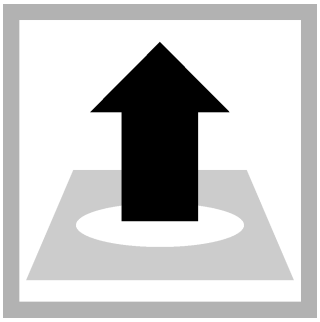


7. Wait **2 minutes**.

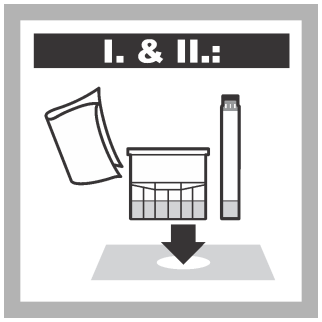


8. Thoroughly clean the outside of the **zero cuvette** and insert the cuvette into the cell holder.
Go to **Stored Programs**.
Select the test, push **ZERO**.

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9. Remove the zero cuvette.



10. Thoroughly clean the outside of the **sample cuvette** and insert the cuvette into the cell holder. Push **READ**.

Interferences

The ions listed in the table have been individually tested at concentrations up to those indicated with iodide-iodate standard solutions in the 50 mm cuvette.

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).

There is no interference from:

Interference level	Interfering substance
1000 mg/L	SO_4^{2-}, Na^+, Cl^-
500 mg/L	Ca^{2+}
250 mg/L	Mg^{2+}
200 mg/L	CO_3^{2-}
100 mg/L	NO_3^-
10 mg/L	Zn^{2+}, SiO_2
5 mg/L	Fe^{3+}, Al^{3+}, F^-
2 mg/L	Cu^{2+}
1 mg/L	Mn^{2+}

Summary of method

Oxidizing agents react with diethyl-p-phenylenediamine (DPD) to form a red dye.

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