LCW021 Iron

DOC312.53.94110

0.005–0.250 mg/L Fe or 0.05–2.00 mg/L Fe LCW021

Scope and application: For boiler water, raw water, drinking water and mineral water.

Test preparation

Test storage

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

pH/Temperature

The pH of the water sample must be between pH 3–7.

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

Items to collect

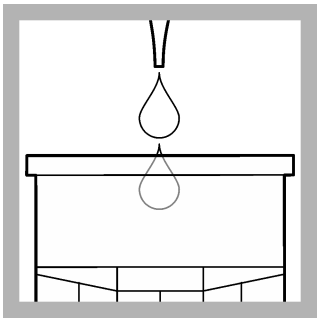
Description	Quantity
Plastic semimicro cuvettes, 50 mm, with lid (LZP341)	2
Round cuvettes with rubber stoppers (LCW906)	1

Before starting

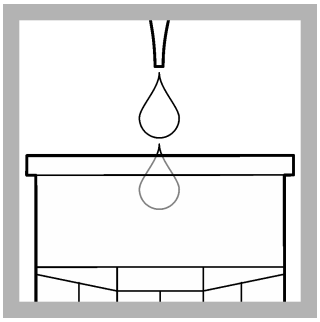
Measuring Range 0.005–0.250 mg/L (LZP341) is not applicable on DR1900.
For exact evaluation, it is very important that there are no air bubbles in the beam path (lower half of the cuvette). To prevent bubbles, slightly tilt the cuvette and put the pipet tip against the narrower interior of the cuvette. Release the liquid from the pipet so that it flows slowly. Gently tap or shake the cuvette to remove air bubbles on the cuvette walls.
Boiler water and cloudy or colored water samples often contain undissolved iron and iron complexes that can only be determined after digestion with the Crack-Set LCW902. Filter the cloudy sample to measure only the dissolved iron. If the filtrate is colored, prepare a blank value (refer to the procedure but do not add the MicroCap C).
The cuvettes must be thoroughly cleaned and dried with iron-free distilled or deionized water before use (especially if they are to be used more than once). When evaluations are carried out in 50 mm semimicro cuvettes it is very important that the path of the beam through the bottom half of the cuvette is free of air bubbles. Any air bubbles clinging to the sides can be removed by gently inverting the cuvette or tapping the side.
For reliable and quality results, only use accessories from the manufacturer.
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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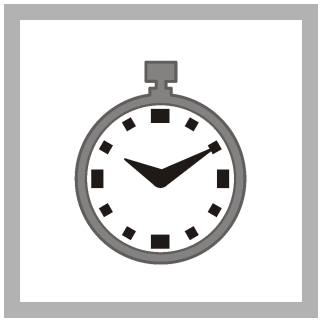
Test procedure 0.005–0.250 mg/L Fe (not applicable on DR1900)



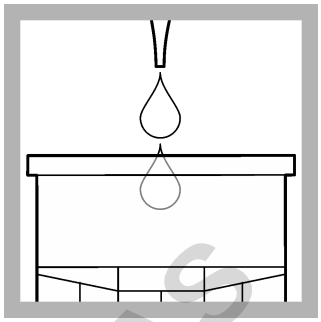
1. Carefully pipet **0.2 mL solution A** into an empty 50 mm cuvette (sample cuvette).



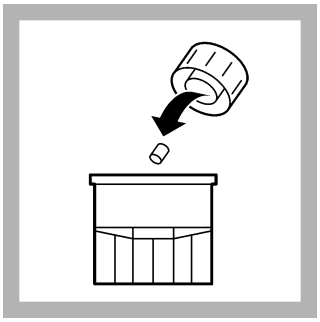
2. Carefully pipet **5.0 mL sample** into the sample cuvette.



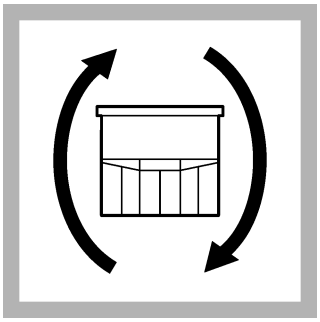
3. Start the reaction timer for **2 minutes**.



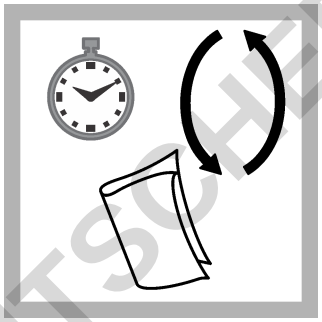
4. Carefully pipet **0.3 mL solution B** into the sample cuvette.



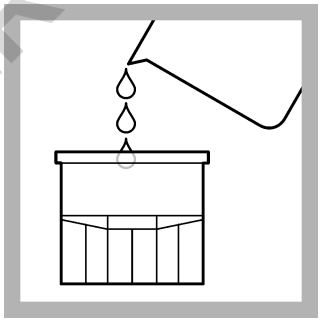
5. Add **1 MicoCap C** to the sample cuvette.



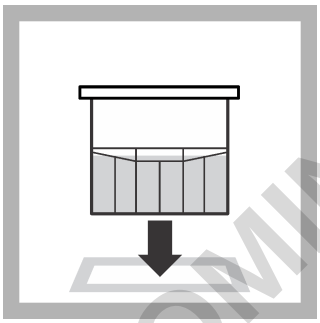
6. Close the cuvette and invert a few times until the freeze-dried contents of the MicroCap are **completely dissolved**.



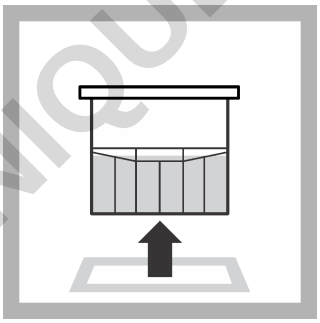
7. After **15 minutes**, invert a few more times, thoroughly clean the outside of the sample cuvette. **Make sure that there are no air bubbles.**



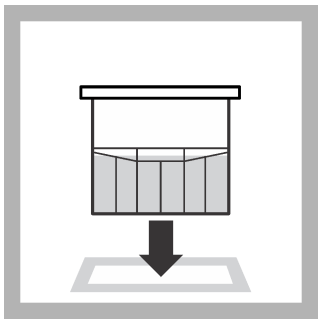
8. Fill an empty 50 mm cuvette (blank) with distilled water.



9. Insert the blank into the cell holder.
Go to Stored Programs.
Select the test, push **ZERO**.



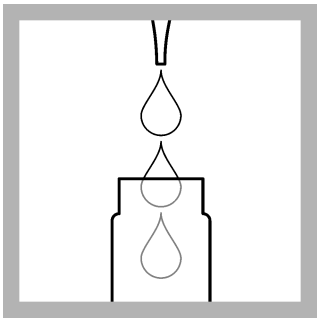
10. Remove the blank.



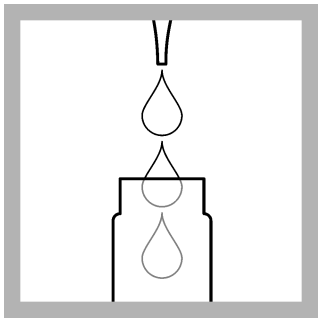
11. Insert the sample cuvette ino the cell holder.
Push **READ**.

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Test procedure 0.05–2.00 mg/L Fe



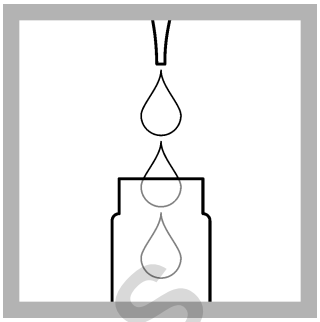
1. Carefully pipet **0.2 mL solution A** into an empty round cuvette (**sample** cuvette).



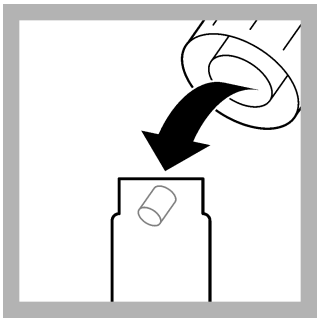
2. Carefully pipet **5.0 mL sample** into the sample cuvette.



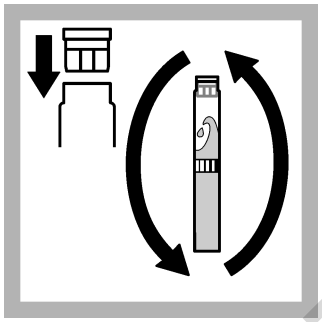
3. Start the reaction timer for **2 minutes**.



4. Carefully pipet **0.3 mL solution B** into the sample cuvette.



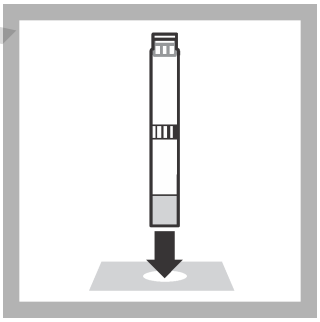
5. Add **1 MicroCap C** to the sample cuvette.



6. Close the sample cuvette and invert a few times until the freeze-dried contents are completely dissolved.



7. After **15 minutes**, invert a few more times, thoroughly clean the outside of the sample cuvette.



8. Go to **Stored Programs**. Select the test.
With **empty** cell holder, push **ZERO**.

Insert the sample cuvette into the cell holder.

Push **READ**.

Interferences

More than 0.1 mg/L copper causes high-bias results. To mask higher amounts of copper add 20 mg of thiourea (solid) in the empty test cuvette. Less than 10 mg/L Zn or Mn (II) do not cause interference. The cumulative effects and the influence of other ions have not been determined.

Oxidizing agents prevent the color reaction.

The measurement results must be subjected to plausibility checks (dilute and/or spike the sample).

Summary of method

Iron(II) ions form a violet complex compound with FerroZine®. Any iron(III) ions present in the water sample are reduced to iron(II) ions by ascorbic acid before the complex is formed.

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