LCK320 Iron

DOC312.53.94013

Method

0.2–6.0 mg/L Fe^{2+}, 0–6.0 mg/L Fe^{3+} or 0.2–6.0 mg/L Fe (total) **LCK320**

Scope and application: For drinking water, raw water, swimming-pool water, wastewater and process analysis.

Test preparation

Test storage

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

pH/Temperature

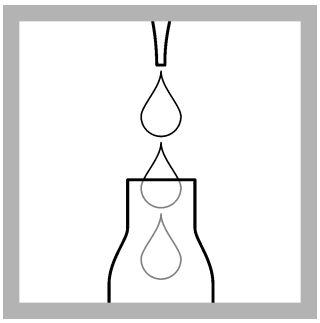
The pH of the water sample must be between pH 3–9.

The temperature of the water sample and reagents must be 20 °C (68 °F).

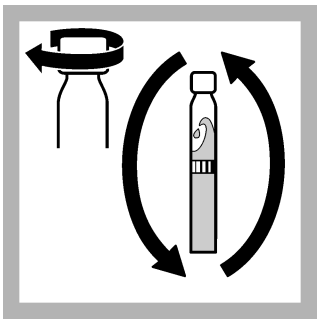
Before starting

The color reaction of the iron$^{2+/3+}$ analysis is strongly temperature dependent. The sample and sample cuvette should therefore have a working temperature of 20 °C (68 °F).
The reaction times must be strictly observed.
The sample should be colorless and free of turbidities. Slight colorations can be taken into account with the help of a sample specific blank reading.
Turbidities are eliminated by filtration through a membrane filter (LCW904).
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.

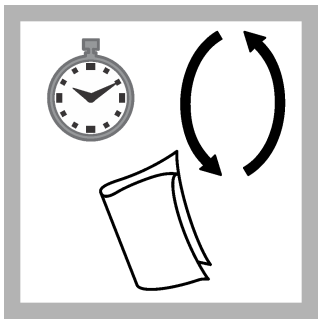
Procedure Fe^{2+}



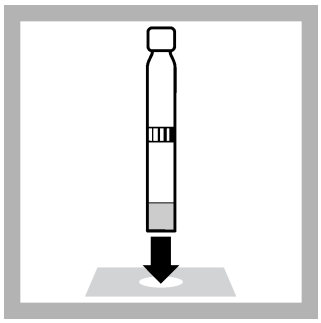
1. Carefully pipet **2.0 mL** of **sample**.



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



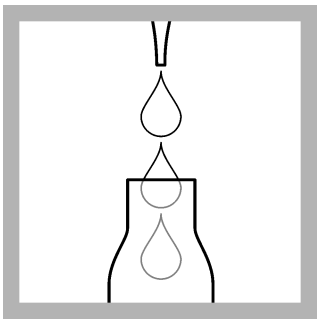
3. After **5 minutes** invert a few times more, thoroughly clean the outside of the sample cuvette and evaluate.



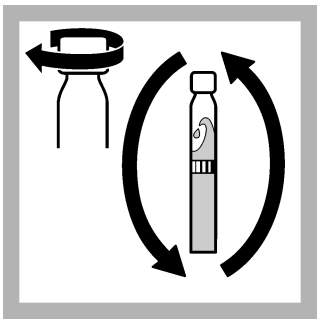
4. Insert the sample cuvette into the cell holder.
Barcode Spectrophotometer: Select evaluation form Iron II (**Fe II**).

DR1900: Go to LCK/TNTplus methods. Select **Barcode Programs**. Select test number and evaluation for Iron II (**Fe II**). Push **READ**.

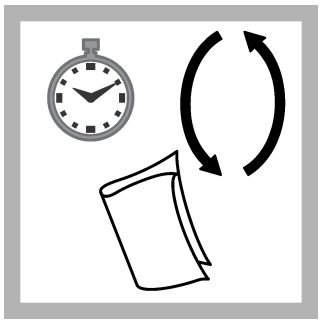
Procedure Fe^{3+}, Fe^{2+} and Fe tot



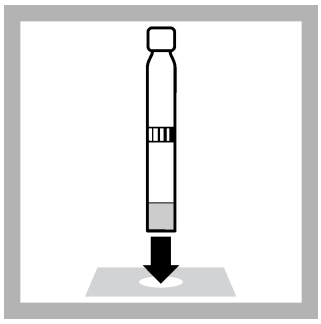
1. Carefully pipet **2.0 mL** of **sample**.



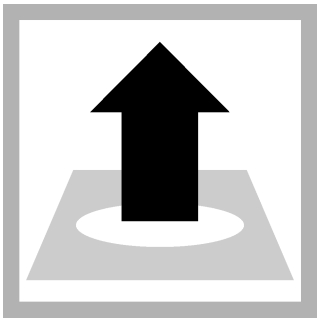
2. Close the sample cuvette and invert a few times until the freeze-dried contents are **completely dissolved**.



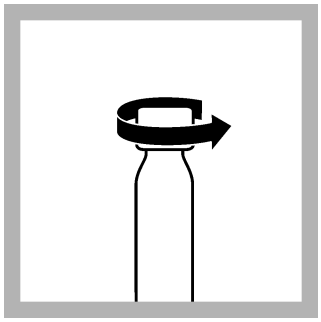
3. After **5 minutes** invert a few times more, thoroughly clean the outside of the sample cuvette.



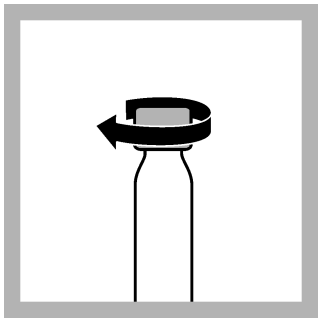
4. Insert the sample cuvette into the cell holder.
Barcode Spectrophotometer: Select evaluation form Iron III (**Fe III**). DR1900: Go to LCK/TNTplus methods. Select **Barcode Programs**. Select test number and evaluation for Iron III (**Fe III**). Push **READ 1**.



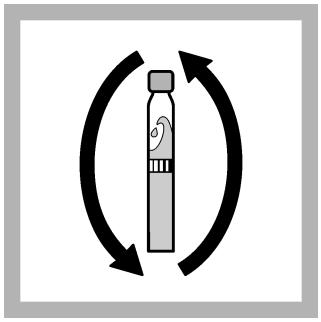
5. Remove the sample cuvette.



6. Open the sample cuvette.



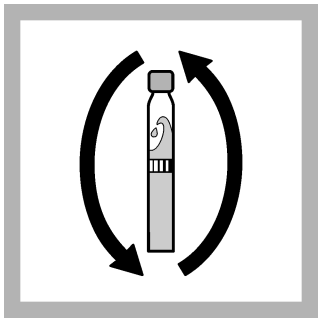
7. Screw a **DosiCap A** onto the **same** cuvette.



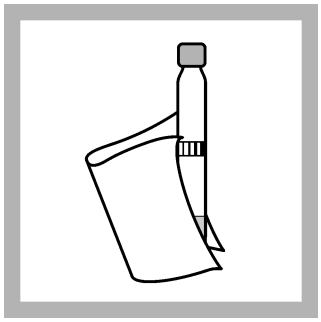
8. Invert the sample cuvette a few times until the freeze-dried contents are **completely dissolved**.



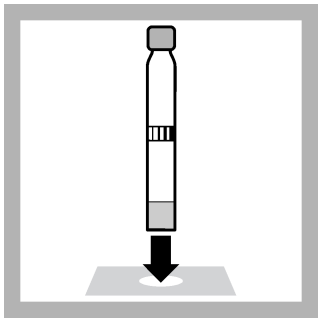
9. Set the reaction timer to **5 minutes**.



10. After **5 minutes** invert a few times more.



11. Thoroughly clean the outside of the sample cuvette and evaluate.



12. Insert the cuvette into the cell holder.
DR1900: Push **READ 2**.
The result is displayed as **Fe^{2+}**, **Fe tot** and **Fe^{3+}**.

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 sample should be colourless and free of turbidities. Slight colourations can be taken into account with the help of a sample specific blank reading. Turbidities are eliminated by filtration through a membrane filter (LCW 904).

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

Interference level	Interfering substance
1000 mg/L	Cl^-, SO_4^{2-}
500 mg/L	K^+, Na^+, Ca^{2+}, NH_4^+
100 mg/L	Ag^+
70 mg/L	Cd^{2+}
50 mg/L	NO_3^-, Co^{2+}, Zn^{2+}, Pb^{2+}, CO_3^{2-}, Hg^{2+} Cr^{3+}, Cr^{6+}
25 mg/L	Ni^{2+}
10 mg/L	Cu^{2+}
5 mg/L	Sn^{2+}

Summary of method

Iron(II) ions form an orange-red complex with 1.10-phenanthroline (both methods).

Any iron(III) ions present in the water sample are reduced to iron(II) ions by ascorbic acid before the complex is formed (method $Fe^{2+/3+}$/tot. only).

HACH LANGE GMBH
Willstätterstraße 11
D-40549 Düsseldorf
Tel. +49 (0) 2 11 52 88-0
Fax +49 (0) 2 11 52 88-143
info-de@hach.com
www.hach.com

© Hach Company, 2019, 2025. All rights reserved.
06/2025, Edition 2