LCK427 Residual Hardness

DOC312.53.94065

Method

0.02–0.60 °dH **LCK427**

Scope and application: For raw, drinking water, precipitation water, boiler water and process control.

Test preparation

Test storage

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

pH/Temperature

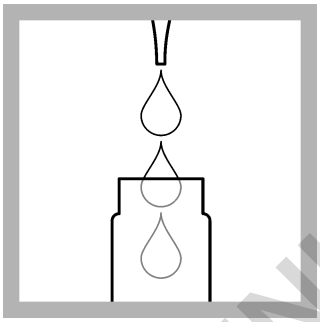
The pH of the water sample must be between pH 4–9.

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

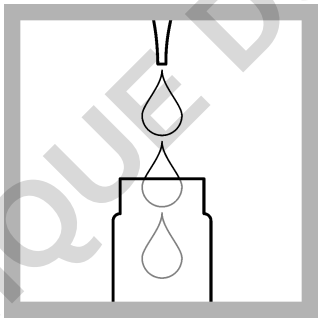
Before starting

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.

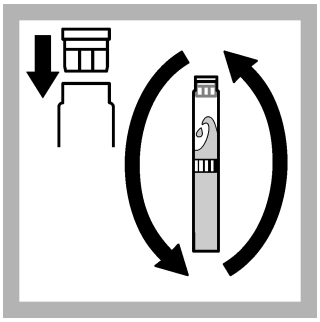
Procedure



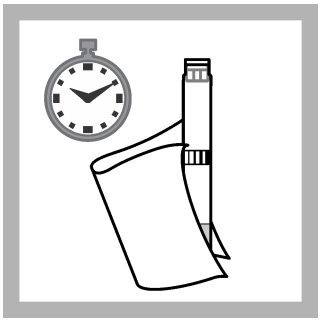
1. Carefully pipet **2.0 mL** of **solution A** into a **sample cuvette**.



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

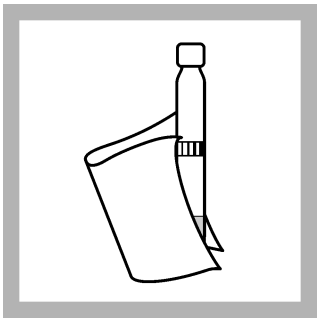


3. Close the **sample cuvette** and invert a few times until the freeze-dried contents are **completely dissolved**.

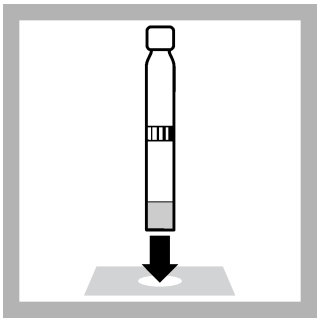


4. After **2 minutes**, thoroughly clean the outside of the **sample cuvette**.

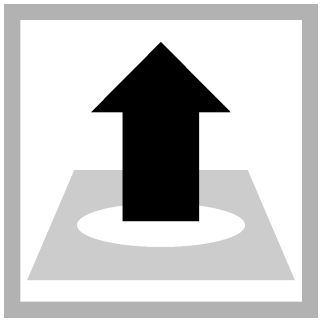
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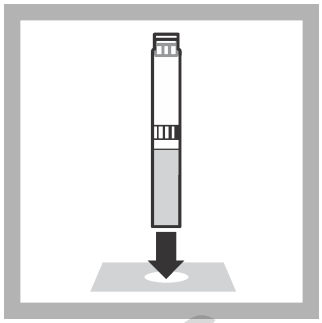
5. Clean the outside of the **zero cuvette**.



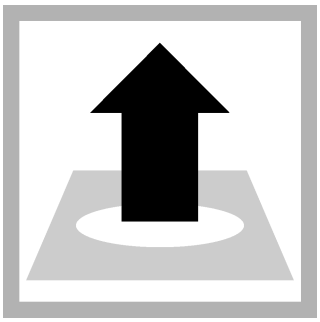
6. Insert the **zero cuvette** into the cell holder.
DR1900: Go to LCK/TNTplus methods.
Select the test, push **ZERO**.



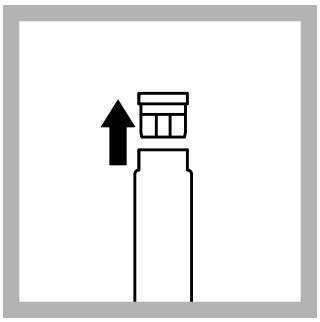
7. Remove the zero cuvette.



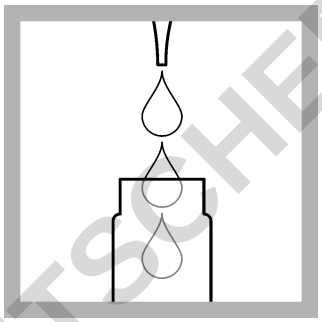
8. Insert the **sample cuvette** into the cell holder.
DR1900: Go to LCK/TNTplus methods.
Select the test, push **READ 1**.



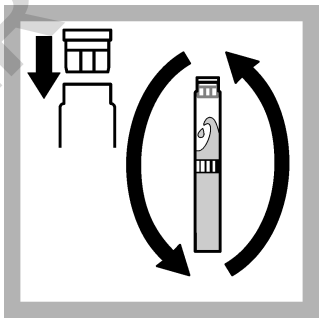
9. Remove the sample cuvette.



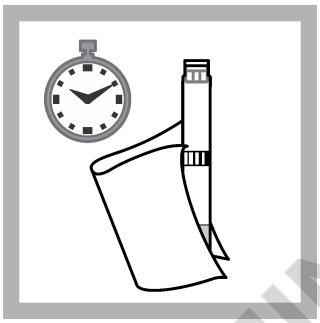
10. Open the **sample cuvette**.



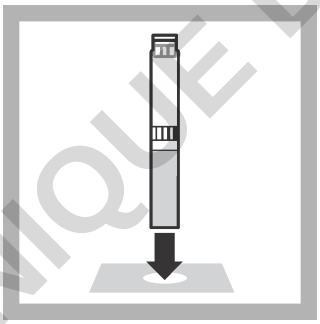
11. Carefully pipet **0.2 mL** of **solution B** in the **same cuvette**.



12. Close the **sample cuvette** and invert a few times.



13. After **30 seconds**, thoroughly clean the outside of the sample cuvette and evaluate.



14. Insert the **sample cuvette** into the cell holder.
DR1900: Push **READ 2**.

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Interferences

There are no known interferences when the tests are used with drinking water and boiler water.

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

Measurement units

Measurement units of water hardness (°dH):

Definition

- 1 degree water hardness, german (°d) = 10 mg CaO/L
- 1 degree water hardness, french (°f) = 10 mg $CaCO_3$/L
- 1 degree water hardness, english (°e) = 14.3 mg $CaCO_3$/L

Table 1 Conversion table

	mmol/L $CaCO_3$	°d	°f	°e
mmol/L $CaCO_3$	1.00	5.60	10.00	7.02
°d	0.18	1.00	1.78	1.25
°f	0.10	0.560	1.00	0.702
°e	0.14	0.798	1.43	1.00

Summary of method

Calcium and magnesium ions react with metal phthalein to give a violet dye.

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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

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