LCK313 Chromium total and VI

DOC312.53.94041

Method

0.03–1.00 mg/L Cr **LCK313**

Scope and application: For 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 between 15–35 °C (59–95 °F)

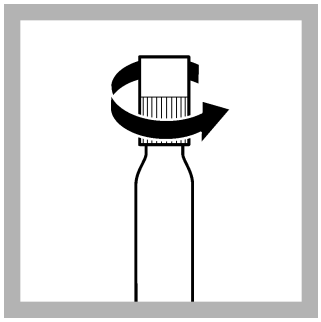
Before starting

Undissolved chromium is not determined with the determination of chromium(VI).
Concentrations above 20 mg/L produce result displays which lie inside the measuring ranges given above. In such cases it is recommended that a plausibility check be carried out by dilution.
When total chromium is determined, in some rare cases samples are turbid after the digestion stage. Such samples must be pretreated with the sample preparation set LYW513.
The concentration of chromium(III) is obtained mathematically from the difference between chromium(total) and chromium(VI).
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.

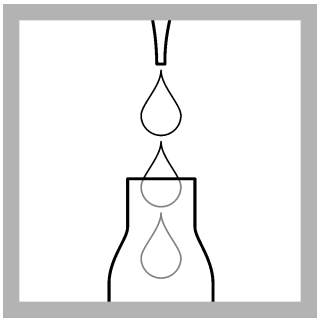
Procedure total Chromium



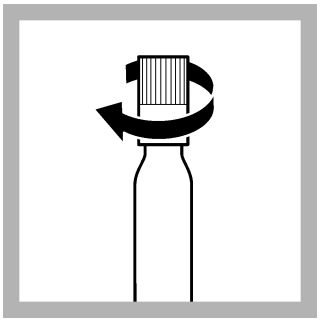
1. Carefully remove the foil from the screwed-on DosiCap Zip.



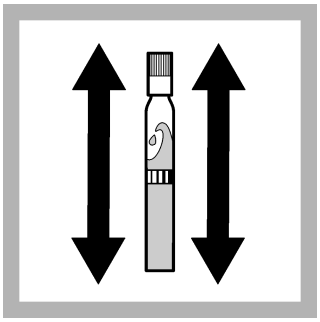
2. Unscrew the DosiCap Zip.



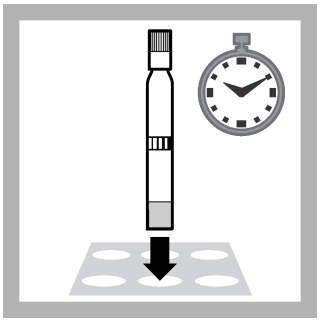
3. Carefully pipet **2.0 mL sample**.



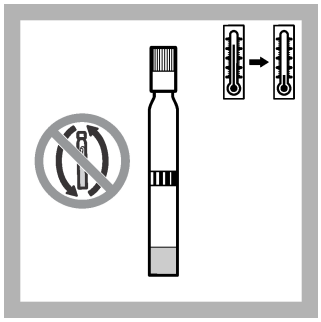
4. Immediately screw the DosiCap Zip back on; **fluting at the top**.



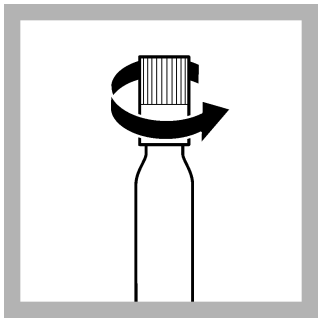
5. Shake **vigorously**.



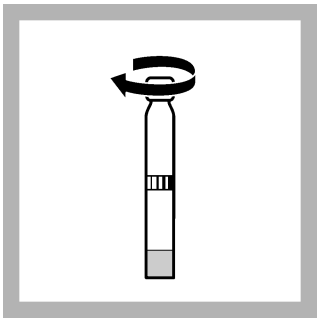
6. Heat in the thermostat.
HT200S: in the standard program HT for **15 minutes**.
Thermostat: for **60 minutes** at **100 °C** (212 °F).



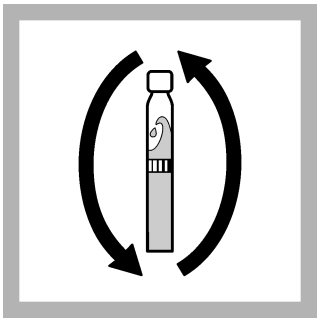
7. Do not invert the cuvette after digestion. Allow to **cool** to room temperature.



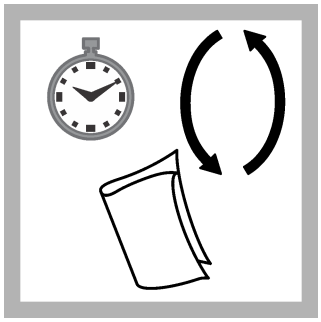
8. Unscrew the DosiCap Zip.



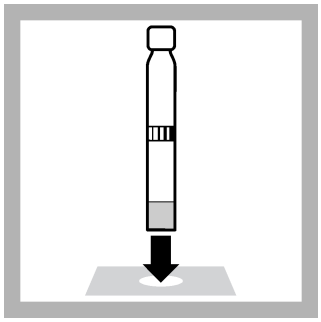
9. Screw an **orange** colored **DosiCap B** onto the cooled cuvette.



10. Invert a few times until the freeze-dried contents are **completely dissolved**.

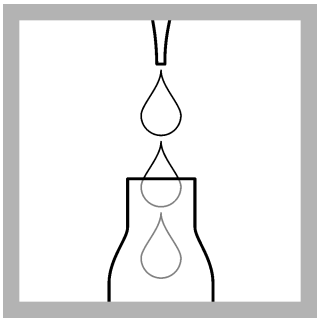


11. After **2 minutes**, invert a few more times, thoroughly clean the outside of the cuvette and evaluate.

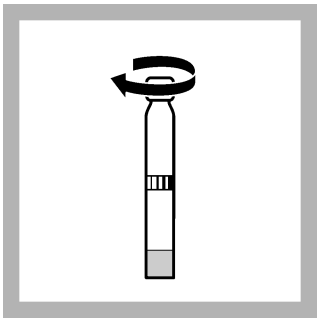


12. Insert the cuvette into the cell holder.
DR1900: Go to LCK/TNTplus methods.
Select the test, push **READ**.

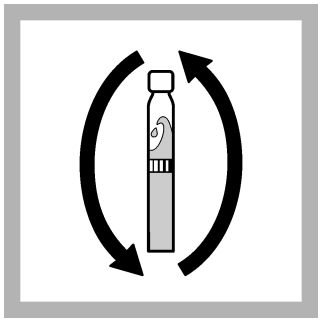
Procedure Chromium VI



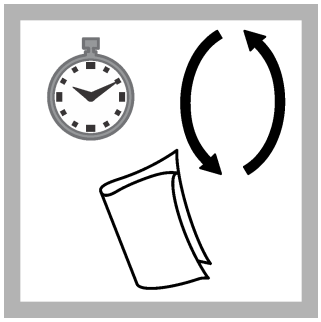
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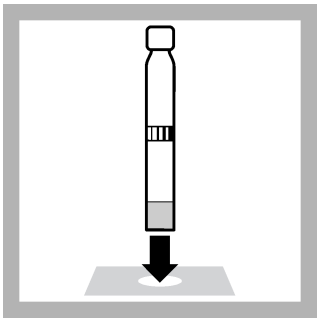
2. Screw an **orange** colored **DosiCap B** onto the cuvette.



3. Invert a few times until the freeze-dried contents are **completely dissolved**.



4. After **2 minutes**, invert a few more times, thoroughly clean the outside of the cuvette and evaluate.



5. Insert the cuvette into the cell holder.
DR1900: 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.

Larger amounts of iron, copper, and reducing and oxidizing agents give low-bias results. Lead, mercury and tin give high-bias results.

Undissolved chromium is not determined with the determination of chromium(VI). An analyte concentration greatly (above 20 mg/L) in excess of the stated range will adversely affect color formation, resulting in a false reading within the method range.

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

Interference level	Interfering substance
2000 mg/L	SO_4^{2-}, Na^+, K^+, NO_3^-
1000 mg/L	Cl^-
125 mg/L	Ca^{2+}
100 mg/L	Mg^{2+}, NH_4^+
50 mg/L	Zn^{2+}, Ni^{2+}, Co^{2+}, Cd^{2+}
25 mg/L	Pb^{2+}
10 mg/L	Cu^{2+}, Fe^{3+}
5 mg/L	Ag^+
1 mg/L	Sn^{2+}

Summary of method

Chromium(VI) ions react with 1,5-diphenylcabazide to form 1,5-diphenylcarbazone, which forms a red complex with chromium(VI).

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