LCW954 Silver Total

DOC312.53.94369

0.04–0.80 mg/L Ag **LCW954—Sample Preparation**

Scope and application: For photographic industry, printing-works, X-ray laboratory, printed circuit-board industry and electroplating shop.

Test preparation

Test storage

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

pH/Temperature

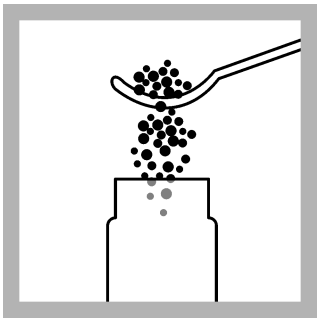
Strongly buffered samples must have pH > 3 after the addition of solution C (LCW954C).

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

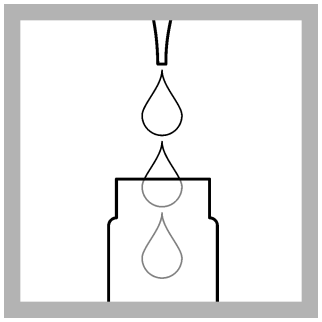
Before starting

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.

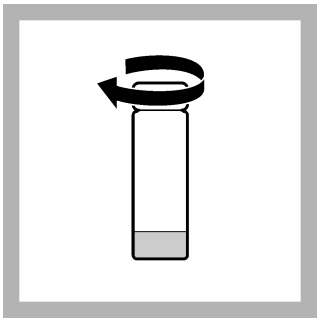
Procedure—Determination of Silver total with LCW954—1. Digestion



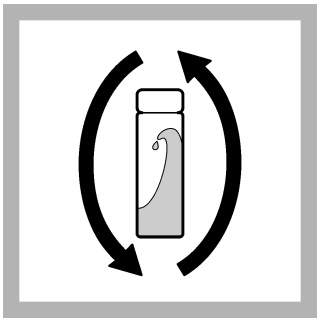
1. Add to the dry, enclosed reaction tube: **2 level dosing spoon reagent A**.



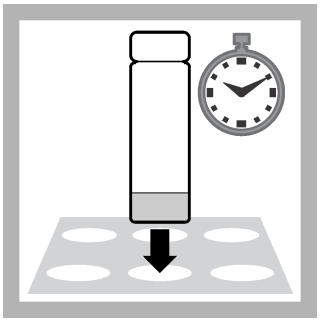
2. Add **1.0 mL solution B** and **10.0 mL sample** to the reaction tube.



3. Close the reaction tube.

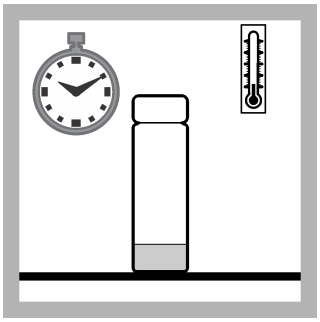


4. Invert a few times.

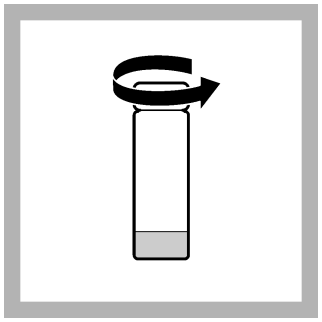


5. Heat.
HT200S: in the standard program HT for **15 minutes**.

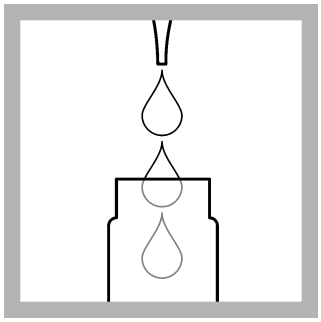
Thermostat: for **60 minutes** at **100° C** (212° F).



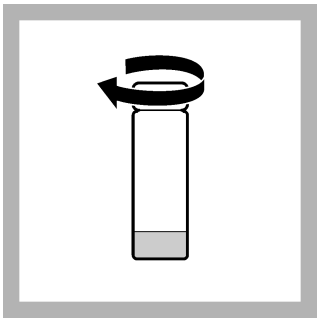
6. Allow to **cool** to room temperature.



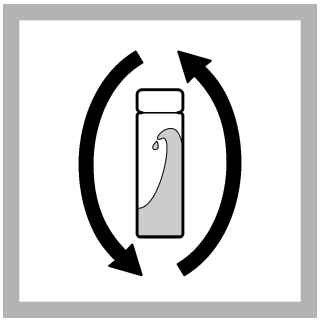
7. Open the reaction tube.



8. Add **1.5 mL solution C** to the reaction tube.

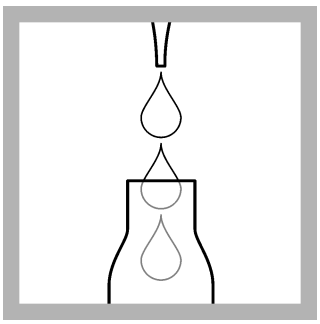


9. Close the reaction tube.

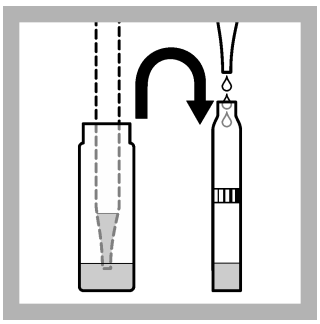


10. Invert a few times and carry out the analysis.

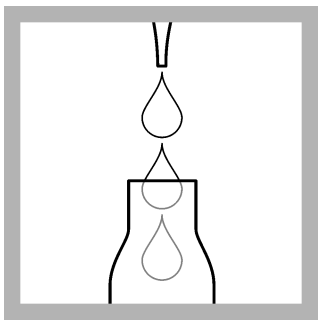
Procedure—Determination of Silver total with LCK354—2. Analysis



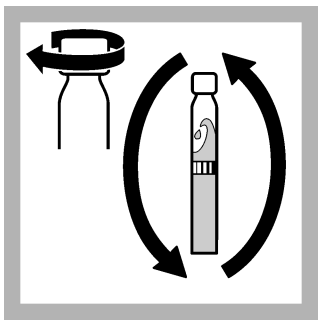
1. Carefully pipet **0.4 mL solution A**.



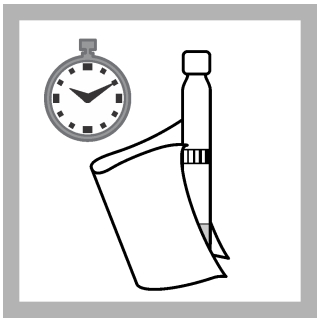
2. Carefully pipet **5.0 mL digested sample**.



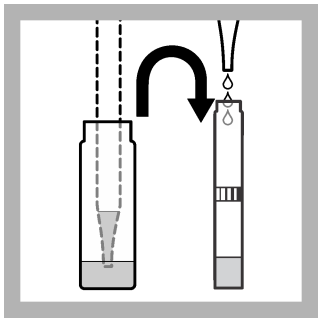
3. Carefully pipet **0.2 mL solution B** in the **same cuvette**.



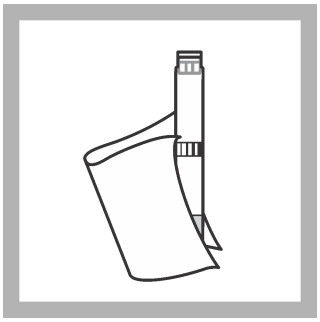
4. Close the cuvette and invert a few times until the freeze-dried contents are **completely dissolved**.



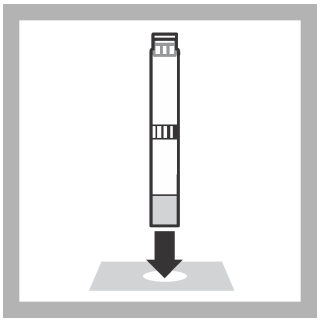
5. After **5 minutes**, thoroughly clean the outside of the cuvette and evaluate.



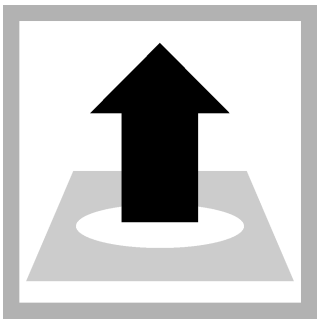
6. Prepare the blank: Pipet **5.0 mL digested sample** in the empty **blank cuvette**.



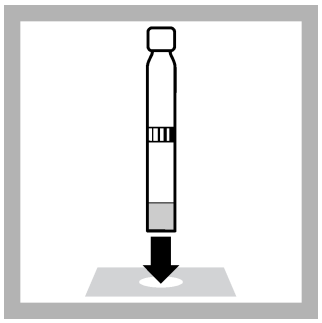
7. Thoroughly clean the outside of the blank.



8. Insert the **blank** into the cell holder. In the pop-up window start the test **Silver, total**.
DR1900: Go to LCK/TNTplus methods.
Select the test, push **ZERO**.



9. Remove the blank.



10. Insert the sample cuvette into the cell holder.
DR1900: 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.

There is no interference from:

Interference level	Interfering substance
1500 mg/L	$S_2O_3^{2-}$
1000 mg/L	Na^+, K^+, SO_4^{2-}
500 mg/L	NO_3^-, Cl^-
340 mg/L	CO_3^{2-}
280 mg/L	Mg^{2+}
250 mg/L	Ca^{2+}, PO_4^{3-}, NO_2^-
150 mg/L	NH_4^+
70 mg/L	Zn^{2+}, Cd^{2+}
50 mg/L	Pb^{2+}
20 mg/L	Al^{3+}, Fe^{2+}
15 mg/L	CN^-
10 mg/L	Fe^{3+}, Ni^{2+}, Cr^{6+}
5 mg/L	Cu^{2+}, Br^-
2 mg/L	Cr^{3+}

Higher concentrations of hypochlorite and free chlorine cause low-bias results.

Turbid digested samples must be filtered before they are analyzed with the cuvette test LCK354 (Membrane Filtration Set LCW904).

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

Summary of method

Poorly soluble silver compounds are broken down by an acidic, oxidative digestion and silver is converted to the ionogenic form.

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