

0.1–2.0 mg/L Sn

LCK 359

**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 2–9.

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

### Before starting

The analysis must be carried out **immediately** after the sample has been taken.

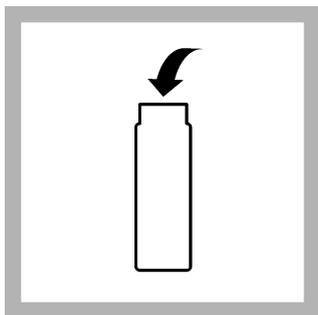
The term "soluble tin" is understood to refer to complex or undissolved tin compounds (e.g. tin-NTA complex) that can be converted to the dissolved form in a hydrochloric acid medium in the presence of an oxidizing agent. Dissolved tin(II) and (IV) - ions are also determined.

Review safety information and expiration date on the package.

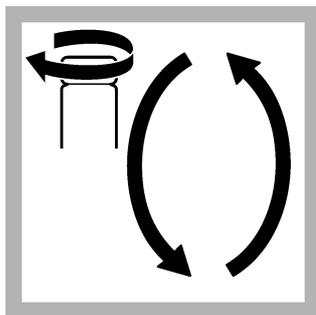
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

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.

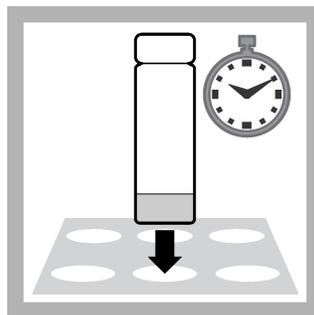
### Procedure I—Soluble tin



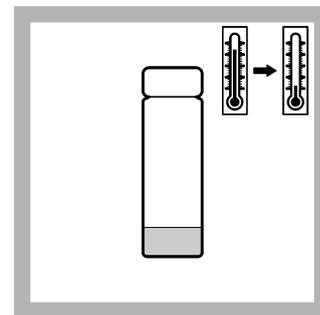
1. Add to a dry reaction tube: **2.3 mL solution A, 2.3 mL sample, 1 dosing spoon B.**



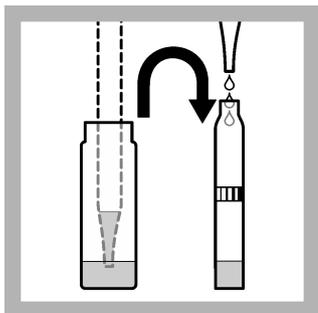
2. Close the reaction tube and invert a few times.



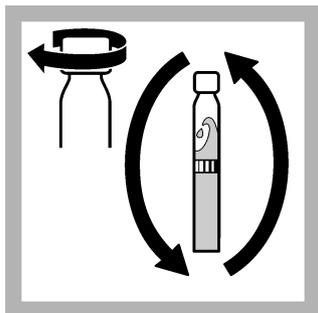
3. Heat.  
**HT 200 S:** in the standard program HT for **15 minutes**.  
**Thermostat:** for **30 minutes at 100 °C (212 °F)**.



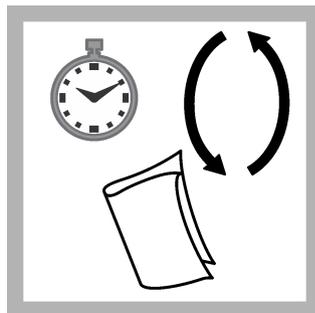
4. Allow to cool down before carrying out the analysis.



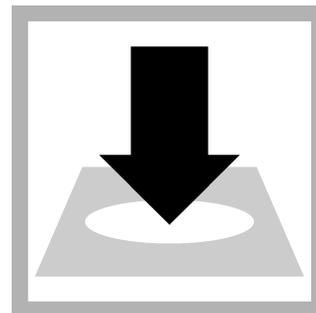
5. Open the reaction tube. Pipet into the Vial Test: **2.0 mL digested sample** and **0.2 mL solution C**.



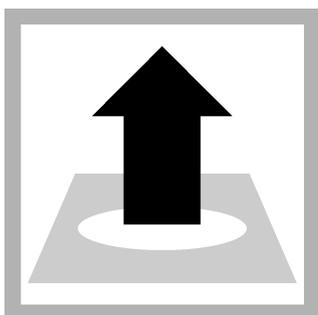
6. Close the cuvette and invert a few times.



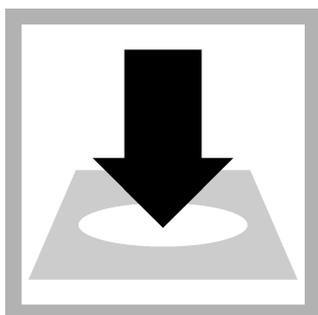
7. After **10 minutes**, invert a few more times, thoroughly clean the outside of the cuvette and evaluate.



8. Insert the zero-cuvette into the cell holder. DR 1900: Go to LCK/TNTplus methods. Select the test, push **ZERO**.

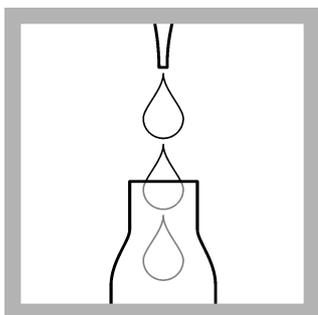


9. Remove the zero-cuvette.

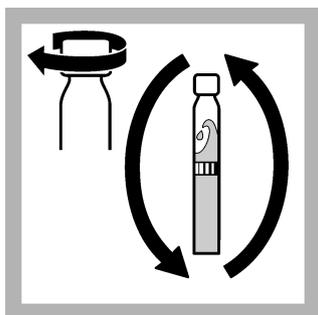


10. Insert the sample-cuvette into the cell holder. DR 1900: Push **READ**

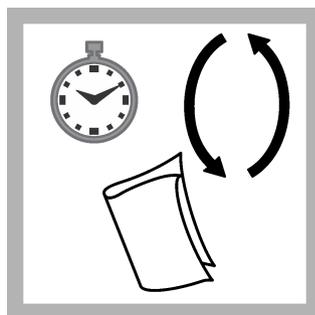
### Procedure LCK359 II—Dissolved tin



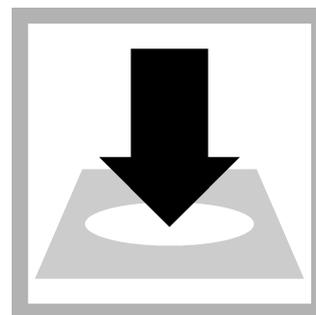
1. Pipet into the Cuvette-Test: **1.0 mL solution A**, **1.0 mL sample** and **0.2 mL solution C**.



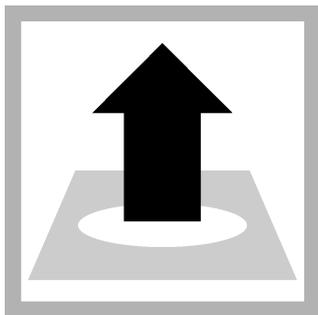
2. Close the cuvette and invert a few times.



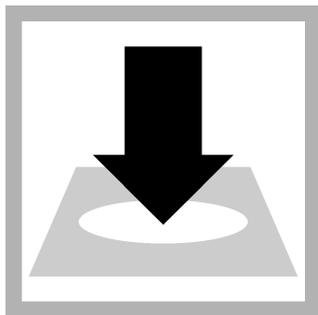
3. After **10 minutes**, invert a few more times, thoroughly clean the outside of the cuvette and evaluate.



4. Insert the zero-cuvette into the cell holder. DR 1900: Go to LCK/TNTplus methods. Select the test, push **ZERO**.



5. Remove the zero-cuvette.



6. Insert the sample-cuvette into the cell holder.  
DR 1900: 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.

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

Interference level	Interfering substance
2000 mg/L	Na <sup>+</sup> , K <sup>+</sup> , NH <sub>4</sub> <sup>+</sup> , NO <sub>3</sub> <sup>-</sup>
1000 mg/L	Ca <sup>2+</sup> , Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup>
250 mg/L	Mg <sup>2+</sup>
50 mg/L	Mn <sup>2+</sup> , Fe <sup>2+</sup> , Fe <sup>3+</sup> , CO <sub>3</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> , Co <sup>2+</sup>
25 mg/L	Cd <sup>2+</sup> , Ag <sup>+</sup> , Ni <sup>2+</sup> , Al <sup>3+</sup> , Zn <sup>2+</sup> , Pb <sup>2+</sup> , Cr <sup>3+</sup> , Cu <sup>2+</sup> , Hg <sup>2+</sup>
5 mg/L	Cr <sup>6+</sup>

## Summary of method

Tin(II) and tin(IV) ions form a red colored complex with pyridylfluoron (PYF).



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