

## Sample Preparation

**LCW 902**

**Scope and application:** For wastewater with undissolved and complexly bound heavy metals.



### Test preparation

## Test storage

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

## Before starting

### Purpose

Hach Lange cuvette tests are designed to measure by means of a photometer the dissolved and non complexed ions. In waste water, however, heavy metals are often undissolved and complexly bound.

The Crack-Set LCW 902 was developed to analyse this metal load photometrically, too.

### Removal of Interferences

If the sample exhibits turbidity after the Crack-Set LCW 902 has been used, this must be eliminated by filtration with the Membrane Filtration Set LCW 904 or LCW 916.

### pH-value

To guarantee the complete destruction of organic complexes, the pH-value must be less than pH 1 after addition of the **sulphuric acid A** (LCW 902 A). The pH value of samples with an elevated buffer capacity must be verified before the addition of **potassium peroxodisulphate B** (LCW 902 B) and adjusted to a pH lower than 1 by adding sulphuric acid if necessary.

After the **buffer solution C** (LCW 902 C) has been added the pH of the sample is between 2.5 and 5. No further pH adjustment is necessary.

### Note

The reaction tubes should not be used more than **25 times**.

### Special note

This method is not intended for the analysis of waste water with a high cyanide content. When using this method in connection with waste water with a high cyanide content:

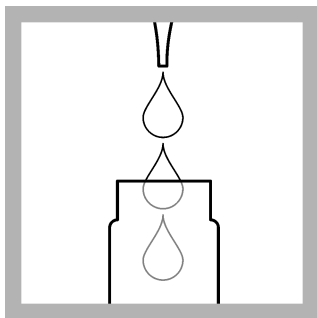
- toxic vapour may result: work in a hood
- the complexed metals will not necessarily be dissolved, as some cyanide complexes are very stable.

Review safety information and expiration date on the package.

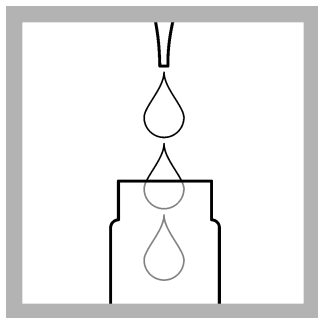
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

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.

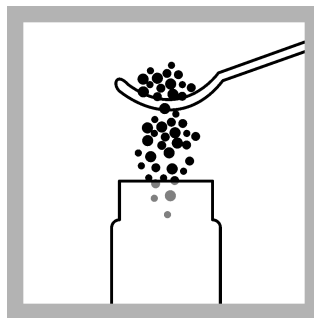
## Procedure



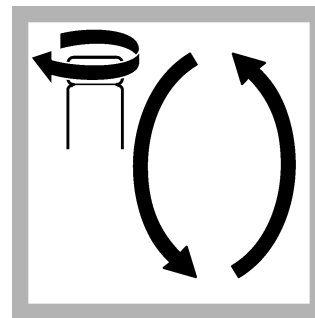
1. Add into the enclosed reaction tube: **10 mL homogenized sample**.



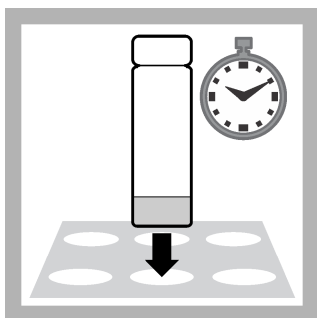
2. Add into the reaction tube: **1.0 mL solution A**.  
*Control of pH-value if necessary*



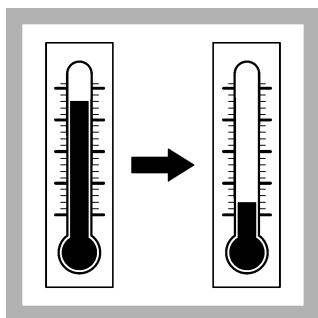
3. Add into the reaction tube: **2 dosing spoon reagent B**.



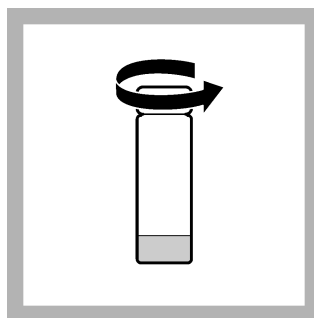
4. Close the reaction tube and invert a few times.



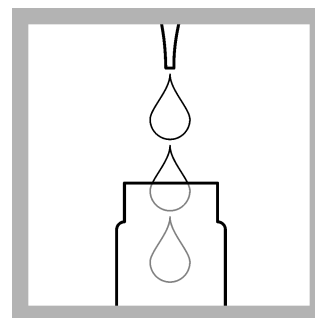
5. Heat.  
**HT 200 S:** in the standard program HT for **15 minutes**.  
**Thermostat:** for **60 minutes at 100 °C (212 °F)**.



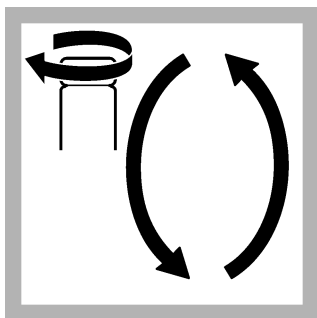
6. Allow to **cool** to room temperature.



7. Open the reaction tube.



8. Add into the reaction tube: **1.0 mL solution C**.



10. The metal content of the sample prepared by cracking can now be analyzed. The results can, for example, be called total iron or total nickel and more. The specifications of the appropriate Hach Lange cuvette test are applied to the analysis.

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

## Interferences

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

Undissolved and complexly bound heavy metals are dissolved by boiling in an acidic medium in the presence of an oxidizing agent.



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