LCK346 Phenols

DOC312.53.94051

Method

Measuring range I: 5–40 mg/L Phenols, measuring range II: 20–150 mg/L Phenols **LCK346**

Scope and application: For wastewater, exhaust air (after absorption), and exhaust air condensates formed during the manufacture and processing of benzene, petroleum products, glass and mineral fibres, hardboard, coke, oil shale, hazardous waste, town gas, coal and brown coal products, tar, asphalt and bitumen.

Test preparation

Test storage

Storage temperature: 2–8 °C (35–46 °F)

pH/Temperature

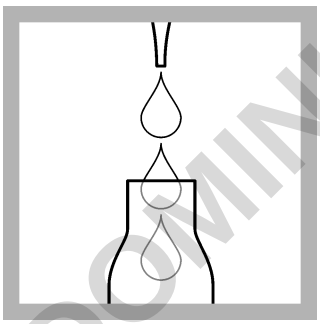
The pH of the water sample must be between pH 2–11.

The temperature of the water sample and reagents must be between 20–25 °C (68–77 °F).

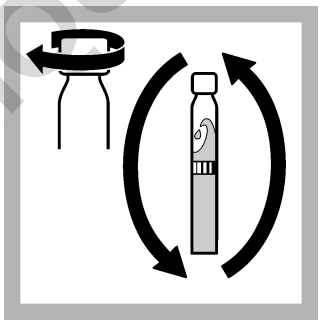
Before starting

If the measurements cannot be carried out immediately, the phenol samples should be cooled until they can be analyzed.
Strongly acidic or alkaline samples must previously be adjusted to the correct pH.
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.

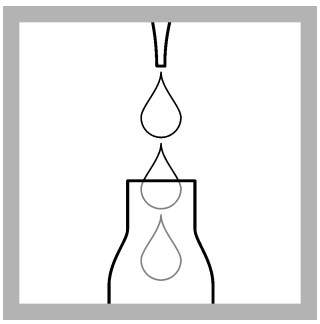
Procedure measuring range I



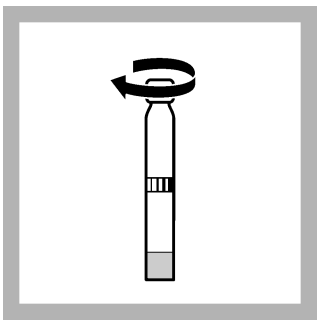
1. Carefully pipet **2.0 mL** of sample in the **sample cuvette**.



2. Close the cuvette and invert a few times.

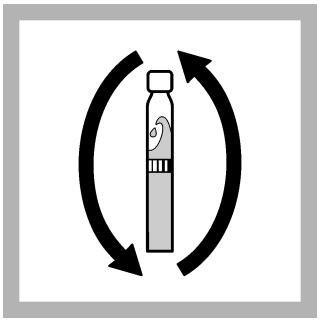


3. Carefully pipet into **the same** cuvette **0.4 mL** of **solution A**.

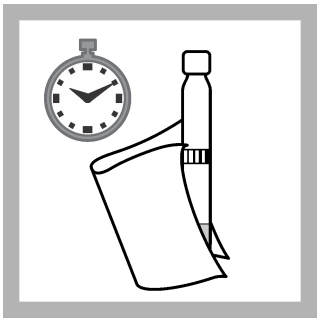


4. Immediately screw a **DosiCap B** on the cuvette.

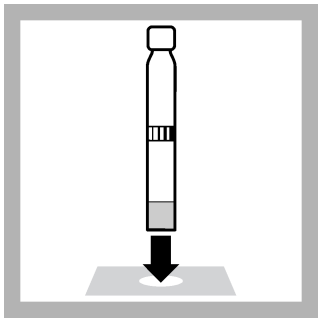
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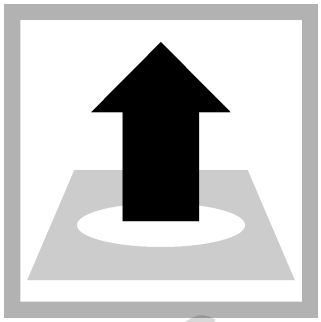
5. Invert the cuvette a few times until **no more streaks** can be seen.



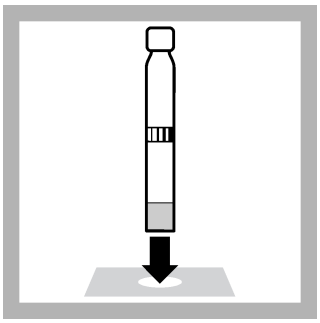
6. After **1 minute**, thoroughly clean the outside of the cuvette and evaluate.



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



8. Remove the zero cuvette.

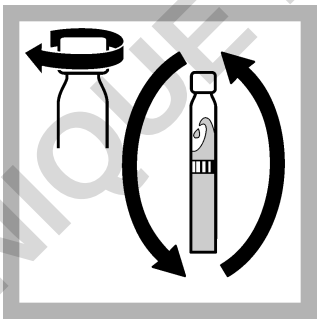


9. Insert the **sample cuvette** into the cell holder.
DR1900: Push **READ**.

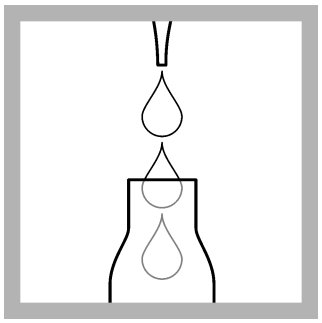
Procedure measuring range II



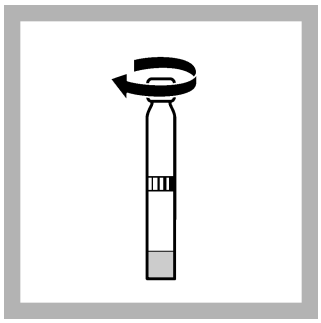
1. Carefully pipet **0.4 mL** of sample in the **sample cuvette**.



2. Close the cuvette and invert a few times.

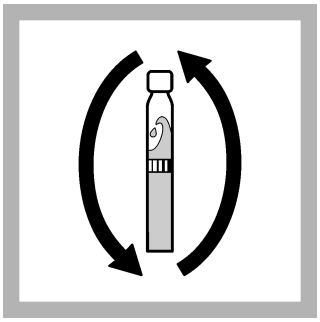


3. Carefully pipet into **the same** cuvette **0.4 mL** of **solution A**.

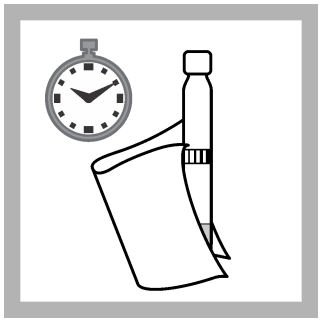


4. Immediately screw a **DosiCap B** on the cuvette.

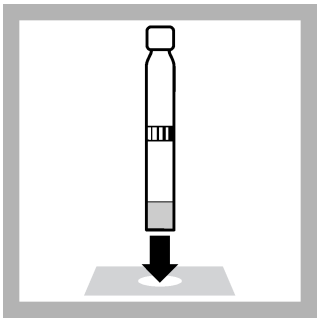
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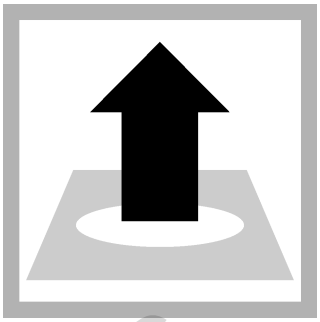
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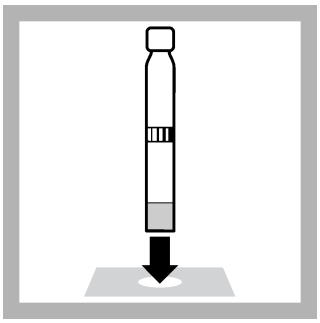
6. After **1 minute**, thoroughly clean the outside of the cuvette and evaluate.



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



8. Remove the zero cuvette.



9. 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.

Larger amounts of cobalt, iron(III), chromium(III), and sulphide cause high-bias results. Higher volume percentages of water-soluble organic solvents can cause high or low-bias results with differently substituted phenols. High concentrations of strong oxidizing and reducing agents in the sample interfere with the reaction process and must be removed before the analysis should be carried out. Other substances capable of combining with 4-aminoantipyrine (e.g. naphthols and aromatic amines) are also partially analysed and can simulate a higher phenol concentration.

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

Interference level	Interfering substance
1700 mg/L	Cl^-
1500 mg/L	Na^+, K^+, NH_4^+, Ca^{2+}
300 mg/L	Cu^{2+}
200 mg/L	SO_4^{2-}
100 mg/L	NO_3^-
50 mg/L	SO_3^{2-} , NO_2^-, CN^-, I^-, CH_3COO^-, Al^{3+}, Pb^{2+}, Mn^{2+}, Cr^{6+}, Sn^{2+}, Fe^{2+}, Zn^{2+}, Hg^{2+}, Cd^{2+}, Ni^{2+}, Ag^+
20 mg/L	Co^{2+}
10 mg/L	Fe^{3+}, S^{2-}, CH_2O

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Interference level	Interfering substance
2 mg/L	Cr^{3+}
1 mg/L	H_2O_2
5 Vol %	CH_3OH, C_2H_5OH, $(CH_3)_2CO$

Summary of method

In the presence of an oxidizing agent ortho- and meta-substituted phenols form colored complexes with 4-aminoantipyrine (AAP).

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