LCK504 Ammonium

DOC312.53.94513

0.005-0.05 mg/L NH_4-N **LCK504**

Scope and application: For waste water, drinking water, boiler water, surface water and process analysis.

Test preparation

Test storage

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

pH/Temperature

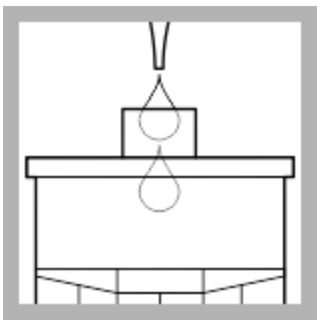
The pH of the water sample must be between pH 4–9.

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

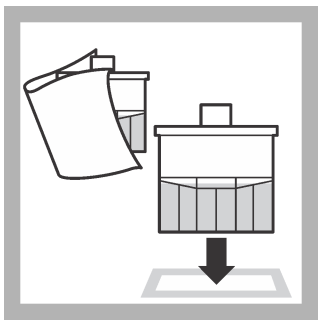
Before starting

In case of not working at the correct recommended temperature an incorrect result may be obtained.
Analyze the samples as soon as possible for best results.
Time dependency:
The final absorbance is reached after a reaction time of **20 minutes**.
For exact evaluation it is very important that there are no air bubbles in the beam path (lower half of the cuvette). If any air bubbles should adhere to the cuvette walls they can be removed by gentle shaking or tapping the cuvette.
Seal solution A **immediately** after use.
For sample-specific blanks, e.g. in serial analysis, make use of 50 mm cuvettes LZP341 or LZM381 as an alternative.
Blanks and samples can be prepared that way for fast measurement.
The method is applicable for DR3900, DR4900 and DR6000 only.
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.

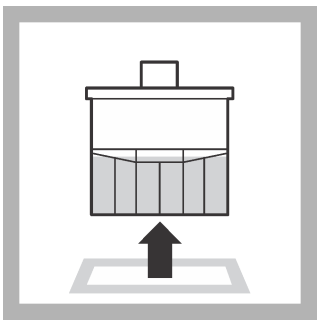
Procedure



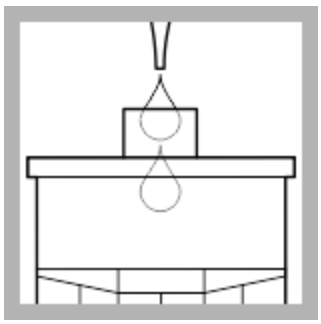
1. Carefully pipet **10.0 mL** of **sample**.



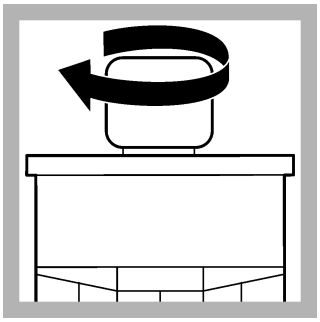
2. Thoroughly clean the outside of the cuvette. **Take care that there are no air bubbles!** Insert the cuvette into the cell holder. Push **ZERO**.



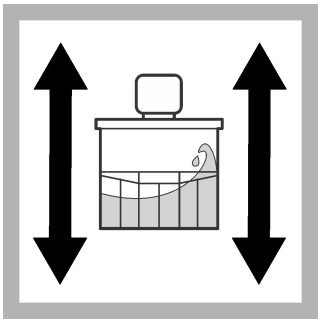
3. Remove the cuvette from the cell holder.



4. Carefully pipet **1.0 mL** of **solution A** in the cuvette. **Take care that there are no air bubbles!** Seal solution A **immediately** after use.



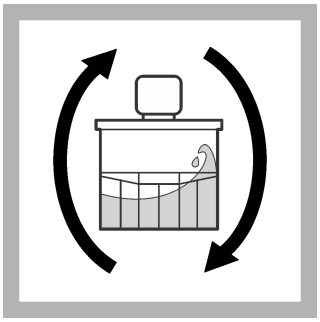
5. Immediately screw a **DosiCap B** on the cuvette.



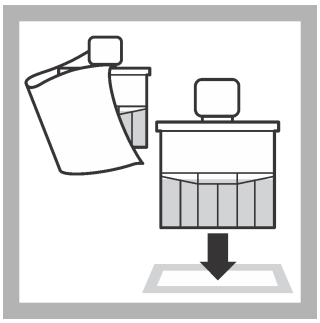
6. Shake the cuvette a few times until the freeze-dried contents of the DosiCap are dissolved.



7. Start the reaction timer for **20 minutes**.



8. After **20 minutes**, carefully invert one more time.



9. Thoroughly clean the outside of the cuvette. **Take care that there are no air bubbles!** Insert the cuvette into the cell holder. 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.

Primary amines are also determined and cause high-bias results. A 10000-fold excess of urea does not interfere. All reducing agents interfere and cause low-bias results.

A large excess of ammonium can cause result displays within the measuring range. It is advisable to carry out a plausibility check by making dilutions.

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

Interference level	Interfering substance
1000 mg/L	COD
500 mg/L	Na^+, SO_4^{2-}
250 mg/L	Ca^{2+}, K^+, PO_4^{3-}
100 mg/L	Cl^-
50 mg/L	Zn^{2+}, Mg^{2+}, Cd^{2+}
20 mg/L	NO_3^-, CO_3^{2-}
5 mg/L	Fe^{2+}, Ni^{2+}
< 5 mg/L	Pb^{2+}, Ag^+, Cu^{2+}, Cr^{3+}, Cr^{6+}, Fe^{3+}, Co^{2+}, Sn^{2+}

Accuracy check

Standard solution method
Use the standard solution method to validate the test procedure, the reagents and the instrument.

Items to collect:

- 2.5-mg/L ammonium nitrogen stock standard solution LCA505
- Volumetric flask, Class A, 100 mL
- Pipet, 1.0 mL
- Pipet tips
- Deionized water

Prepare a 0.025-mg/L ammonium nitrogen standard solution:

1. Add 1.0 mL of stock standard solution LCA505 to the volumetric flask.
2. Fill the volumetric flask to the mark with deionized water (100 mL).
3. Put a stopper in the flask. Invert to mix.
4. The standard solution must be prepared freshly before each evaluation.
5. Use the test procedure to measure the concentration of the prepared standard solution.
6. Compare the expected result to the actual result.

Summary of method

Ammonium ions react at pH 12.6 with hypochlorite ions and salicylate ions in the presence of sodium nitroprusside as a catalyst to form indophenol blue.

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