September 2012

1.100024.0001

MQuant™ Ammonium Test NH_4^+

1. Method

Ammonium ions react with Neßler's reagent to form a yellow-brown compound. The concentration of ammonium is measured **semiquantitatively** by visual comparison of the reaction zone of the test strip with the fields of a color scale.

2. Measuring range and number of determinations

Measuring range / color-scale graduation [1]	Number of determinations
10 - 30 - 60 - 100 - 200 - **400 mg/l NH_4^+**	100
8 - 23 - 47 - 78 - 155 - **310 mg/l NH_4-N**	

[1] for conversion factors see section 8

3. Applications

Sample material:
Groundwater and surface water
Wastewater
Fertilizers
Process water (e. g. textile industry, plastics industry)

4. Influence of foreign substances

This was checked in solutions with 200 mg/l NH_4^+. The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

Concentrations of foreign substances in mg/l					
Al^{3+}	1000	Cu^{2+}	1000	Ni^{2+}	100
Ca^{2+}	100	**Fe^{2+}**	**10**	NO_2^-	1000
Cl^-	1000	Fe^{3+}	1000	NO_3^-	1000
CN^-	**10**	K^+	1000	PO_4^{3-}	1000
Cr^{3+}	100	Mg^{2+}	1000	$S_2O_3^{2-}$	1000
CrO_4^{2-}	1000	**Mn^{2+}**	**10**		

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!

The test strips and the test reagent are stable up to the date stated on the pack when stored closed at +15 to +25 °C.

Package contents:
Tube containing 100 test strips
2 bottles of reagent NH_4-1
1 test vessel

Other reagents:
Ammonium standard solution CertiPUR®, 1000 mg/l NH_4^+, Cat. No. 119812

6. Preparation

Samples containing more than 400 mg/l NH_4^+ must be diluted with distilled water.

7. Procedure

Rinse the test vessel several times with the pretreated sample.		
Pretreated sample (**15 - 25 °C**)	5 ml	Fill the test vessel to the 5-ml mark.
Reagent NH_4-1	10 drops [1]	Add and swirl.
Immerse the reaction zone of the test strip in the measurement sample **for 3 sec**. Allow excess liquid to run off via the long edge of the strip onto an absorbent paper towel and **after 10 sec** determine with which color field on the label the color of the reaction zone coincides most exactly. Read off the corresponding result in mg/l NH_4^+ or NH_4-N.		

[1] **Hold the bottle vertically while adding the reagent!**

Notes on the measurement:

- The color of the reaction zone may continue to change after the specified reaction time has elapsed. This must not be considered in the measurement.
- If the color of the reaction zone is equal to or more intense than the darkest color on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 400 mg/l NH_4^+ is obtained.

  Concerning the result of the analysis, the dilution (see also section 6) must be taken into account:

Result of analysis = measurement value x dilution factor

8. Conversions

Units **required** =	units **given** x	conversion factor
mg/l NH_4-**N**	**mg/l NH_4^+**	0.776
mg/l NH_4^+	mg/l NH_4-**N**	1.29

9. Method control

To check test strips, test reagent, and handling: Dilute the ammonium standard solution with distilled water to 100 mg/l NH_4^+ and analyze as described in section 7.
Additional notes see under **www.qa-test-kits.com**.

10. Notes

- **Reclose** the reagent bottle and **the tube containing the test strips immediately after use**.
- Rinse the test vessel **with distilled water only**.

Merck KGaA, 64271 Darmstadt, Germany,
Tel. +49(0)6151 72-2440
www.analytical-test-kits.com

EMD Millipore Corporation, 290 Concord Road, Billerica, MA 01821, USA, Tel. +1-978-715-1335