1.14774.0001

Microquant®

Nitrite Test

NO_2^-

1. Method

In acidic solution nitrite ions react with sulfanilic acid to form a diazonium salt, which in turn reacts with N-(1-naphthyl)ethylenediamine dihydrochloride to form a red-violet azo dye. The nitrite concentration is measured **semiquantitatively** by visual comparison of the colour of the measurement solution with the colour fields of a colour disk.

2. Measuring range and number of determinations

Measuring range / colour-scale graduation[1)]	Number of determinations
0.1 - 0.2 - 0.4 - 0.6 - 1.0 - 1.8 - 3.0 - 6.0 - **10** **mg/l NO_2^-**	400
0.03 - 0.06 - 0.12 - 0.18 - 0.30 - 0.55 - 0.9 - 1.8 - **3.0** **mg/l NO_2-N**	

[1)] for conversion factors see section 8

3. Applications

Sample material:
Groundwater, drinking water, and surface water
Seawater
Wastewater
Food after appropriate sample pretreatment
Soils after appropriate sample pretreatment

4. Influence of foreign substances

This was checked in solutions containing 1 and 0 mg/l NO_2^-. 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 or %							
Ca^{2+}	1000	Hg^{2+}	100	SiO_3^{2-}	1000	EDTA	1000
Cd^{2+}	1000	Mg^{2+}	1000	Zn^{2+}	1000	**Reducing agents (ascorbic acid, sulfite)**	**10**
CN^-	1000	Mn^{2+}	1000				
Cr^{3+}	100	NH_4^+	1000				
$Cr_2O_7^{2-}$	**1**	Pb^{2+}	1000				
Cu^{2+}	100	PO_4^{3-}	1000				
Fe^{3+}	**1**	**S^{2-}**	**10**				
						NaCl	20 %
						$NaNO_3$	20 %
						Na_2SO_4	15 %

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!

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

Package contents:
3 bottles of reagent NO_2-1
1 graduated 6-ml plastic syringe
2 test tubes with screw caps
1 colour-disk comparator

Other reagents and accessories:
Merckoquant® Nitrite Test, Cat. No. 110007,
measuring range 2 - 80 mg/l NO_2^- (0.6 - 24 mg/l NO_2-N)
Universal indicator strips pH 0 - 14, Cat. No. 109535
Acilit® indicator strips pH 0 - 6.0, Cat. No. 109531
Sulfuric acid 0.5 mol/l TitriPUR®, Cat. No. 109072
Sodium hydroxide solution 1 mol/l TitriPUR®, Cat. No. 109137
Nitrite standard solution CertiPUR®, 1000 mg/l NO_2^-, Cat. No. 119899

Flat-bottomed tubes for Microquant® tests (12 pcs), Cat. No. 117988

Refill pack:
Cat. No. 118463
Nitrite Test
Refill pack for Microquant® 114774, Aquaquant® 114424, and Aquaquant® 114408
(Reagent **without technical accessories** for the number of determinations stated in section 2)

6. Preparation

- Analyze immediately after sampling.
- Check the nitrite content with the Merckoquant® Nitrite Test. Samples containing more than 10 mg/l NO_2^- must be diluted with distilled water.
- **The pH must be within the range 2 - 10.** Adjust, if necessary, with sulfuric acid.
- Filter strongly turbid samples.

7. Procedure

	Measurement sample right-hand tube (**A**) behind the colour disk	**Blank** left-hand tube (**B**) behind the colour disk	
Pretreated sample (**15 - 25 °C**)	6 ml	6 ml	Inject into the test tube with the syringe.
Reagent NO_2-1	1 level blue microspoon (in the cap of the NO_2-1 bottle)	-	Add, close the tube, and shake **vigorously until the reagent is completely dissolved**. **The pH must be within the range 2.0 - 2.5.** Check with Acilit® indicator strips. Adjust the pH, if necessary, with sodium hydroxide solution or sulfuric acid.
Leave to stand for 3 min (reaction time).			
Hold the comparator to the light, keeping it upright, and rotate the disk until the closest possible colour match is achieved between the two large windows. Read off the result in mg/l NO_2^- shown in the small window or, if necessary, estimate an intermediate value.			

Notes on the measurement:

- The colour of the measurement solution remains stable for at least 60 min after the end of the reaction time stated above.
- Turbidity in the measurement solution makes the colour comparison more difficult.
- If the colour of the measurement solution is equal to or more intense than the darkest colour on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 10 mg/l NO_2^- 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 NO_2-**N**		**mg/l NO_2^-**		0.304
mg/l NO_2^-		mg/l NO_2-**N**		3.28

9. Method control

To check test reagent, measurement device, and handling:
Dilute the nitrite standard solution with distilled water to 1.0 mg/l NO_2^- and analyze as described in section 7.
Additional notes see under **www.merck-chemicals.com/qa**.

10. Notes

- Reclose the reagent bottle immediately after use.
- Rinse the test tubes and the syringe **with distilled water only**.

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