



Nitrate TT

M265

1 - 30 mg/L N

Chromotropic Acid

Instrument specific information

The test can be performed on the following devices. In addition, the required cuvette and the absorption range of the photometer are indicated.

Instrument Type	Cuvette	λ	Measuring Range
MD 600, MD 610, MD 640, MultiDirect	ø 16 mm	430 nm	1 - 30 mg/L N
SpectroDirect, XD 7000, XD 7500	ø 16 mm	410 nm	1 - 30 mg/L N

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Nitra X Reagent, Set	1 Set	535580
ValidCheck Nitrate 10 mg/l	1 pc.	48211325
ValidCheck Nitrate 50 mg/l	1 pc.	48211625
ValidCheck DW Anions Multistandard Cl/F/NO ₃ /PO ₄ /SO ₄	1 pc.	48399312

The following accessories are required.

Accessories	Packaging Unit	Part Number
Plastic funnel with handle (white)	1 pc.	471007
Pipette, 1000 µl	1 pc.	365045
Pipette tips, 0,1-1 ml (blue), 1000 pc.	1 pc.	419073

Application List

- Waste Water Treatment
- Drinking Water Treatment
- Raw Water Treatment



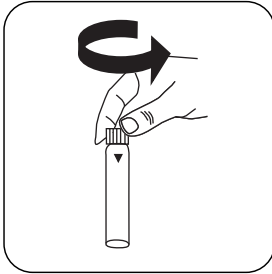
Notes

1. A small amount of solid material remains may be undissolved.

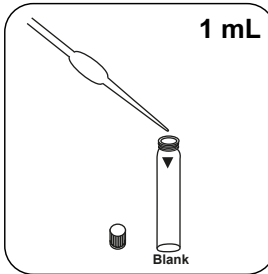


Determination of Nitrate with Vario Vial Test

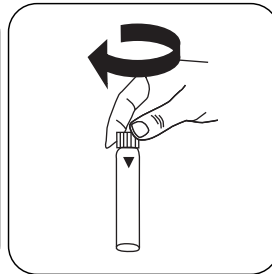
Select the method on the device.



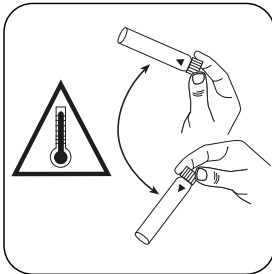
Open **digestion vial (Reagent A)**.



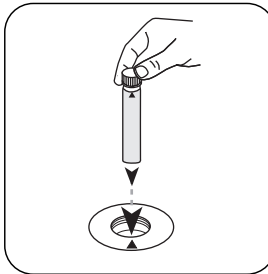
Put **1 mL sample** in the vial.



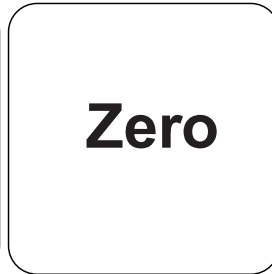
Close vial(s).



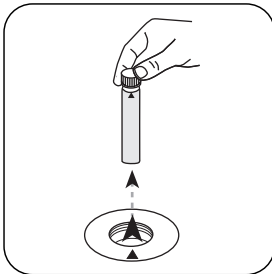
Carefully invert several times to mix the contents.
Note: Will get hot!



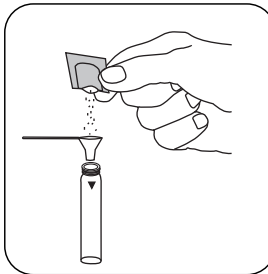
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



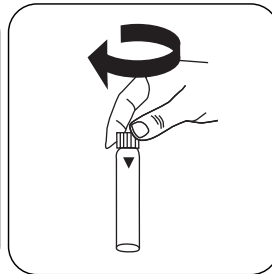
Press the **ZERO** button.



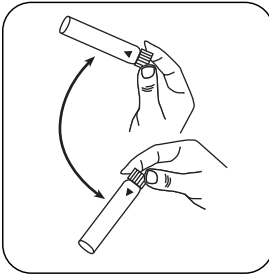
Remove **vial** from the sample chamber.



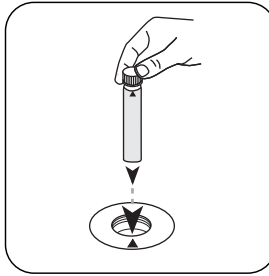
Add **Vario Nitrate Chromotropic powder pack**.



Close vial(s).



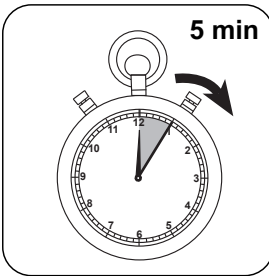
Invert several times to mix the contents (10 x).



Place **sample vial** in the sample chamber. • Pay attention to the positioning.

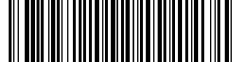


Press the **TEST** (XD: **START**) button.



Wait for **5 minute(s) reaction time**.

Once the reaction period is finished, the measurement takes place automatically. The result in mg/L Nitrate appears on the display.



Analyses

The following table identifies the output values can be converted into other citation forms.

Unit	Cite form	Scale Factor
mg/l	N	1
mg/l	NO ₃	4.43

Chemical Method

Chromotropic Acid

Appendix

Calibration function for 3rd-party photometers

$$\text{Conc.} = a + b \cdot \text{Abs} + c \cdot \text{Abs}^2 + d \cdot \text{Abs}^3 + e \cdot \text{Abs}^4 + f \cdot \text{Abs}^5$$

ø 16 mm

a	$-3.25164 \cdot 10^{-1}$
b	$2.03754 \cdot 10^{-1}$
c	$1.45821 \cdot 10^{-0}$
d	
e	
f	

Interferences

Interference	from / [mg/L]
Ba	1
Cl ⁻	1000
Cu	in all quantities
NO ₂ ⁻	12

Method Validation

Limit of Detection	0,34 mg/L
Limit of Quantification	1,02 mg/L
End of Measuring Range	30 mg/L
Sensitivity	21,3 mg/L /Abs
Confidence Intervall	0,50 mg/L
Standard Deviation	0,21 mg/L
Variation Coefficient	1,36 %

Bibliography

P. W. West, G. L. Lyles, A new method for the determination of nitrates, *Analytica Chimica Acta*, 23, 1960, p. 227-232