

Ammonia PP

M62

0.01 - 0.8 mg/L N

A

Salicylate

## 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	$\lambda$	Measuring Range
MD 100, MD 600, MD 610, MD 640, MultiDirect	ø 24 mm	660 nm	0.01 - 0.8 mg/L N
SpectroDirect, XD 7000, XD 7500	ø 24 mm	655 nm	0.01 - 0.8 mg/L N

## Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Ammonia Nitrogen, Set F10	1 Set	535500

## Application List

- Waste Water Treatment
- Raw Water Treatment

## Preparation

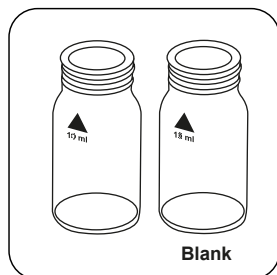
1. Extremely alkaline or acidic water samples should be adjusted with 0.5 mol/l (1N) Sulphuric acid or 1 mol/l (1 N) Sodium hydroxide to pH 7.



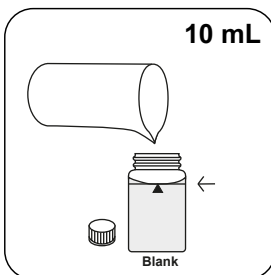


## Determination of Ammonium with Vario Powder Pack

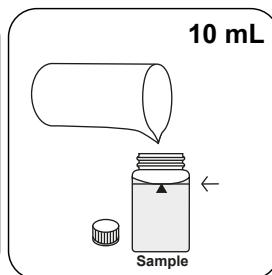
Select the method on the device.



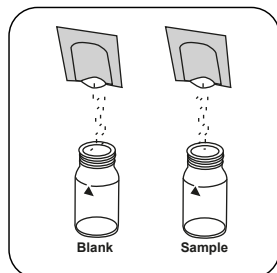
Prepare two clean 24 mm vials. Mark one as a blank.



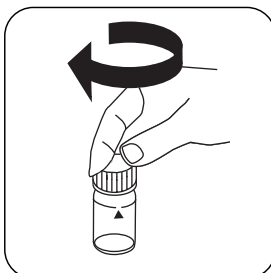
Put **10 mL deionised water** in the blank.



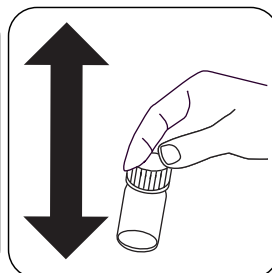
Put **10 mL sample** in the sample vial.



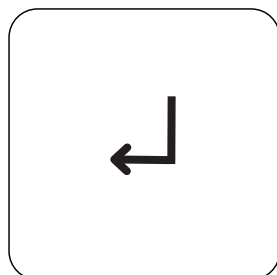
Add a **VARIO Ammonium Salicylate F10 powder pack** in each vial.



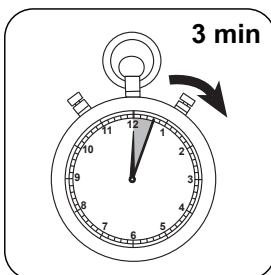
Close vial(s).



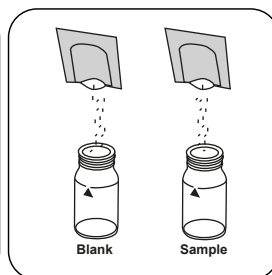
Dissolve the contents by shaking.



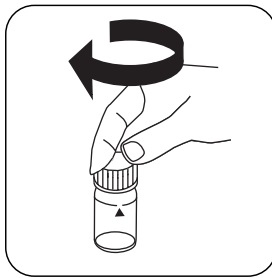
Press the **ENTER** button.



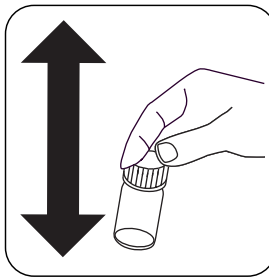
Wait for **3 minute(s) reaction time**.



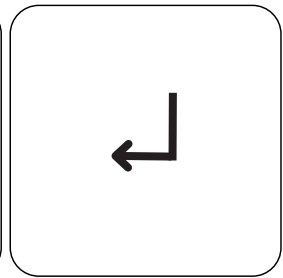
Add a **Vario Ammonium Cyanurate F10 powder pack** in each vial.



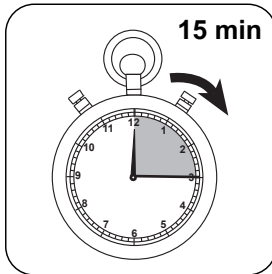
Close vial(s).



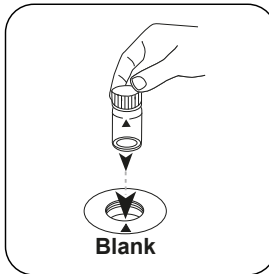
Dissolve the contents by shaking.



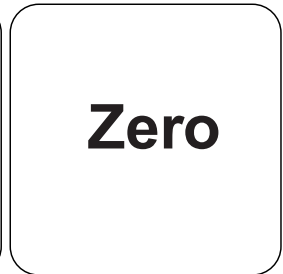
Press the **ENTER** button.



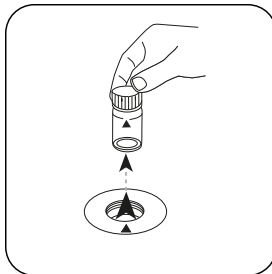
Wait for **15 minute(s) reaction time**.



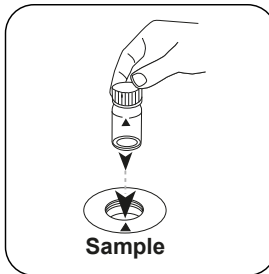
Place **blank** in the sample chamber. Pay attention to the positioning.



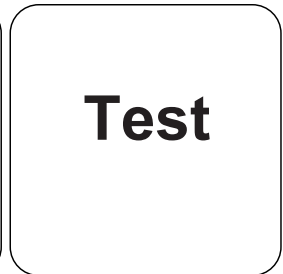
Press the **ZERO** button.



Remove the vial from the sample chamber.



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



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

The result in mg/L Ammonium 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	NH <sub>4</sub>	1.288
mg/l	NH <sub>3</sub>	1.22

## Chemical Method

Salicylate

## Appendix

### Calibration function for 3rd-party photometers

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

	∅ 24 mm	□ 10 mm
a	$-5.42114 \cdot 10^{-2}$	$-5.42114 \cdot 10^{-2}$
b	$4.15543 \cdot 10^{-1}$	$8.93417 \cdot 10^{-1}$
c		
d		
e		
f		

## Interferences

### Persistent Interferences

- Sulphide intensifies the colouration.

### Removeable Interferences

- Iron interferes with the test at all concentrations. Iron interference is eliminated as follows.
  - a) Determine the concentration of iron present in the sample by performing a total Iron test.
  - b) in the blank, use the same iron concentration as that determined instead of the deionised water.
- Less common interferences such as Hydrazine and Glycine will cause intensified colours in the prepared sample. Turbidity and colour will give erroneous high values. For samples where there are severe interferences, distillation will be necessary.

<b>Interference</b>	<b>from / [mg/L]</b>
Ca <sup>2+</sup>	1000 (CaCO <sub>3</sub> )
Mg <sup>2+</sup>	6000 (CaCO <sub>3</sub> )
NO <sub>3</sub> <sup>-</sup>	100
NO <sub>2</sub> <sup>-</sup>	12
PO <sub>4</sub> <sup>3-</sup>	100
SO <sub>4</sub> <sup>2-</sup>	300

## Method Validation

<b>Limit of Detection</b>	0.02 mg/L
<b>Limit of Quantification</b>	0.07 mg/L
<b>End of Measuring Range</b>	0.08 mg/L
<b>Sensitivity</b>	0.42 mg/L / Abs
<b>Confidence Intervall</b>	0.014 mg/L
<b>Standard Deviation</b>	0.006 mg/L
<b>Variation Coefficient</b>	1.45 %

### Derived from

DIN 38406-E5-1

ISO 7150-1