NH 500/2

Gas-sensitive combination electrode with S7 plug-in connector for ammonia / ammonium measurement

Order No. **106 395**

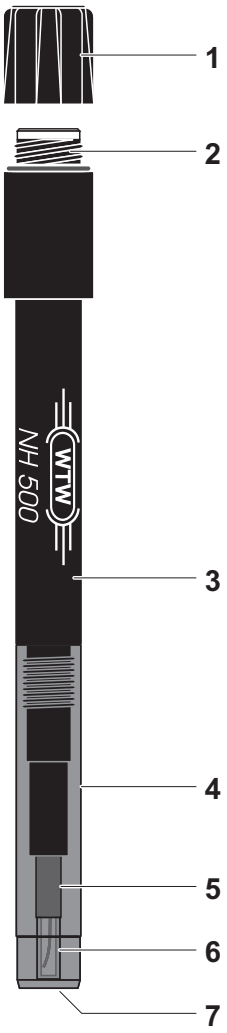
Accuracy when going to press

The use of advanced technology and the high quality standard of our instruments are the result of continuous development. This may result in differences between this operating manual and your instrument. Also, we cannot guarantee that there are absolutely no errors in this manual. Therefore, we are sure you will understand that we cannot accept any legal claims resulting from the data, figures or descriptions.

NH 500/2 - Contents

1 Overview

Structure



1 Protective cap for plug-in connector

2 Plug-in connector

3 Shaft

4 Membrane cap (or storing cap on delivery)

5 Ag/AgCl reference electrode

6 pH glass electrode

7 Gas-permeable membrane

2 Safety

Authorized use

The authorized use of the NH 500/2 consists of its use as an ammonia or ammonium electrode in the laboratory and field.

3 Commissioning

Scope of delivery

- 1 electrode, provided with protective cap and storing cap
- 3 membrane caps
- 1 bottle NH_3 electrolyte solution (50 ml)
- Operating manual

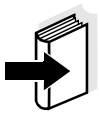
Getting the sensor ready for measuring

On delivery, the electrode is equipped with the storing cap (without the white, gas-permeable membrane).

- Remove the storing cap.
- Rinse the electrode with deionized water.
- Fill approx. 1 ml NH_3 electrolyte solution into a membrane cap.
- Remove air bubbles in the electrolyte by knocking.
- Screw the membrane cap on the electrode.
- Connect the electrode to the meter using the connection cable.
- Keep the storing cap. It serves as a protective cap if the electrode is stored for a longer period of time.

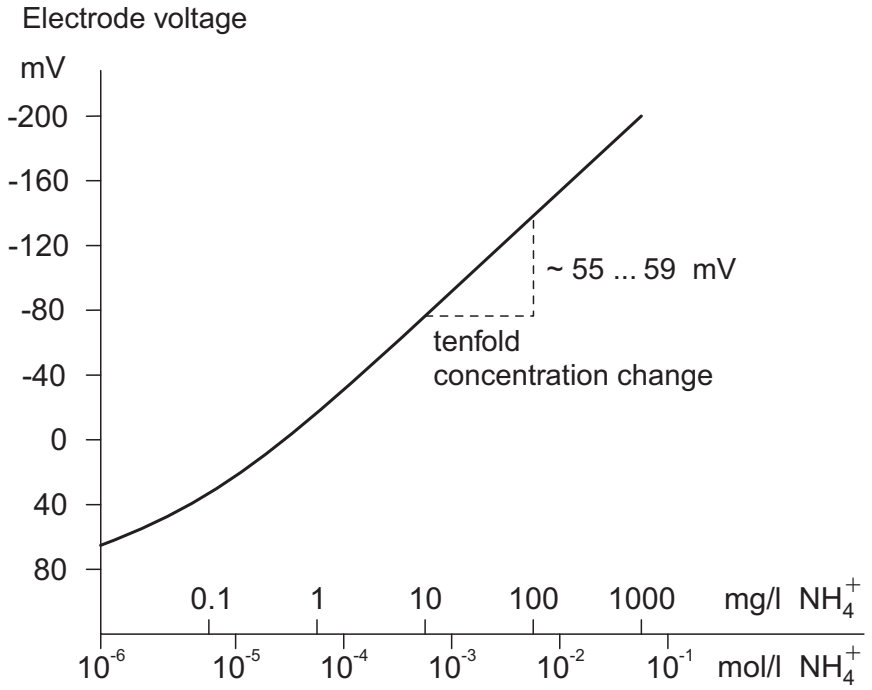
4 Measuring / operation

4.1 Calibration



Note
For calibration, please refer to the operating manual of the measuring instrument.

Typical calibration line of an ammonia electrode



4.2 Sample preparation

Add 1 % alkaline reagent (MZ/NH_3/CN) to the aqueous sample. It is essential to observe the WTW application reports and analysis specifications respectively.

4.3 Response time

The response time depends very much on the concentration of the measured ion, the condition of the electrode and the direction of the concentration change.

For a 10-fold concentration change from 50 to 5 mg/l NH_4-N, the response time t_{99} is < 8 min.

4.4 Interferences

- Volatile bases, e.g. amines.
- Coatings on the membrane (e.g. metal hydroxides)

4.5 Storage

Storage duration	Way of storing
Up to approx. two days	Put in NH_3 electrolyte solution with the membrane cap screwed on
For more than two days	Store the electrode as follows: ● Unscrew the membrane cap ● Rinse the electrode ● Fill some drops of tapwater in the storing cap and screw it on. Thus the glass membrane will remain conditioned.

4.6 Aging

The glass part of the electrode that is visible when exchanging the membrane cap is a special pH electrode. Please note that it undergoes a natural aging process. If the required slope cannot be achieved despite having changed the membrane cap, the pH electrode is exhausted.

The pH electrode is unsuitable for conventional pH measurement. This case as well as using unsuitable electrolytes and mechanical damage invalidates any warranty claim.

5 Cleaning and maintenance

5.7 Cleaning

Contamination	Cleaning procedures
Water-soluble contamination	Immerse in deionized water for 10 minutes
Metal hydroxides	Immerse in 10% citric acid

After cleaning, thoroughly rinse with deionized water and recalibrate if necessary.

5.8 Exchanging the membrane cap

The membrane cap is a wear part and has to be replaced from time to time, depending on demand and requirements. A reduced slope, an extended response time or a restricted measuring range indicate that a replacement is necessary. The exchange is carried out according to the chapter, COMMISSIONING.

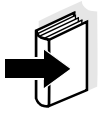
6 Wear parts and accessories

Wear parts and maintenance means

Description	Model	Order no.
Accessory set, comprising: – 3 membrane caps – 50 ml NH_3 electrolyte solution	ZBK/NH3/2	180 100

Accessories

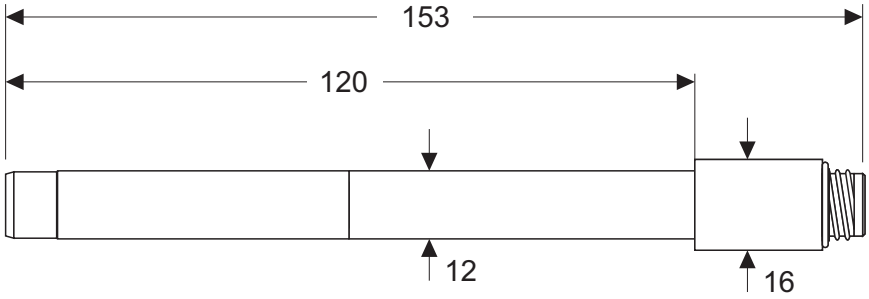
Description	Model	Order no.
Connection cable for electrodes with plug-in connector	AS 7	103 614
Alkaline reagent, 10 mol/l NaOH, bottle with 250 ml	MZ/NH_3/CN	150 130
Standard solution, 10 g/l ammonium (NH_4Cl) , bottle with 1 l	ES/NH_4	120 240



Note
For further accessories, refer to the WTW catalog or the Internet.

7 Technical data

Dimensions (in mm)



Materials

Shaft, storing cap	POM
Plug-in connector	PPS
Membrane cap	POM
Membrane	PP
Materials with sample contact	POM copolymer, NBR (O ring), PP

Measurement conditions

Measuring ranges at 20 °C	10^{-6} ... 5 · 10^{-2} mol/l NH_4^+ 0.02 ... 900 mg/l NH_4^+
Temperature range	0 ... 50 °C
Depth of immersion	min. 5 mm max. 50 mm
Operating position	vertical, inclined to max. 45 °
Max. allowed overpressure	< 5·10^4 Pa (0.5 bar)

Characteristic data on delivery

Reproducibility	± 2 %