# Ion-Selective Electrode (ISE) Ammonium

DOC 461 7410-E-1.0-DS

Matrix membrane electrode with fluid contact

## Article-No. 461 7410

## Properties

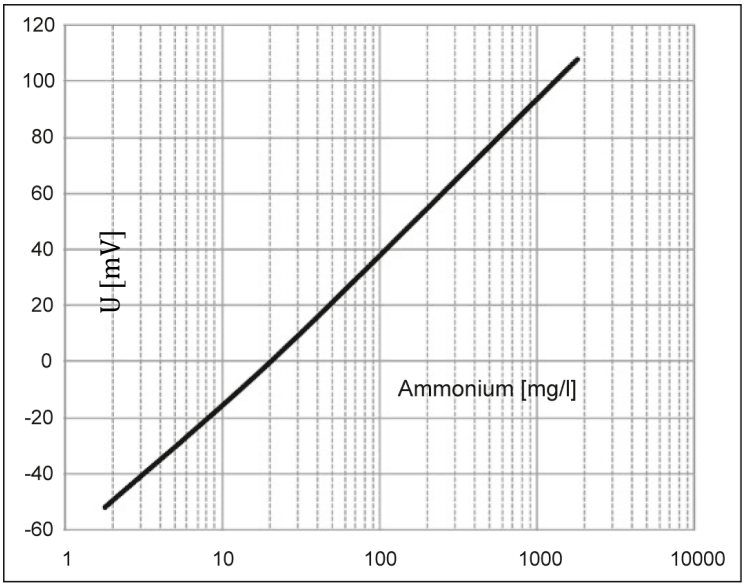
- Plastic shaft
- Slope 57 ± 2 mV/p $NH_4^+$
- Flexible ammonium selective membrane
- Organic ion exchanger in a special solvent, homogeneously distributed in PVC

## Applications

- Water management
- Fertilizer detection

| Technical Data | |
|---|---|
| Measuring principle | Ion-Selective Electrode (ISE) |
| Measuring range | $10^{-5}$ – 1 mol/l 0.2 – 18 000 mg/l |
| Response time | < 30 s (in 180 mg/l $NH_4^+$ solution) |
| Stability | ± 0.3 mV (20 min); ± 1 mV (24 h) |
| Temperature range | 0 °C to 40 °C |
| Pressure range | max. 1 bar |
| pH range | 3 pH – 7 pH |
| Interfering ions (See also Selectivity Coefficients) | $Ca^{2+}/NH_4^+$ = 10 000<br>$Mg^{2+}/NH_4^+$ = 10 000<br>$Na^+/NH_4^+$ = 1000<br>$H^+/NH_4^+$ = 100<br>$K^+/NH_4^+$ = 10<br><br>ion/$NH_4^+$ relation between interfering and measure ions at 10 % error |
| Slope | 57 ± 2 mV/p $NH_4^+$ |
| Internal resistance | approx. 1 MΩ |
| Cable connection | S7 lab connector |
| Shaft material | plastic |
| Dimensions | Length: 145mm Diameter: 12mm Immersion depth: 120mm |

## Typical Slope




## Selectivity Coefficients

Nicolsky equation: $E = const + S.\log(a_i + \Sigma_j K_{i,j} a_j^{n_i/n_j})$ $a_i = \gamma_i.c_i$

| Ion (i) | Interfering Ion (j) | log $K_{i,j}$ |
|---|---|---|
| $NH4^+$ | $Ca^{2+}$ | -5.0 |
| | $Mg^{2+}$ | -5.0 |
| | $Na^+$ | -4.0 |
| | $H^+$ | -3.0 |
| | $K^+$ | -2.0 |

## Calibration and Measurement

It is recommended to calibrate the electrode with defined solutions. Whether a single-point calibration or a multi-point calibration is required, depends on the type of measurement.

## Storage of the Electrode

Store the electrode in a dry environment.