
Storage

Store the assembled probe with the end dipped into a 0.1M ammonium chloride solution to keep the osmotic pressure of the solutions on either side of the membrane equal. After storage, rinse the probe well in distilled or deionised water. Satisfactory results will not be obtained if the probe is stored in distilled or deionised water.

Do not allow the end of the probe to dry out. If this occurs, the performance of the probe may sometimes be restored by loosening and tightening the electrode retaining nut to allow more filling solution to flow between the glass electrode and the membrane. If this procedure is not successful, replace the membrane and filling solution.

Returning the probe to its box

- 1 Dismantle the probe by unscrewing the glass electrode.
- 2 Empty the probe, then rinse and drain it.

Notes.

- Do not store the glass electrode with its end in a teat containing a neutral buffer solution.
- Do not cover the reference element.

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ABB MEASUREMENT & ANALYTICS

Ammonia probe kit (8002 620)

Ammonia electrode kit



Introduction

The Ammonia Probe is a high-sensitivity gas sensing probe developed by ABB. It measures the partial pressure, and hence concentration of ammonia in aqueous solution.

- Measurement range: 0.050 mg l^{-1} to 1000 mg l^{-1} NH $_3$
- Temperature range: 5 to 50 °C (32 to 122 °F)

Internal filling solution

The internal filling solution incorporates a colored indicator which is normally yellow. The indicator changes to blue if the probe membrane, or membrane seal, allows alkaline reagent to leak into the probe. If this occurs, replace the membrane and filling solution. Tighten the end cap sufficiently to provide a good seal. The solution keeps indefinitely.

Probe preparation

Referring to Figure 1:

- 1 Unscrew end cap (A) from probe body (B). Rinse the probe body with distilled or de-ionized water and allow to drain.
- 2 Remove the teat from glass pH electrode (C). Rinse the electrode with distilled or de-ionized water and dry with a paper tissue.
- 3 Screw electrode (C) into probe body (B) until the top of the electrode is flush with the top of the probe body.

- 4 Note the number on electrode cap (D) that is aligned with the mark on the body. Unscrew the electrode 4 full turns using the number and mark as reference.
- 5 Insert membrane (E) into end cap (A) and place membrane sealing washer (F) centrally on it.
- 6 Screw end cap (A) firmly onto body (B); both body seal (G) and membrane sealing washer (F) must be under compression but do not screw the end cap on so tightly that membrane (E) distorts.
- 7 Hold the probe upright and inject the filling solution provided through filling hole (H). Fill the probe to a depth of between 50 and 60 mm (1.96 and 2.36 in.), ensuring that reference element (J) is immersed in the solution. Wipe any excess filling solution from the body.
- 8 Tap the end of the probe with the finger to dislodge any air bubbles trapped between the end of the electrode and the membrane.
- 9 Screw electrode (C) down 4 turns until the number on electrode cap (D) noted at step 4 is again aligned with the mark on the body (the top of the electrode should be flush with the top of the probe body).
- 10 Screw electrode (C) down a further 1.0 (± 0.1) turns. Check that the tip of the electrode is pressing against the membrane. If the electrode response is sluggish, screw the electrode down by a further 0.2 to 0.3 turns. **Do not overtighten** – this will puncture the membrane.
- 11 Push probe cap (K) onto the top of probe body (B) ensuring it covers filling hole (H).

Note. A newly-assembled ammonia probe must be fitted to the analyzer and exposed to sample for 2 to 4 hours before a calibration is attempted.

Note. For measurements of very strong ammonia solutions, the molarity of the ammonium chloride in the filling solution (normally 0.1M Ammonium Chloride) should ideally be adjusted until it is 2 – 3 times greater than the molarity of the strongest ammonia solution to be measured. If the probe is to be used continually near its upper limit (>200 ppm), it may be preferable to add 0.2 g ammonium chloride to the 50 ml filling solution bottle, to prolong the interval required between filling solution replenishment.

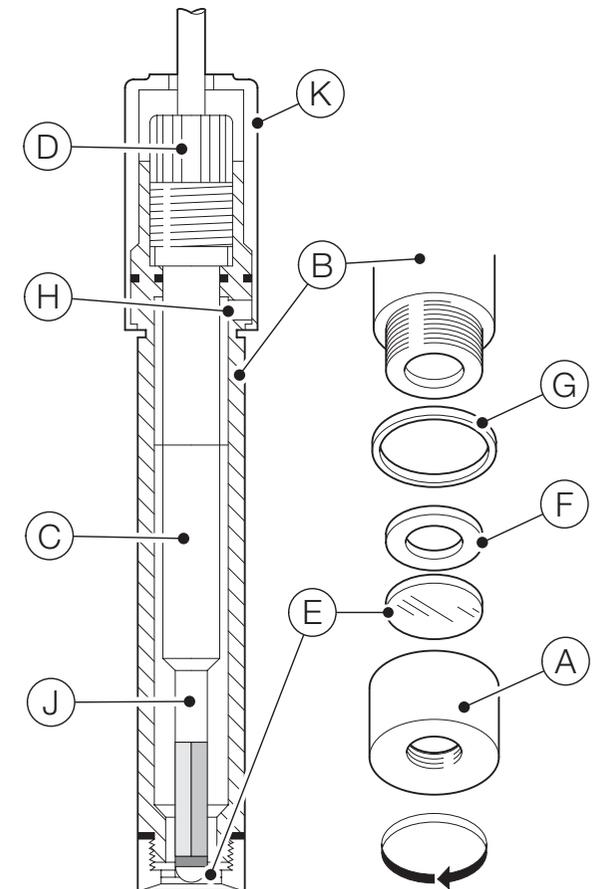


Figure 1 Ammonia probe assembly