

Application Note

ISE - Troubleshooting

1. Remove the storage cap if present.
2. Check that the electrode is full of internal filling solution (2 mL of filling solution for the Ammonia ISE). If not fill them up with the appropriate filling solution (see Table 2).
3. Connect the electrode to the meter.
4. Go to mV mode. Make sure the reading is in absolute mV mode and not relative mV mode (rel mV).
5. Press standardize and number 4 for options menu. Press number 1 for resolution and 1 for "1." resolution.
6. Make blank solution.
 - a. Using a graduated cylinder, measure 100 mL DI water.
 - b. Pour solution into a 250 mL beaker.
 - c. Using a volumetric pipette add 1 mL of the ISA (see Table 2).
7. Place solution on stir plate. Provide moderate stirring.
8. Place probe in solution, being aware of the stir bar.
9. Wait for a stable reading (less than ± 2 mV in 5 seconds). Record "blank" result.
NOTE: If stable reading does not occur within approximately five minutes, condition the electrode.
10. Using a volumetric pipette, add 1 mL of standard solution to beaker (see Table 2).
11. Wait for a stable reading (less than ± 2 mV in 5 seconds). Record "1 mL" result.
12. Using a volumetric pipette, add 10 mL of standard solution to beaker.
13. Wait for a stable reading (less than ± 2 mV in 5 seconds). Record "10 mL" result.
14. Check that the change in mV from 1 mL to 10 mL matches the slope Table 1.
NOTE: If the slope is out of range, condition the electrode.

Solution	mV reading
Blank	_____
1 mL	_____
10 mL	_____

Conditioning Ion Selective Electrode

1. Remove the storage cap if included.
2. Place the electrode in the concentrated standard from the Table 2 for at least 12 hours.
3. Re-check the electrode. If results are the same, call technical support.

Table 1: ISE Membrane and Slope

Part #	Description	Slope (mV)
300739.1	Fluoride ISE	-57 +/- 2
300740.1	Ammonia ISE	57 +/- 3
300741.1	Sodium ISE	57 +/- 2
300742.1	Chloride ISE	-57 +/- 2
300743.1	Nitrate ISE	-57 +/- 2
300744.1	Potassium ISE	56 +/- 2
300745.1	Calcium ISE	27 +/- 2
300762.1	Silver ISE	57 +/- 2

Table 2: ISE filling solution, ISA, and standard solutions

Description	Filling Solution	ISA	Standard Solutions
Ammonia	0.1M NH ₄ Cl	10 M NaOH	0.1 M NH ₄ Cl
Calcium	0.1 M KCl	1 M KCl	0.1 M CaCl ₂
Chloride	10% K NO ₃	5 M NaNO ₃	0.1 M NaCl
Fluoride	10% K NO ₃	TSAB w/CDTA	0.1 M NaF
Nitrate	0.04M (NH ₄) ₂ SO ₄	2 M (NH ₄) ₂ SO ₄	0.1 M NaNO ₃
Potassium	0.1 M NaCl	1 M NaCl	0.1 M KCl
Silver	10% KNO ₃	5 M NaNO ₃	0.05 AgNO ₃
Sodium	10% K NO ₃	1 M NH ₄ OH	0.1 M NaCl