

Application Note

ISE - Troubleshooting

Make Standards

- 1000 ppm Standard- Pour 100 mL of purchased 1000 ppm standard into a graduated cylinder.
- 100 ppm Standard - Starting with a purchased 1000 ppm standard, volumetrically pipette 10 mL of 1000 ppm standard into a 100 mL class A volumetric flask. Add deionized water to the mark on the flask. Mix by inversion.
- 10 ppm Standard - Volumetrically pipette 10 mL of the 100 ppm standard (made in previous step) into a 100 mL class A volumetric flask. Add deionized water to the mark on the flask. Mix by inversion.
- Pour all standards/samples into clean, clearly marked beakers. Add 2 mL of ISA to each beaker and confirm that pH is in acceptable range per electrode instructions (not required each time).

Testing Electrode

1. Put the meter in mV mode.
2. Place 1000-ppm standard on stir plate with stir bar and stir. When reading is stable record result: _____
3. Rinse probe with DI water
4. Place 100 ppm standard on stir plate with stir bar and stir. When reading is stable record result: _____
5. Rinse probe with DI water
6. Place 10 ppm standard on stir plate with stir bar and stir. When reading is stable record result: _____

The change in mV from the 1000 to 100 should be around 56 mV (acceptable is 12 to 68 mV) for a monovalent ion and 27 mV for a divalent ion.

The change in mV from the 100 to 10 should be around 40 mV (acceptable is 12 to 68 mV) for a monovalent ion and 20 mV for a divalent ion.

Note: As an exercise you can record the time it takes the electrode to reach a steady signal between solutions. This is the electrode response time. When testing samples (or standardizing) you should allow at least this amount of time to pass before taking a reading (or pressing the standardize key, when standardizing).