Frequently Asked Questions (Ion-selective electrodes)

How often do you need to calibrate?

Calibrate at least once a week, preferred is **daily**. Calibrate if in doubt of your results being accurate or reproducible. Check the manual for more information on each ISE about the expected stability. When subject to temperature changes, mind that a difference of 1°C causes a measurement error of 2%.

How long after being opened or made are standards good?

The stock standard will last at least six months before discarding, whereas diluted standards treated with ISA/pH buffer should be prepared weekly.

How do you store the electrodes?

It is best to store them dry when they are not to be used in the next week or so. Empty out the filling solution in the gas-sensing electrode. For shorter periods, store in dilute standard approximating the sample concentration, and ISA/pH buffer added when required.

Can you do temperature compensation with ISE?

Yes, it is possible, but somewhat difficult.

1. You have to know the isopotential point for a given electrode system.
2. The concentration of the sample has to be similar in concentration to the isopotential point or else the temperature correction will be very inaccurate.
3. The temperature of the sample can not exceed the operational temperature range of the ISE.
4. Very little isopotential point data for ISE's is available at this time.

It is best to standardize and measure samples at the same temperature without using temperature compensation.

Can you do in-line continuous ISE measurement without treating the sample?

Yes, direct measurement is possible in many cases without ISA/buffer addition to the sample stream. However, Fluoride, Sulfide, Ammonia, and Sodium Electrodes do require pH adjustment and must have ISA/ buffer added to the sample stream.

Which standards should be used with the ISE?

The most obvious choice will be determined by what concentration units are desired (e.g. ppm as what?). Also, if an electrode is being used to measure another ion (e.g. sulfate with a lead electrode),

use a stock standard of the ion to be measured (e.g. sulfate).

Why buy a combination electrode instead of separate ones?

Advantages:

- no external reference electrode needed
- more economical than price of both
- one less electrode to fit in the process.