

Online Calcium Ion(Ca²⁺) Electrode

Model:PF-2085 User Manual



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1.Introduction

The BOQU online Calcium ion(Ca²⁺) Electrode is a high quality PVC membrane ion-selective electrode which measures calcium ions in aqueous solutions simply, quickly, accurately and economically.Carefully follow the directions on this instruction sheet to obtain the best performance and electrode life.

2.Required Instrument

1. Ion test instrument or pH/mV meter.
2. Magnetic stirrer.



3.Prepare Standard Solution

1. Calcium ion standard solution 1000ppm;
2. Regulator ISA.
3. 10ppm standard solution: take 1ml 1000ppm calcium ion standard solution and 1ml ISA into a 100ml volumetric flask, add pure water to dilute to the mark.
4. 100ppm standard solution: Take 10ml 1000ppm calcium ion standard solution and 1ml ISA into a 100ml volumetric flask, add pure water and dilute to the mark.

4.Prepare Calcium Ion Electrode

1. Remove the electrode protective cap.
 - A. Shake the electrode down (same as a thermometer) to remove internal air bubbles.
 - B. Clean the electrode with pure water and absorb the water with a paper towel.

Note:

- 1) Do not touch sensitive parts with your fingers.
- 2) When dry sensor, please use clean paper towel to absorb it, not Wipe the membrane.
- 3) Before use, immerse the calcium ion electrode in a diluted calcium ion solution for 24 hours to activate. (For example: 10ppm calcium ion solution or tap water is also acceptable)

5.Sensor Calibration

1. Connect the calcium electrode and the ion meter.
2. Set the meter to mV mode or calibration mode.

3. Rinse the calcium ion electrode with pure water, absorb the water with a paper towel, and put the electrode into a 10ppm standard solution, turn on the magnetic stirrer and stir evenly at a constant speed, and wait for about 8 minutes for the data to stabilize (so-called stability: potential fluctuation $\leq 0.5\text{mV}/\text{min}$), record the value (E1)
4. Rinse the electrode with pure water, absorb the water with a paper towel, and put the electrode into the 100ppm standard solution, turn on the magnetic stirrer and stir evenly at a constant speed, and wait for about 8 minutes for the data to stabilize (so-called stability: potential fluctuation $\leq 0.5\text{mV}/\text{min}$), record the value (E2)
5. The difference between the two values (E2-E1) is the slope of the electrode, which is about 22~29mV (25°C).

6. Troubleshooting

If the slope of calcium ion electrode is not within the range described above, perform the following operations:

1. Prepare a newly prepared standard solution.
2. Clean the electrode
3. Repeat the "electrode operation calibration" again.

If the electrode is still unqualified after performing the above operations, please contact After-service Department of BOQU Instrument.

7. Analysis Steps

The calibrated ion instrument can directly measure the water sample.

Note: The same amount of ISA needs to be added to the sample to be tested to ensure that the sample and the standard solution have the same ionic strength;

Because it is not convenient to add ISA on online measurement, the user can adjust the amount of ISA in the standard solution (maximum 2ml/100ml) to ensure that the ionic strength in the water sample is similar to that in the standard solution, thereby reducing errors.

8. Temperature Effect

When calibrating, it is necessary to ensure that the temperature of the standard buffer is equivalent to the temp of the water sample. In theory, a change of $\pm 1^\circ\text{C}$ will cause a concentration error of $\pm 2\%$.

9.Storage of Electrodes

1. When the calcium ion electrode is not used for a long time, absorb the water with a paper towel after cleaning it and store it under normal temperature, pressure and humidity;
2. The electrode is used intermittently, then just keep the electrode in dry.

10.Technical Specification

Model	PF-2085 Online Calcium Ion Sensor
Calcium ion(NH ₄ ⁺)	1 M ~5×10 ⁻⁷ M(0.02ppm ~ 40,000 ppm)
Interference ion	Pb ²⁺ ,Hg ²⁺ ,Si ²⁺ ,Fe ²⁺ ,Cu ²⁺ ,Ni ²⁺ ,NH ₃ ,Na ⁺ ,Li ⁺ ,Tris ⁺ ,K ⁺ ,Ba ⁺ ,Zn ²⁺ ,Mg ²⁺
Temperature	0~50C
pH range	4~10pH
Repeatability	±2%
Pressure	≤1bar
Electrode Resistance	1~4 MΩ
Connection	3/4NPT
Sensor cable	Standard 5 meter(extended according to need)

Note: Recommend PFG-3085 Online Ion Meter work with it.