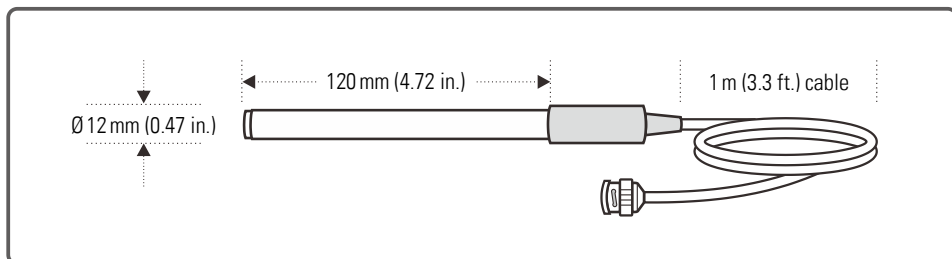
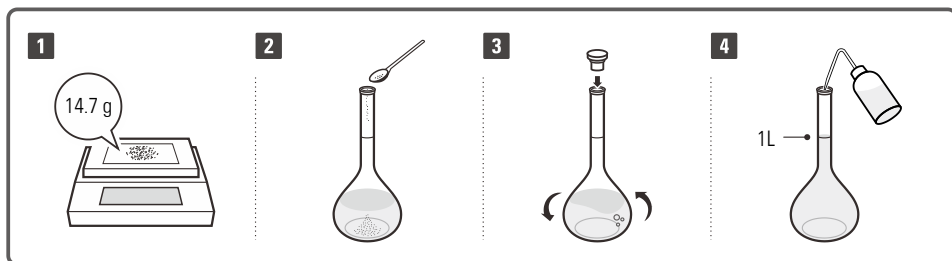


This electrode is designed for the detection and analysis of the water hardness in aqueous solution and is suitable for laboratory applications.



Required Equipment and Solutions

- A water hardness meter or ion meter
- Volumetric flasks and beakers
- Distilled or deionized water:
To prepare the standard solutions or rinse the electrode between measurements.
- Ionic strength adjuster (order code: ISA-WH):
To keep a constant background ionic strength and adjust the pH.
- Calcium standard solution 100 mmol/L:
To prepare this standard solution, half fill a 1 liter volumetric flask with distilled water and add 14.7 grams of analytical grade calcium chloride ($\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$) reagent. Swirl the volumetric flask gently to dissolve the reagent and fill to the mark with distilled water. Cap and upend the volumetric flask several times to mix the solution.



- Calcium Standard Solution 1000 ppm:
To prepare this standard solution, half fill a 1 liter volumetric flask with distilled water and add 3.67 grams of analytical grade calcium chloride ($\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$) reagent. Swirl the volumetric flask gently to dissolve the reagent and fill to the mark with distilled water. Cap and upend the volumetric flask several times to mix the solution.

Prior to Use

1. Remove the protective cap from the bottom of the electrode.
2. Soak the electrode in 10 mmol/L or 100 ppm standard solution for about 10 minutes.

Measurement and Calibration Hints

- Do not use this electrode to measure the strongly acidic or alkaline samples, strong detergents and organic solvents, these solutions will cause permanent damage to the electrode.
 - For better accuracy, we recommend to add the ionic strength adjuster (ISA) to all of the standards and samples. A typical addition would be 2 ml ISA to 100 ml of standard and sample solutions.
 - During the calibration and measurement, ensure that all standard and sample solutions are the same temperature.
 - The calibration should from the lowest concentration standard to avoid cross contamination.
 - The sample solution must fall in the pH range of 2 to 11. If necessary, add the ionic strength adjuster.
 - Stir the standard and sample solutions at a uniform rate that will promoting the accurate of measurement.
1. Calibrate the meter according to the manufacturer's instructions.
 2. Rinse the electrode with distilled water and blot dry.
 3. Place the electrode into the sample and record the stable reading.

Electrode Maintenance

- Rinse the electrode thoroughly with distilled water after use, wipe clean with a lint-free tissue, then replace protective cap and store the electrode in a dry, cool and well-ventilated area.
- Never touch or scratch the ion sensitive membrane on the bottom of the electrode.
- If the electrode response becomes sluggish, soak the electrode in 10 mmol/L or 100 ppm standard solution for at least 1 hour.

Specifications

Model	ISE-WH
Concentration Range	0.05 to 200 mmol/L
pH Range	2 to 11
Interferences	Ba ²⁺ , Cd ²⁺ , Cu ²⁺
Operating Temperature	5 to 50°C (41 to 122°F)
Electrode Dimensions	150 (L) × 12 (Ø) mm (5.9 × 0.47 in.)
Cable Length	1 m (3.3 ft.)
Connector	BNC
Body Type	Epoxy

Optional Accessories

Order Code	Description
ION-WH	Calcium standard solution 100 mmol/L, 480 ml
ISA-WH	Ionic strength adjuster, 480 ml