pH Electrode 35419-52
Instruction Manual

This manual describes the operation of the pH electrode, 35419-52. Be sure to read this manual carefully, before using the electrode.

Conformable standards

This equipment conforms to the following standards:

RoHS: EN IEC 63000
9. Monitoring and control instruments including industrial monitoring and control instruments

RoHS: BS EN IEC 63000
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Caution on use

- **Safety Precautions**

⚠ CAUTION	
❗	Chemical solution The internal solution in the electrode uses potassium chloride (3.33 mol/L-KCl). If the internal material comes in contact with the hands or skin, wash immediately with water. If the internal solution comes in contact with the eyes, flush with a large amount of running water, then seek medical advice.
⃠	Glass fragments Glass fragments can cause injury. The outer tube and tip of the electrode are made from glass. Be careful not to break them.

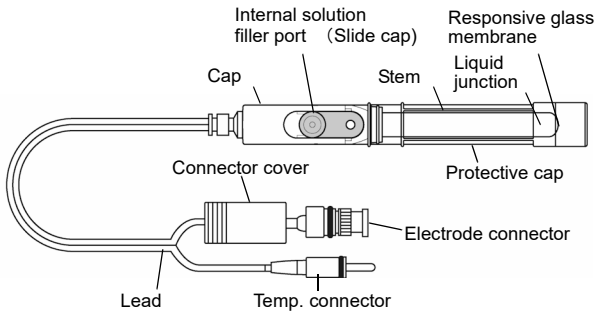
- **Points of concern**
  - Do not shock the electrode.
  - Do not measure chapped or cracked electrode. Replace such electrode with a new one.
  - Do not allow the connector to come in contact with water or unclean hands. If not, accurate measurement cannot be performed.
  - Always use the 3.33 mol/L-KCl solution internal solution for reference electrode.
  - If the responsive glass membrane or liquid junction is very dirty and cannot be washed clean using pure water (or deionized water), clean it depending on dirt condition. (Refer to " Maintenance " (page 3).)
  - Do not use this electrode at acidic or alkaline concentrations above 0.1 mol/L. Using the electrode under these conditions may harm performance and shorten the life of the electrode.
  - Do not measure the solutions which contain hydrofluoric acid, which may corrode the glass.
  - Do not suddenly immerse the electrode in samples where the temperature variation is 50°C or more.
  - Silver chloride can be detected inside the responsive glass membrane. However, it will not cause any performance problem.
  - Do not use the electrode in any place where usable temperature is out of the specified range.
  - White crystal can adhere to the internal solution filler port or protective cap after storage of the electrode. However, it will not cause any performance problem.

Packaged contents

Name	Q'ty
Electrode 35419-52	1 pc
Instruction manual (this book)	1 booklet

Specifications and parts description

- **Part name**



Environmental Express, Inc.
2345A Charleston Regional Pkwy Charleston, SC 29492
E-mail: info@envexp.com
Phone number: 800-343-5319

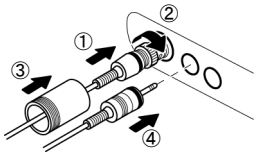
For any questions regarding this product, please contact your local agency, or inquire from the following website.
https://www.EnvExp.com

- **Specifications**

Electrode model	35419-52
Measurement range	pH 0 to 14
Usable temperature range	0°C to 100°C
Storage temperature range	0°C to 50°C
Internal electrode	Silver/silver chloride
Reference electrode internal solution	3.33 mol/L-KCl solution
Liquid junction material	Porous ceramic
Wetted material	Glass, ceramic
Electrode length	151 mm
Ext. diam. of wetted part	12 mm
Wetted part height	Approximately 13 mm (from the tip of electrode)
Lead length	1 m

Connecting to pH meter

1. Insert the electrode connector into the connector port sleeve on the meter, after aligning with the pin. Do not insert the connector unless it is aligned properly with the connector port.
2. Press the electrode connector into the connector port on the meter, while turning the connector to the right.
3. Slide the connector cover over the connector. Then, push the cover in straight until it comes in light contact with the meter case. Do not turn the cover.
4. Insert the temperature connector into the jack on the meter. Insert the connector firmly, until the O-ring on the connector can no longer be seen.



Note

Be sure to install the temperature connector. If not, accurate measurement cannot be performed.

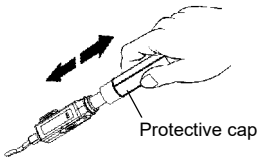
Preparation

Note

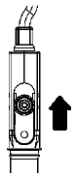
White crystal (KCl) can adhere to the internal solution filler port or protective cap. However, it will not cause any performance problem.
Wash away the white crystal with pure water (or deionized water).

- **For the first use or use after a long interval**

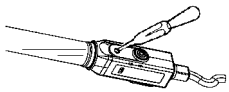
1. Remove the protective cap.



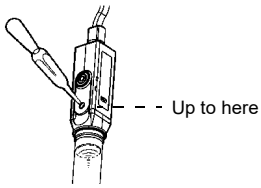
2. Open the internal solution filler port.



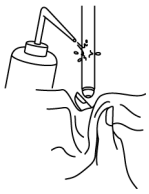
3. Remove the existing electrode internal solution with a dropper.



4. Fill the electrode with new internal solution until the solution level gets close to the internal solution filler port.

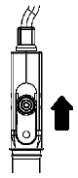


5. Wash the electrode tip well with pure water (or deionized water), then wipe it with filter paper.

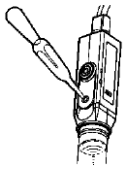


Measurement (calibration)

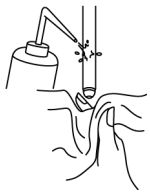
1. Open the internal solution filler port.



2. If the amount of internal solution has decreased, fill up the internal solution.

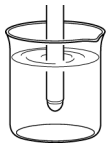


3. Wash the electrode with pure water (or deionized water) and wipe it with filter paper or tissue paper, prior to every immersion into standard/sample solution.



4. When there are air bubbles inside the responsive glass membrane, stir it lightly to remove bubbles.

5. Immerse the responsive glass membrane and liquid junction in the sample completely.
   Make sure that the surface of the internal solution inside the electrode is higher than the surface of the sample solution.



6. Stir the electrode lightly to remove bubbles.

Note

- **Be sure to keep the internal solution filler port open during measurement. If it is clogged with the solution, accurate measurement cannot be performed. Wipe the solution with cloth.**
- **For calibration/measurement on pH meter, refer to the instruction manual of pH meter.**

Maintenance

Note

Do not use organic solvents (such as acetone or tetrahydrofuran) or acid (above 1 mol/L) or alkaline (above 0.1 mol/L) cleaning solutions. Using such chemicals may damage the body of the electrode or cause a decline in performance.

- To maintain electrode performance, replace the internal solution approximately every one or two months. (Refer to " Preparation " (page 2).)
- Dirt on the responsive glass membrane or liquid junction by the sample may cause a decline in electrode response and sensitivity or measurement error. If the electrode is very dirty and cannot be washed clean using pure water (or deionized water), perform the following cleaning.

- **Cleaning of electrode**
  1. Open the internal solution filler port.
  2. Immerse the responsive glass membrane and liquid junction in cleaning agent according to the type of dirt for approximately one hour until contamination is removed. Refer to the instruction manual of cleaning agent.
     The responsive glass membrane can also be cleaned by wiping it with cotton gauze containing cleaning agent.

Type of dirt	Cleaning agent
General	Diluted neutral cleaning agent
Oil	Alcohol, or diluted neutral cleaning agent
Inorganic substance	Hydrochloric acid approximately 1 mol/L
Protein	Cleaning agent including protein-cutting enzyme

  3. Rinse the electrode with pure water (or deionized water) completely.

  4. Replace the internal solution. (Refer to " Preparation " (page 2).)

Note

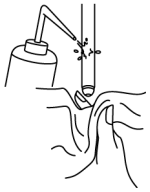
Be sure to perform calibration prior to measurement after cleaning the electrode.

Tip

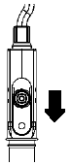
Applying pressure on the internal solution and exuding it from liquid junction have an effect of stabilizing pH response.
Stop applying pressure when the internal solution begins to exude. Applying excessive pressure may break the electrode.

Storage

1. Wash the electrode well with pure water (or deionized water) to remove sample completely and wipe it with filter paper or tissue paper.

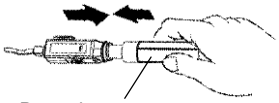


2. Close the internal solution filler port.



3. Wash the inside of the protective cap with pure water (or deionized water), then add pure water (or deionized water) until the sponge gets wet.

4. Attach the protective cap.



Note

- **Do not dry the responsive glass membrane and liquid junction. If they are dry, replace the internal solution and immerse them in pure water (or deionized water) for 24 hours or longer. After these procedures, perform calibration. If calibration cannot be performed correctly, replace the electrode.**
- **Avoid storing the electrode in hot and humid locations. Store the electrode indoors, out of direct sunlight.**

For accurate measurement

For accurate measurement, refer to items below.

- Stir the sample with stirrer in measurement (calibration).
- Perform temperature compensation manually or automatically. (Refer to the instruction manual of pH meter.)
- Temperature of standard solution and sample should be the same.
- Rinse the electrode with the sample before measurement.
- Immerse the responsive glass membrane and liquid junction in the sample completely. Make sure that the surface of the internal solution inside the electrode is higher than the surface of the sample solution.
- Perform calibration before measurement.
  If measurement is performed everyday, perform calibration once or more a day.