

Orion pH, ORP and ISE Theory

Maintenance, Storage and Cleaning of pH Electrodes

A regular maintenance schedule and proper storage of your pH electrode will maximize performance, help extend the life of your electrode, and avoid the cost of frequent replacements. For further information, please call our technical service chemists at 800.225.1480. On a weekly basis you should inspect your electrodes for scratches, cracks, salt crystal build-up, and membrane/junction deposits. The reference chamber of refillable pH electrodes should be drained, flushed with fresh filling solution and refilled. Refer to page 33 to choose the correct filling solution for your Orion pH electrode. Thermo offers a specially formulated Orion pH Storage Solution, Orion 910001. This solution is formulated to strict quality standards to keep your electrode in proper working order. Composed of a mixture of different salts, Orion pH Storage Solution prevents dilution of the electrode filling solution. Constant use of this solution for storage of your electrodes will keep your electrode ready to use and provide fast, stable response to maintain the life of your electrode. To make storing your electrodes easier, Thermo also offers an Orion Electrode Storage Bottle, Orion 910003. This bottle provides a convenient way to store your Orion pH electrode. While working in the field, the Orion Electrode Storage Bottle allows a safe way to transport your electrode. The following chart describes the recommended storage procedures for Orion pH electrodes. Use Orion Cleaning Kits, Orion 900020 - 900024, to remove sample deposits from your electrodes for improved performance and life.

Storage Conditions Selection Guide

pH Electrode Series	Orion No.	Short Term Storage (< 1 Week)	Long Term Storage
Ag/AgCl Reference Electrodes	90-01, 90-02, 90-04	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001, electrode filling or calibration solution. A covered beaker containing sufficient solution to cover the sensing element may be used	Drain completely, rinse internally with distilled water and store dry with protective cap covering the junction
pH Half-Cell Electrodes	81-01, 91-01, 91-61	Place in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Put a few drops of pH Storage Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or the electrode protective cap and cover the sensing unit
Low Maintenance Triode™ and Economy Line Electrodes	91-05, 91-06, 91-07, 91-15, 91-16, 91-25, 91-26, 91-35, 91-36, 92-06, 92-07	Saturate cotton with pH Storage Solution, Orion 910001, and place in an Electrode Storage Bottle, Orion 910003, or the electrode protective cap. Place electrode into container so the sensing element and reference junction are both covered by the cotton. Do not store in distilled water	Saturate cotton with pH Storage Solution, Orion 910001, and place in an Electrode Storage Bottle, Orion 910003, or the electrode protective cap. Place electrode into container so the sensing element and reference junction are both covered by the cotton. Do not store in distilled water
AquaPro Electrodes	91-02AP, 91-03AP, 91-04AP, 91-15AP, 91-35AP, 91-56AP (Do Not Let Electrodes Dry Out)	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, catalog Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Fill the reference chamber with Filling Solution, Orion 900011 or 900004, and cover the fill hole. Put a few drops of pH Storage Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or electrode protective cap, and cover the sensing element and/or reference junction
Standard Line Electrodes	91-02, 91-03, 91-04, 91-55, 91-56, 91-57, 91-62, 91-63, 91-64, 91-65, 91-66, 91-67, 91-72, 91-90, 91-91, 91-92, 91-93, 91-94	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, catalog Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Fill the reference chamber with Filling Solution, Orion 810007, and cover the fill hole. Put a few drops of pH Storage Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or electrode protective cap, and cover the sensing element and reference junction
ROSS™ Electrodes	80-03, 80-05, 81-02, 81-03, 81-04, 81-15, 81-35, 81-56, 81-63, 81-72	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Fill the reference chamber with Filling Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or electrode protective cap, and cover the sensing element and reference junction
ROSS Ultra Electrodes	80-05U, 81-02U, 81-03U, 81-04U, 81-15U, 81-35U, 81-56U	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Fill the reference chamber with Filling Solution, Orion 810007 or 900011, and cover the fill hole. Put a few drops of pH Storage Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or electrode protective cap, and cover the sensing element and reference junction
PerpHecT® Electrodes	82-02, 82-03, 82-35, 82-56, 82-63, 82-72, 92-02, 92-03, 92-56, 92-72	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Fill the reference chamber with Filling Solution, Orion 900014, and cover the fill hole. Put a few drops of pH Storage Solution, Orion 910001, into an Electrode Storage Bottle, Orion 910003, or electrode protective cap, and cover the sensing element and reference junction
Tris Line and KNlpHE® Calomel Electrodes	71-02, 71-03, 71-10, 71-20	Store in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001. A covered beaker containing sufficient solution to cover the sensing element may be used	Rinse with distilled water and store dry with electrode protective cap covering the sensing element
pHuture™ Electrodes	61-57, 61-65, 61-58, 61-66, 61-75, 61-78, 61-79	Rinse with distilled water and store in air or in Electrode Storage Bottle, Orion 910003, containing pH Storage Solution, Orion 910001	Store in a covered beaker containing pH Storage Solution, Orion 910001
Micro Electrodes	98-02, 98-03, 98-10, 98-26, 98-63	Store in a covered beaker containing pH Storage Solution, Orion 910001	Cover the fill hole and return the electrode to its original container. Remember to moisten the sponge in the bottom of the protective glass tube with distilled water before inserting the electrode

* Orion No Cal (5107NC, 5109NC) - See No Cal instruction manual for storage details