

INSTRUCTIONS & MAINTENANCE

IonX Portable Electrodes are shipped complete and arrive “ready-to-use”.

Here are some important Do’s and Don’t’s

- Do not remove the ceramic tip, other than to perform the two maintenance operations listed below, when necessary.
- Do not attempt to remove the (black) PVC component (top piece) from the (orange) Lexan tube. Unlike conventional portable electrodes, the copper rod assembly is not designed to be removed from the Lexan tube, since, the rod assembly in the case of an IonX electrode is an integral part of a sealed unit.
- Store the electrode either right-side up (ceramic plug pointing down) or horizontally. Do not store the electrode upside-down (ceramic plug pointing up) – this prevents the ceramic plug drying out.
- Keep the Electrode Solution level inside the orange Lexan tube above the recommended minimum level [see below (procedure 1) for recommended level and explanation]
- Only use the M. C. Miller Electrode Solution (cat # 14635) inside the orange Lexan tube. This solution has been specially formulated to satisfy a number of requirements, including having a specific electrolyte conductivity value. Although other electrolyte solutions could be used, such as tap water, there are conductivity variations in different regions (due to a variation in contaminants) that could impact the overall electrode potential, since the IR drop in the “external” solution impacts the effective electrode potential.
- Keep the plastic cover over the ceramic plug when the electrode is not in use (reduces electrolyte (liquid) evaporation rate).
- Only use a ceramic tip that has been specified for use on an IonX portable electrode. Do not use a ceramic tip that has been pre-soaked in copper sulfate solution (such as the ceramic tip from a conventional portable electrode) as the Electrode Solution could become contaminated and this would also defeat a major purpose of the IonX electrode which is to eliminate operator (and soil) contact with toxic copper sulfate
- Prior to embarking on a survey, it is recommend that the ceramic tip be briefly run under tap water (or briefly dipped into a water source) after removing the plastic cover, if the electrode has not been in use for some time.
- If the soil surface is dry, wet the plug/soil contact area with water in order to provide good electrical contact.

The following procedures can be performed when necessary:

1) How to “top-up” the solution inside the (orange) Lexan tube

The solution inside the (orange) Lexan tube is the “IonX Portable Electrode Solution” (catalog # 14635). Only this solution should be used to “top-up” the Lexan tube when necessary (see below).

The topping-up process should be done if the solution level (when the electrode is right-side up and in the vertical orientation) is more than about a half inch from the bottom of the black bar. Keeping the solution above this level will ensure that the internal plug is

immersed in the solution, even with the electrode lying on its side (in the horizontal orientation).

First, turn the electrode upside down (ceramic tip on top) and unscrew the tip from the (orange) Lexan tube while holding the tube in an upright position. Next, add the solution to the Lexan tube, leaving 2 or 3 threads exposed (out-of-solution) at the top. Next, screw the ceramic tip back onto the Lexan tube (do not over-torque) and return the electrode to a normal orientation (tip pointing down, or electrode on its side) and let the electrode sit overnight prior to using the electrode to take readings.

Always keep the IonX Portable Electrode Solution inside the Lexan tube at all times (at the correct level).

2) How to replace the ceramic tip

If you need to replace the ceramic tip at some point (if it is worn down), proceed as follows: First, turn the electrode upside down (ceramic tip on top) and unscrew the tip from the orange Lexan tube while holding the tube in an upright position. Screw on a replacement ceramic tip (do not over-torque) and return the electrode to a normal orientation (tip pointing down, or electrode on its side) and let the electrode sit overnight prior to use.

If the Lexan tube solution needs topping-up, proceed as outlined above, prior to screwing on the replacement ceramic tip.