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# Operating Instructions

## For the *Stelth 3® Permanent Portable Reference Electrode* Cu-$CuSO_4$ Model SRE-010-CPY with *"Moisture Retention Membrane"*

**Remove** the plastic bag from the ***Stelth 3® Permanent Portable Reference Electrode*** prior to use. There will be moisture if not actual water in this plastic bag. This is intentional as each cell is saturated with distilled water prior to shipment. (We do this to give you a reference cell that will instantly fire up when used).

Do not allow the ***Stelth 3®*** reference electrode to freeze. **Freezing will not damage** the ***Stelth 3®*** portable cell, but when the cell is frozen, reliable potential readings are almost impossible to obtain. By keeping the ***Stelth 3®*** portable reference cell from freezing and at an ambient temperature, you will be able to take reliable readings at all times. Remember all readings are affected by temperature. If you take two readings at the same location, having identical conditions, one in the summer where the temperature is 85° Fahrenheit (29° Celsius) and another in the winter where the temperature is 34° Fahrenheit (1° Celsius), your potential readings will differ due to the temperature.

> If you have a **half-cell that features a clear window** down its length and you allow the sun to make direct contact with this clear area while you are taking a potential reading, you will get a chemical reaction between the sunlight and the copper sulfate solution that will cause your readings to be inaccurate. To prove this to yourself, take a potential reading exposing this type of half-cell to the sun and then twist the half-cell so the clear window is not facing the sun and note the shift in your readings.

**No Maintenance is required**. The ***Stelth 3® Permanent Portable Reference Electrode*** does not require any maintenance. You **Do Not** have to recharge the ***Stelth 3®*** cell. You **Do Not** have to polish the copper rod. You **Do Not** have to do anything to the ***Stelth 3®*** permanent portable reference cell at all. In fact you cannot open the ***Stelth 3®*** cell. Each cell is factory calibrated at 25° Celsius (77° Fahrenheit) with a laboratory grade calomel cell, internal resistance levels checked, factory sealed and sent to you with a ten year, no questions asked, guarantee.

The first thing you must consider as you begin to use the ***Stelth 3®*** cell, is you must have a wet tip and moist soil which gives you a circuit path. This will enable you to obtain a reading. To get a good wet tip, just place the reference cell in a glass of potable water for 2 or 3 minutes. This will keep the ***Stelth 3®*** permanent portable cell going all day long. It is also a very good idea to keep the plastic cap on the end of the ***Stelth 3®*** electrode when you are not using it. This will keep the tip moist and the cell will be ready for use at any time.

We recommend that you clean the mud and grit off the ceramic sensing end of your ***Stelth 3®*** reference cell regularly. To do this just swirl the electrode back and forth in a container of warm, soapy water and brush the tip off with a wet rag. The soapy water will not harm or contaminate your reference electrode.

**SPECIAL NOTICE**

The ***Stelth 3®*** reference electrode, model **SRE-010-CPY** has an indefinite shelf life.