

Conductivity Cells

The conductivity cell is a delicate sensor and requires proper care and cleaning. Here are some tips:

Cell Constant: Determine and note the cell constant using a known value calibration standard reference solution. Standardize / calibrate the conductivity instrument and cell together, before using.

Soaking Cell: If possible soak the cell in high purity water for 5 minutes to wet the plates of the cell prior to taking actual measurements. Shake off excess water before measuring samples.

Immersion of Cell: The dip cell should be immersed in the solution a minimum of 1.25 inches (3 cm) for proper measurement. This also applies to the Multi-purpose cell when used in the dip configuration.

Cell equilibration: Agitate the cell with a gentle up and down motion in the solution to expedite temperature equilibration. This will also assist in dislodging air bubbles that may have become trapped.

Minimum sample: The minimum sample required for accurate measurement is one milliliter (1 ml) measured in the smallest diameter test tube the cell will fit in [5 pin cells require a 10 mm ID test tube and 8 pin cells require a 12 mm ID test tube]. For ½ ml measurements, try the Cell Cup, Part # 590 or # 890.

Gold plated Cells: The Au cells have much less tendency to “carry over” solution from one measurement to the next as do the platinum cells. Gold (Au) cells should be used to measure solutions in the A, B, C, or D Ranges only. To measure high purity water or less than 3 micro Siemens (3 μ S), use a (Au) multi-purpose cell in the flow configuration to avoid atmospheric contamination. Cells used to measure high purity water or conductivity less than 30 μ S, should be reserved for that use only.

Platinum plated Cells: Platinum plated cells should be used for measuring conductivity in the E & F Range. When the Pt cell will not calibrate (standardize) in the highest range, this could be an indication it needs cleaning and re-platinizing. Clean the inner tube only when necessary. Follow instructions in the manual.

Thermistor time constant: The cell's internal thermistor time constant (for temperature compensation) is approximately fifteen seconds (15 seconds).

Recommended maximums: The recommended maximum temperature is 70°C. The maximum pressure for the Multi-purpose Cell (when used in the flow configuration) is 25 P.S.I.

Cells must be kept clean: Any foreign residue (contamination) on the plates of the cell will decrease the effective surface area, in turn may decrease the cell's linearity range.

Cleaning a Cell: Cleaning a cell can be accomplished by wetting a cotton tipped applicator with a solvent appropriate to remove the residue which has contaminated the plates of the cell. Choose a solvent (example: isopropyl alcohol) that will not damage the epoxy tube the cell is constructed of.

Caution: Do **not** use aqua regia to clean a cell *or* to remove old platinum. Insert the wetted swab into the cell, and use a gentle back and forth motion two or three times and remove swab. Rinse with high purity water after cleaning. *Remember*, platinum cells need to be re-platinized after cleaning.

Storage of Cell: If cell is dirty or plates have contamination on them, clean cell as directed and rinse well with high purity water. Carefully shake off excess water and dry with a clean lab wipe. **Cells should be stored clean and dry when not in use.**

Maintenance: Conductivity cells should be kept in good, clean condition. Re-platinizing a platinum plated (Pt) cell can be accomplished by using a Platinizing Station and Platinizing Solution (see ASTM D-1125) or by returning the cell to the manufacturer for re-platinizing for a nominal fee. Periodically inspect the conductivity cell and replace when necessary. Conductivity Cells have a 90-day warranty.

