

How to remove oxidation from the gold Cathode of Sensorex FCL and CLD Sensors

- 1) If it is not possible to perform correct calibration after replacing the bottom cap and electrolyte, then the cause may be oxidation of the gold electrode. This oxidation will notably reduce the performance of the sensor and must be removed.
- 2) Make sure to wear rubber gloves and protective eye wear when servicing the sensor because the electrolyte is a strong acid (**FIG. 1**).
- 3) Hold or clamp the sensor vertically so that the bottom cap is pointing up (**FIG. 2**).
- 4) Unscrew the bottom cap (**FIG. 2**) and dry the internal electrode using a clean dry cloth (**FIG. 3**). Be careful not to rub the gold surface because it is easily scratched.
- 5) Using the supplied abrasive paper (shiny side up) place it on the gold cathode and lightly rub it with your index finger using a circular motion (**FIG. 4**).
- 6) Move the abrasive paper slightly as you rub the cathode to continuously expose new abrasive material. It does not take a lot of force, but continue to rub in a circular pattern for about a count of 60. Note the surface is domed and needs to stay this way – do not put a flat on the cathode.
- 7) Check that the oxidation has been removed. The oxide layer is not easy to see, but the gold cathode should look brighter and shinier than before (**FIG. 5**). If necessary, repeat the operation using the abrasive paper.
- 8) Soak a Q-tip with fresh electrolyte and lightly wipe the electrode surface to clean off debris. Use only light pressure as the gold surface can be easily damaged. (**FIG. 6**).
- 9) Top off the electrolyte with the syringe and needle so as to flush out any contaminants that may have dropped into the holes and the adjacent surface. If the cap is new and in good shape, add a few drops of electrolyte to the inside of the membrane pocket (**FIG. 7**), then screw it slowly back on to the sensor. **Catch any electrolyte that runs from under the cap with a towel.**
10. Install sensor back into flow cell and start flow. Apply power to sensor for at least 4 hours before calibrating.

ONLY USE THE ABRASIVE PAPER SUPPLIED. OTHER TYPE OF ABRASIVE PAPER COULD CAUSE SERIOUS DAMAGE TO THE GOLD ELECTRODE.

