



**CLEANING AND POLISHING OF SOLID-STATE IOTRON™  
& IOTRODE™ ION SELECTIVE ELECTRODE SENSING TIPS**

INSPECTION AND CLEANING

Perform the following inspection and polishing procedure when a solid-state ion selective sensor becomes unresponsive, sluggish or performing a calibration becomes difficult. The sensor may be contaminated or attacked by some of the components in the sample.

- Remove the sensor from the equipment and visually inspect it. If the sensor's ion selective sensing membrane (the center piece at the front of the sensor) is dull in part or in whole, is recessed into the black body, it may need repolishing.
- If only a deposit of organic nature and is soluble in isopropyl alcohol try to remove by rubbing with a tissue soaked in the alcohol first. If the sensor's sensing membrane regains its shiny state reinsert sensor and recalibrate the equipment per the appropriate ion selective sensor addendum instructions posted at [www.astisensor.com/indexrefreshprodoc\\_isemanuals.htm](http://www.astisensor.com/indexrefreshprodoc_isemanuals.htm).
- If sensor has been contaminated and contamination cannot be removed with isopropyl alcohol as described, or the sensing membrane has become dull or recessed into the body, the sensor then needs regrinding and polishing. The sensing membrane is only about 0.100 to 0.150 inches thick, so minimizing the grind thickness allows for a longer service lifetime.

POLISHING

- Use the any "wet or dry 600 grit silicon carbide" polishing paper or cloth for grinding. Place the polishing paper on a smooth surface, and make sure the surface is free from particulates. Wet the polishing surface with high purity deionized water and hold the sensor perpendicular to the surface of the polishing paper to the middle of the wetted surface.
- Rotate the sensor counterclockwise (clockwise if left handed) while pressing firmly against the surface on an increasing circle to about a 1" to 2" diameter. This motion will partially rough-up the surface of the polishing paper and will rough grind the sensor. Repeat the rotation in reverse by reducing the circle.
- After this procedure the sensor surface should be uniformly dull, showing small scratches. If this does not describe the sensor surface, repeat procedure and rotate sensor 180 degrees in your hand. Wash hands and equipment and rinse sensor in deionized water.
- Obtain a smooth polishing cloth. Adhere it to a smooth particulate free surface which can be used as a polishing block. Wet the surface of the cloth with deionized water.
- Add about 0.1 gram of 1.0 micron aluminum oxide polishing powder (a fine white powder). Use the same technique and motions for polishing as described in the grinding section, starting in the middle of the aluminum oxide pool.
- Check the surface after about six to ten circles, if not shiny and scratch free to the naked eye, repeat the procedure. Rotate the sensor 180 degrees in your hand after each checking as this will provide more uniform surface.
- Wash hands and equipment, rinse sensor in deionized water. Condition the sensor for about 30 minutes in the calibration solution of the lower concentration and recalibrate the equipment as described in the ion selective addendum.
- If the polishing cloth is cleaned and stored clean it can be repeatedly used, if broken down, replace with new one.