

Technical Note #109

Specific Gravity Probe Maintenance

Background

All Specific Gravity, Salinity, and Conductivity probes work the same way. They consist of two metal rods made out of high grade stainless steel. An alternating current is applied across the rods and the electrical resistance is measured. This determines the conductivity (salinity) of the sample.

Saltwater is a caustic solution that eventually tarnishes all stainless steel. The electrical current running through the metal probe tips exacerbates the problem and speeds up the tarnishing process. When tarnish is present, the tips appear to lose their sheen. They may turn to a darker color, or in extreme cases turn black. When this happens, the tarnish adds additional resistance to the probe tips. The result is that the controller reads this as less conductivity and your salinity readings drop.

In order to maintain accurate readings, the Specific Gravity probe must be cleaned frequently. We recommend a 2-4 week minimum cleaning schedule.

Cleaning Procedure

Unlike other equipment, calcium build up is usually not a problem because of the electrical charge kept on the probe tips. Vinegar or other acidic cleaners are not necessary, and may actually make the problem worse. We recommend the use of glass cleaners (those that contain ammonia) or common dish soap for routine cleaning. Wet the corner of a paper towel and fold it over, then rub the metal probe tips with the paper towel. Rinse thoroughly with fresh water.

For heavily tarnished probes, use a metal polish such as *Brasso* with a dry paper towel. You can also use a piece of emery cloth or 800 grit wet/dry sandpaper. Use just enough pressure to remove the tarnish.

Do not use commercial stainless steel cleaners. These products contain mineral oils to enhance the appearance of stainless steel and are not safe for use in the aquarium.