

Probe Preparation and Treatment of the SBE7 Micro-Conductivity Sensor

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Conduct a visual inspection. Bent or broken probe tips are a clear sign of gross damage, which may not be repairable. If there is no sign of gross damage, inspect the sensor with a magnifying glass or microscope for any deposits on the black electrical contact surfaces of the tip. The black material is platinum-black which is a sponge-like coating that is critical to making good electrical contact with seawater. If you see shiny metal in or around the electrode tips, then it has been mechanically damaged – the electrodes have contacted a solid surface and the platinum-black coating has been scraped. Such a sensor will not hold its calibration and will be very noisy.

If the micro-conductivity sensors have visible discoloring on their tips (e.g. gray or brown spots), we recommend cleaning the micro-conductivity sensor as follows:

- Soak the sensors in 1% Triton X-100 for 10 minutes;
- Rinse the sensors with distilled water and let them dry.
- Conduct a visual inspection with magnifying glass and confirm that the electrodes return to a “jet black” appearance.

If there are still deposits on the sensor surface, then repeat the above procedure for 16 hours and use a magnetic stirrer to keep the Triton fluid moving over the sensor surface to accelerate the cleaning process. If this does not clean the surface, it may have to be returned to RSI. If it is clean, then store the sensor with its “syringe” style protectors and keep it dry.

Subsequent reuse of these sensors should be *preceded* with a soaking in 0.1% Triton X-100 for one hour, followed by a quick rising with clean water. Triton X-100 is a powerful wetting agent that quickly removes particulate stains and some oils and greases. Pre-soaking the probe tips is essential for wetting the surface so that the sensor returns to its previous sensitivity.

Note 1: Triton X-100 is Octyl Phenol Ethoxylate produced by the J.T. Baker Company. This, or its equivalent, should be readily available from a local chemical supplier. (If you are located at a university, your chemistry shop on campus may even have it.)

Note 2: Sea-Bird has revised their recommendations for preparing and storing their conductivity sensors (Application Note No. 2D, revised September 2008). This note is based on the Sea-Bird application note because their note also applies to the SBE7 micro-conductivity sensor.

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