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QUICK REFERENCE

SIMPLE CLEANING FOR SEA-BIRD CTDs USED IN OIL SPILL

(ver. 07/21/11)

Just remember, keep it simple...we are getting good results with these protocols, even when used in highly polluted waters, including the oil spill.

Cleaning Inside Conductivity Cell, Plumbing, & SBE 43 DO Sensor

Sea-Bird ships CTDs with a bottle of **Triton X-100** (100%), a mild, non-ionic surfactant (detergent), for removal of surface and airborne oil ingested into CTD plumbing. (You can purchase Triton from Sea-Bird, or see <http://avantormaterials.com/commerce/product.aspx?id=2147509608>.)

If Triton is unavailable, use dishwashing liquid soap; i.e., **Dawn or Joy** (clear if available).

- **Make dilute soapy solution: a 25- to 50-cent-sized dollop of Triton/soap to 1 liter of warm water. Shake well.**
- Use this dilute solution to rinse CTD conductivity and DO sensors **between casts**.
- For thick oil fouling, agitate solution through plumbing several times, then rinse.
- If DO sensor is on CTD, rinse with fresh water after flushing with Triton/soap solution (syringe good for this *).
- If time, fill conductivity cell with dilute Triton solution and soak for 1 hour. Drain and flush with warm (not hot) fresh, clean water.

Detergent/Soap/Water guidelines:

- Avoid detergents with glycol alcohol, natural oils, colors, perfumes, glycerines, or lotions.
- Pre-mix & always dilute.
- Water – De-Ionized (DI) water is reliably pure.
- Commercially distilled water or fresh clean tap water is sufficient for all uses above.
- On ships, fresh water occasionally contains traces of oil and should be avoided, if possible.

For detailed cleaning and storage information, see:

- [Application Note 2D](#) for Conductivity Cells
- [Application Note 64](#) for SBE 43 DO Sensors

Cleaning Instrument Exteriors

The same diluted soaps can also be used to wash the instrument exteriors, including cables. Use soft cloths and brushes for external washing only.

DON'T

- DON'T PLACE Triton, bleach, or any detergent **directly** on DO sensor membrane.
- DON'T SOAK OR FLUSH DO SENSOR in Triton (or any soapy) solution for > 1 minute. Before soaking conductivity cell, disconnect tubing between conductivity cell and DO sensor.
- DON'T USE A BRUSH or object (e.g., Q-Tip) inside conductivity cell.
- DON'T WIPE DO SENSOR MEMBRANE with anything. Gentle washing/flushing will remove debris and oils. Squirt bottle gentle rinsing is OK.
- DON'T USE ALCOHOL-based or abrasive cleaners on any sensor or instrument.
- DON'T USE SIMPLE GREEN: Some people have had skin sensitivity to Simple Green. Sea-Bird stopped using it for this reason, and because we do not know its ingredients (we are concerned it may contain oils or alcohols). **For now, we advise against Simple Green for cleaning inside conductivity cells and DO sensors.** It is probably safe for external instrument parts, if sensors are capped first to keep it out.

* NOTES: The conductivity cell is primarily glass. Use the correct size Tygon tubing and **Syringe kits** Sea-Bird provides with CTDs.