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**QUICK REFERENCE**

**SIMPLE CLEANING FOR SEA-BIRD CTDs USED IN OIL SPILL**

(ver. 06/02/10)

**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. For local Triton distributors, see <http://www.mallbaker.com/changecountry.asp?back=/Default.asp>.

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 clothes 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 reacted 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.