^{14}C Contamination

A sample with an unnaturally high level of ^{14}C is sometimes called a "hot sample". Hot samples usually result from inadvertent contamination, like using a container that was previously in contact with radiocarbon tracers. In addition to compromising your own science, a contaminated sample can mean significant down time for our laboratories as we must rigorously clean or replace any apparatus that the sample came into contact with. In some cases, irreplaceable samples submitted by other investigators are lost. We must be careful to protect the laboratory and samples from contamination for all investigators who use our facility.

Please take the time to investigate the history of the laboratory, equipment, or vessel where you collect or prepare samples for ^{14}C analysis before submitting to us. Samples processed in an unknown lab prior to your obtaining them may be 14C-contaminated. Find out if any work has been done in the vicinity involving 14C as a tracer (like primary productivity studies). If tracer work is suspected, please request a University of Miami SWAB check before submitting swipe samples for AMS analysis to NOSAMS. If SWAB results are all < 50 dpm/m^2, then contamination is low enough that swipe samples can be submitted along with a copy of the SWAB report. The SWAB group routinely tests land-based labs involved in oceanography for gross levels of contamination. If your work is supported by NSF Oceanography there is no direct charge to your lab for such a swipe or swab test. Once gross contamination has been ruled out using this less sensitive LSC method, AMS-based swipe tests are required to check for contamination at sufficiently low levels.

In some cases an initial assessment of your submission may prompt us to request that you submit swipe samples or a bit of natural sample that we can use as a contamination check. A swipe sample is basically a pre-baked quartz filter that is wetted with alcohol and wiped over a surface. Please follow the NOSAMS protocol for swipe sampling.

Repeated submission of highly contaminated samples is both costly and damaging. If necessary a fee of $2,500 will be assessed to compensate for down-time and clean-up.