

# NOSAMS Facility

---

METHOD: Contamination check sample collection  
EFFECTIVE DATE: 3/17/2023  
APPROVED BY: Dr. Roberta Hansman

**PURPOSE:** To collect a swipe sample for contamination checking.

**INTRODUCTION:** NOSAMS provides swipe analyses as a service to our clients when they submit natural level samples to NOSAMS. Natural carbon containing samples can be inadvertently contaminated with radiocarbon by using things like a container that was previously in contact with radiocarbon enriched materials. Tracer level radiocarbon is orders of magnitude higher than natural level radiocarbon in the environment. In addition to compromising your own science, processing a contaminated sample can mean significant down time for our facilities as we clean or replace apparatus that the sample came into contact with and to perform subsequent testing until normal backgrounds are reestablished. In some cases, irreplaceable samples submitted by other investigators that follow a contaminated sample set have been affected by secondary and tertiary contamination and are also contaminated. We must be careful to take precautions that protect the laboratory and samples for all investigators who use our facility.

Find out if any work has been done in the vicinity involving radiocarbon as a tracer (like primary productivity studies). If tracer work is suspected, please [contact us](#) to discuss how best to proceed. We may ask you to request a University of Miami SWAB check before submitting swipe samples for AMS analysis to NOSAMS. If SWAB results are all  $< 50$  dpm/m<sup>2</sup>, 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 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.

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.

## **MATERIALS & APPARATUS:**

- 25 mm diameter quartz fiber filters, baked for 1 hour at 850 °C. Pallflex Tissuquartz is preferred filter, but other filters can be used. Supplier: Pall Life Sciences, 2.5 cm diameter, PALL number 7200.
- Laboratory gloves (that fit tightly)
- Isopropyl alcohol, HPLC grade or better
- 1 dram screw-cap vials or another suitable container
- Labels for samples

# NOSAMS Facility

---

METHOD: Contamination check sample collection  
EFFECTIVE DATE: 3/17/2023  
APPROVED BY: Dr. Roberta Hansman

**PROCEDURE:** Label the vials and mark with the date swiped. Please take replicate swipes if possible, in case we encounter failures – the presence of salt for instance may cause a reaction that breaks through the quartz combustion tubes. Wear disposable gloves and change them after each swipe to avoid transferring contamination to the next swipe.

With gloved hands, moisten a filter with isopropanol. Gently rub the filter over the area to be swiped, being careful to avoid breaking up the filter if possible. Be sure to collect enough carbon so that we can acquire a robust analysis – do not clean the surface first. If contamination is present, we will find it no matter how dirty the surface is. Salt, however, is a problem as halides may poison the reaction, so that should be rinsed from surfaces prior to collecting swipe samples.

**Important:** After a sample is collected, roll the wet filter between your gloved forefinger and thumb to roll it tightly, then place it in a clean glass container labeled with the name or location(s) of the object(s) swiped and the date. We will dry and then pack the rolled filter into a 9 mm OD tube. Tissuquartz filters are preferred because they come pre-baked and hold up quite well when wiping surfaces without breaking up easily as many baked quartz fiber filters do. One of the ways we keep costs down is to spend less time packing samples, using these filters, and preparing them the way we specify is important for minimizing effort.

Tightly fitting gloves help you roll the moist filter between your thumb and forefinger after swiping so that it dries in a rolled shape. Place each glass vial or container in a separate plastic bag (in case of breakage during shipping.)

To submit please enter the information through the [NOSAMS Web Portal](#).

There is a comments section under Processing Questions and we ask that you please use it to describe the potential risk or level of contamination that you think the swipes may pose, so we can best decide how to handle the analysis. We need you to provide the history or anything you know about the locations sampled. University of Miami SWAB reports can be attached and emailed along with the Excel spreadsheet form.

In the Excel submittal form choose 'pre-treated OC' as the sample composition and 'other' as the sample type – you can use the description field to type in 'swipe on QFF' or 'swipe on GFF' but please indicate what type of filter is submitted.