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General Guidelines for Preparing AMS Samples

Sampling Guidelines

Handling Samples

When handling samples, wear gloves to avoid imparting any carbon or oils from your skin that will invite bacteria to grow. Dry the samples in a low temperature oven (50° C). Visually inspect samples with a microscope if possible, and remove any material that does not belong.

Containers

Clear glass or plastic vials and jars are preferred. Aluminum foil is not recommended for sample storage. First bake it in a muffle furnace for one hour at 525 degrees Celsius (a carbon residue is left from the production). Place well-labelled containers inside individual plastic bags to prevent sample contamination during shipping.

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14C Contamination - Hot Samples

A sample with an unnaturally high level of 14C is sometimes called a "hot sample". Hot samples usually result from inadvertent contamination of a container that was previously in contact with radiocarbon tracers. Ways to insure clean, uncontaminated samples are discussed in [Collection and Handling of Samples for Analysis by AMS](#). In addition to compromising your own science, a contaminated sample wastes time for our laboratories as we must rigorously clean or replace any apparatus that the sample came into contact with. In some cases, samples submitted by other investigators are lost. We must be careful to protect the laboratory and samples from contamination for all time in the facility.

Please take the time to investigate the history of the laboratory, equipment or vessel where you collect or prepare samples for submission 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 involving 14C as a tracer (like primary productivity studies). If tracer work is suspected, you may be required to have a swipe sample taken. [Operation Swab group at University of Miami](#). The SWAB group routinely tests land-based labs involved in oceanography for gross 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 is 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 material for a contamination check. A swipe sample is basically a pre-baked quartz filter that is wetted with alcohol and wiped over a surface. See [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 for the time and clean-up.

Define your Samples

We expect submitters to prepare samples which are "ready to analyze". This doesn't mean that we'll handle them mindlessly. We

do, and s/he should define the sample by removing as much contamination from a sample as possible (e.g., sediment, quartz) is ample material, by carefully choosing a subsample for AMS analysis. Submit only what you want us to analyze.

Small Samples

If you are not sure, or expect that less than 100 µg of pure carbon will be extracted in the Sample Prep Lab, please indicate on whether we may use small sample techniques. Knowing this beforehand will streamline and reduce handling; alternatively leave processing while we seek your decision.

Excess Sample Material

Solid sample material not consumed during analysis is archived at NOSAMS for a two-year period from the date of submission return unused portions, if requested and a shipping account is provided. Please provide this information during the submission

Excess water samples (DIC and DOC) are archived for one month following analysis and then discarded. If you would like the please provide your request and a shipping account during submission through the Web Portal.

Additional Information

[General Sampling Guidelines](#)

[Contamination Check Sampling Protocol](#)

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