

Rafter Radiocarbon Laboratory

External Pretreatment Policy

- **Externally pretreated samples attract a lower price if no further pretreatment is required.**
- **Blanks and known-age materials should be submitted with the authentic samples.**

The Rafter radiocarbon laboratory accepts organic materials that have been pretreated elsewhere. When no further pretreatment is required, we offer a lower price for these samples, which still require combustion, graphitization, AMS measurement and data analysis. However, we reserve the right to charge the full price if we determine that further pretreatment is required to proceed successfully. See our web page for current prices.

Clients should contact us in advance of sample submission to ensure:

- that their sample pretreatment procedure is sufficiently effective, and
- that appropriate blanks and known age materials are included.

As part of the data analysis, we apply a 'blank correction' to adjust the measurement result for the small amount of ^{14}C that is introduced during sample preparation and is not original to the sample itself. For samples entirely prepared in our laboratory, this correction is determined from a long-term average of multiple process blanks of similar material as that of the samples.

Process blanks pretreated carefully in external laboratories typically give comparable results to those pretreated in our laboratory. But, without measurement of these process blanks, we cannot be certain that additional contamination has not been introduced. Therefore, we recommend that a ^{14}C -free process blank be pretreated and submitted alongside the unknown-age samples. In such cases, our standard protocol is to compare the submitted process blank with our own. Well-preserved wood with age of >100,000 years is recommended as an organic process blank, although other ^{14}C -free materials may also be appropriate depending on the authentic sample type.

- If the submitted process and our own blanks differ by an insignificant amount, we will combine them into one process blank value.
- In cases where the submitted process and our own blanks differ significantly, we will assess which correction is most appropriate.
- If no process blank is provided, we will determine the 'blank correction' using our own blanks.

Then six or more (≥ 6) pretreated samples, of the same type and with unknown ages, are submitted together, we will prepare and measure one process blank at no charge. For batches of less than six (< 6) samples, the process blank will be charged at the same rate as the samples of unknown age.

Contact us



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To evaluate analytical repeatability and accuracy we also recommend that known-age material of the same sample type is processed alongside the unknown-age samples.

- Repeatability can be tested with multiple aliquots of one sample, pretreated and submitted as entirely separate samples.
- Accuracy can be assessed through the processing of radiocarbon interlaboratory comparison materials.

We will incorporate such results in our data quality assessment.

For batches of 6 or more (≥ 6) pretreated samples, of the same type and with unknown ages, we will prepare and measure a single known-age or replicate sample at no charge. For batches of less than five (< 6) samples, such test samples will be charged at the same rate as the samples of unknown age.

Please approach us for information on where to obtain untreated process blank and known-age standard materials to match your samples.

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