



Pb210 SAMPLE PREPARATION PROCEDURE

SAFETY: There are no safety issues relating to this protocol.

CHEMICALS REQUIRED: None

EQUIPMENT REQUIRED:

Drying oven	Pestle and mortar
Tubes for ²¹⁰ Pb machine	Tamper
Small funnel	Red caps for ²¹⁰ Pb tubes
Small hotplate	Paraffin wax in glass beaker

NOTES:

Samples need to be prepared 3 weeks in advance of using the ²¹⁰Pb machine.

It is recommended that approximately 10 samples are measured for each core, but fewer may yield acceptable results. The more samples run the more accurate the estimate of where ²¹⁰Pb runs out in the core. This is very important for age calculation.

PROCEDURE:

1. Sub-sample at evenly spaced intervals down to a depth where ²¹⁰Pb runs out (older than 150-200 years). We recommend that you sample the top 15 cm of the core, if there is not enough material here for 10 samples then continue sampling lower down the core.
2. Samples should be dried and ground to a homogenous level (removing large inclusions e.g. rock particles). Sub-sample enough sediment to reach the required depth (4cm) in the sample pots. The exact weight (and volume) of the sediment in each pot must be known.
3. Label and weigh the sample pots: as the sample pots are individually custom-made, each pot needs to be weighed when empty and dry. Add your sample to the white tubes (using a funnel if necessary) a little at a time, and compact it using the customised rod, which has been marked to show the exact volume required in the tube (40mm depth, although check from time to time as the line may migrate with successive re-marking). Compacting with the rod prevents gaps forming in the sediment and prevents the sediment moving when pots are tipped upside down.
4. The same volume of sediment must be used for each depth. Pots should ideally be packed to a depth of 4cm (marked as a line on the packing rod). Samples must reach the 4cm line for the calculations of ages to work (check Appleby and Piliposian 2004).

5. Re-weigh sample pots.

6. When the pots are packed, put on turnover caps. Melt some paraffin wax in a beaker on the hot plate. Seal the cap by dipping the cap and top of the pot (by turning pot upside down) in molten paraffin wax so that the lid is completely sealed/airtight.

7. Leave the labelled tubes for 3 weeks (in the fridge if wet and you want to use the sediment later for pollen analysis).