

Guidelines for Client-Wrapped Sample Preparation for Carbon and/or Nitrogen Analysis - Soils

Contact Information/ Resources

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Sample Preparation Information

- **Soil should be ground by mortar and pestle to the consistency of a powder.**
- Use the following guidelines for sample weights. If your sample varies from the listed ranges or is unusual in nature, please contact the laboratory.

Example Soil Type	% Nitrogen	% Carbon	Optimal Sample Weight (mg)
A, B, E, or C horizon soil	0.02 to 0.4%	0.02 to 6.5%	50-55
Organic or A horizon soil	0.4-1%	6.5-16%	18-20

- Prior to weighing samples, clean the work surface, spatula, and tweezers with ethanol to remove any contaminants. Handle the sample tins with clean tweezers, **never with bare hands**. (Also reference final entry in the “Additional Tips” section.)
- Weigh samples, using a microbalance (reads in mg to 3 decimal places), into tin capsules. [The capsules used by the lab are the 5x9 mm Tin Capsules (#041061) from Costech (<http://www.costechanalytical.com>). Larger tins (10x12 mm) are also available from Costech if needed.]
- Fold each tin capsule, using tweezers, into sealed spheres or cubes.
- Store the filled capsules in clean 96-well ELISA plates. Please place samples consecutively in the tray starting with cell “A1”. The location of each sample should be recorded along with the sample weight. Use tape to secure the lid to the ELISA plate.
- Submit samples, work request form, and a printout of the well location/weight record.

Additional Tips

- The maximum number of samples per work request form is 100.
- Folded tin capsules must be small enough to be easily removed from the ELISA plate (i.e., folded samples should have a diameter of ≤ 5 mm if using a 96-well plate). [If samples fit too tightly in the 96-well plate, use 48 or 24-well ELISA plates instead. Folded samples should not exceed a diameter of 8 mm if using a 48- or 24-well plate.]

- Inspect the samples for “leaks”. Once the lid is secured with tape to the ELISA plate, invert the sample tray and shake gently to expose any leaking capsules. Re-prepare any tins that lost sample material due to inadequate wrapping.
- If you have problems with the samples leaking from the tins after folding, the samples may be doubled-tinned **after** the weight is recorded.
- It is advisable to include a couple of folded, empty tins with each set. These samples will identify potential contamination that occurred during the weighing process. (Contamination may occur merely from leaving the container of tins open while weighing.) These samples are run at no additional cost and will not appear on the final report, but any contamination found will be noted. Please place these empty tins in the ELISA plate at the end of the sample set and note their location on the well location/weight record being submitted with the set of samples. Do not count the empty tins as samples when completing “# of samples” field on the Work Request form.