



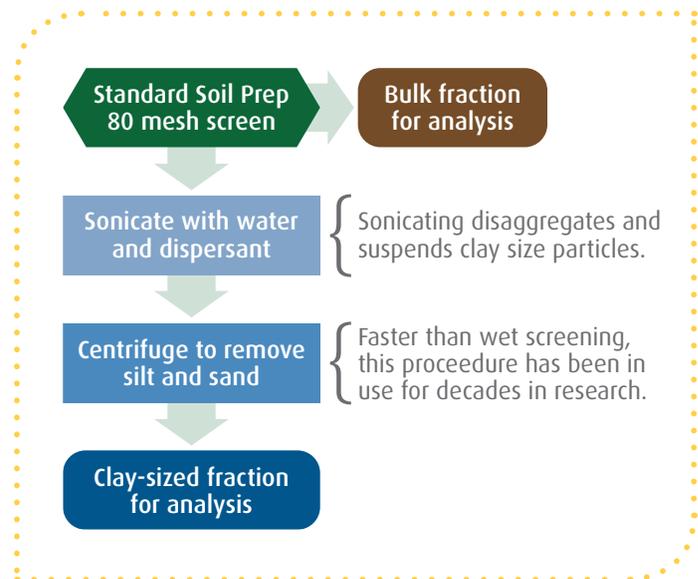
CLAY-SIZE FRACTION SEPARATION FROM SOILS

ALS Geochemistry has developed a rapid, high quality clay-size fraction separation on screened soils. The clay-size fraction may be analyzed to enhance subtle geochemical signals or used in other cutting edge exploration techniques.

The highly reactive clay-sized fraction in soils and till is a key trap site for the labile elements responsible for geochemical anomalies over mineralized rocks. Although partial leaches that target the active fraction of soils are useful in exploration, a method to fully isolate the $<2\mu\text{m}$ fraction can open up a range of options to suit the surface geochemistry of the project.

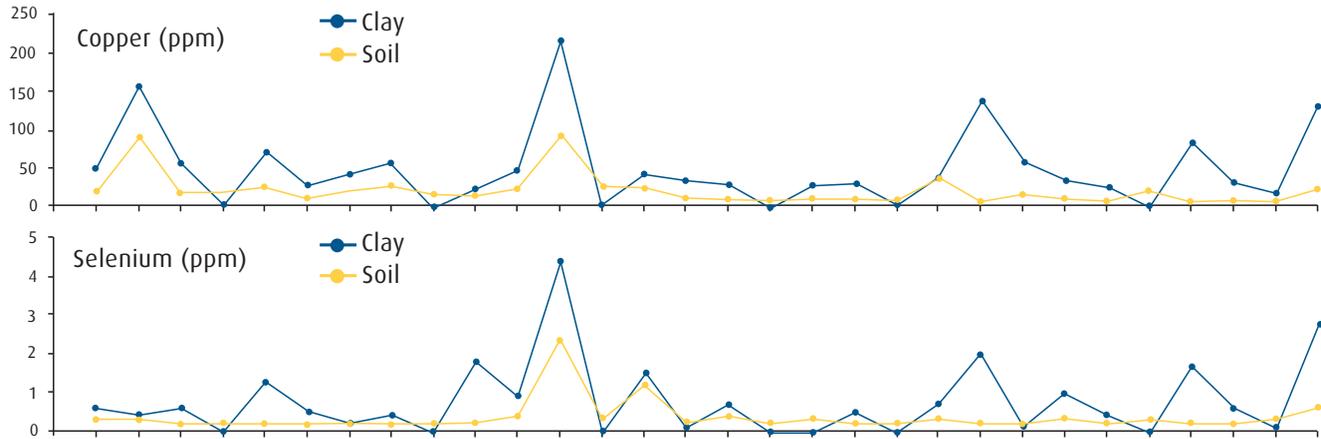
ALS Geochemistry's clay-size fraction extraction method is performed in a clean lab setting with rigorous contamination control, ensuring your results are accurate and reliable. On top of the traditional uses for the $<2\mu\text{m}$ fraction, including clay mineralogy, oxygen and hydrogen isotopes, and certain metal isotopes including lead, the $<2\mu\text{m}$ fraction we produce is suitable for robust trace element geochemical exploration, particularly paired with ultra-low detection limits from new collision cell ICP-MS technology. The result is an enhanced geochemical response over traditional bulk soil, allowing better precision in analysis and greater contrast in geochemical signal.

Geochemical surveys over till benefit from the removal of mineral grains contributing trace and major element contamination unrelated to mineralization at depth. Surveys over very sandy soil benefit from the removal of sand-sized



quartz diluting the signal and obscuring potential anomalies in the results.

Anomalies seen in the bulk soil are enhanced without raising the background signal. In some cases, the clay-sized fraction may even identify anomalies not seen in the bulk soil.



A B-horizon soil survey line from British Columbia, comparing the results by ultra-trace aqua regia digestion and ICP-MS analysis for Cu and Se between the clay fraction and the bulk soil.

To determine if clay-sized fraction separation is right for your project, we suggest using an orientation survey or a subset of a closely-spaced local survey to test one or more digestions paired with ultra-trace ICP-MS analysis on the clay-sized separate. Since the separation is done on soil pre-screened to 80 mesh, existing samples from previous years can also be used for a quick check on an established data set.



ALS METHOD CODE	DESCRIPTION
SCR-CLAY	Rapid, high quality clay-sized fraction separation from soils and till screened to 80 mesh. Requires 50g of screened material.
ME-MS41L	Standard ALS Geochemistry aqua regia digestion, paired with new ICP-MS technologies that provide ultra-trace detection limits on key pathfinder elements. Directly comparable to bulk soils analyzed with the same method.
ME-MS41W	Brand new weak acid leach using 1:1 ratio of nitric and hydrochloric acids, paired with new ICP-MS technologies that provide ultra-trace detection limits on key pathfinder elements. Designed to minimize background signal and cause geochemical anomalies in weakly-bound ions to stand out.
ME-MS05	Cold hydroxylamine-hydrochloric acid leach and ultra-trace detection limits by ICP-MS analysis. Selectively targets manganese and iron oxyhydroxides. Limiting this method to the clay-sized fraction may reduce variability inherent in bulk soils.

Please contact an ALS Geochemistry laboratory in your area to discuss how we can help with your exploration project. To find contact information for our global locations, visit our website at www.alsglobal.com.