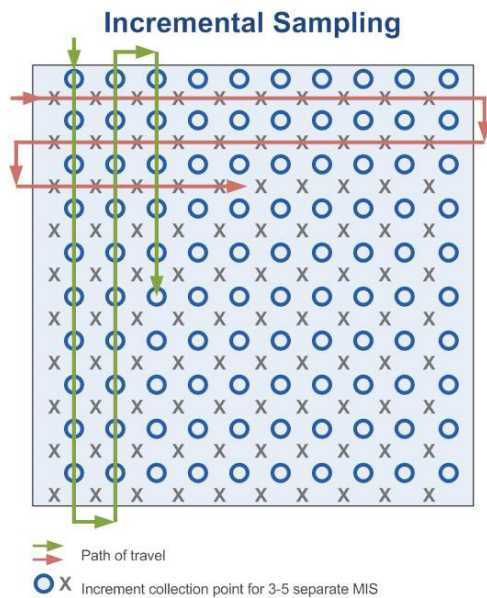


## Incremental Sampling Methodology

Incremental Sampling Methodology (ISM) is a technique designed to statistically reduce or limit variability associated with discrete sampling. It provides a more representative and reproducible estimate of the mean concentration of analytes in a specific area of interest, called a "decision unit."



EPA Method 8330B includes a requirement for ISM. Some states have approved sampling guidelines that permit or require ISM for sampling of a wider variety of contaminants. For example, both Alaska and Hawaii have sampling guidelines for metals, semi-volatile organics, volatile organics, and petroleum hydrocarbons.

ISM involves two components: field sampling and laboratory subsampling.

**Field Sampling:** A 1–2 kg sample is collected and sent to the laboratory for processing in its entirety. It's composed of 30 to 100 increments of uniform size collected across a grid formation representing the entire decision unit. Determining the appropriate size of the decision unit is a critical aspect of ISM and one that is usually detailed in an approved sampling plan.

**Laboratory Subsampling:** Laboratory procedures may vary depending on the contaminants of concern. In general, a subsample is prepared by air drying and sieving the sample through a #10 (2 mm) screen to remove the coarse material. Particle size is reduced by milling or grinding. Finally the sample is spread evenly on a steel tray to a depth of ½ inch and divided into 30-50 sections. A one gram aliquot is taken from each section and combined into one sample. The entire sample is then used for sample extraction and analysis.



ISM allows for a uniform, representative sample that reduces heterogeneity and improves sampling precision. Improved sampling techniques lead to more effective decision making at contaminated sites.

**Columbia Analytical can assist with a diverse range of capabilities and technical expertise, including supporting projects that require ISM. Contact us to speak to a project chemist and learn more about how we can partner to make your analytical programs more effective.**