



B.C. Liquid-Solid Partitioning (B.C. Soil Leachate Test)

The B.C. Liquid-Solid Partitioning (or B.C. Soil Leachate Test) is a function of pH to simulate various conditions of rainfall. It can help determine if metals or other contaminants of concern pose a risk to the groundwater. The test was developed to best predict the leaching and mobility of pH sensitive substances in various soil pH settings. For these substances, the test is conducted at pH values of 5, 7 and 9; and potentially a fourth pH corresponding to the natural site soil pH. The test pH range between 5 and 9 reflects the pH range of over 90% of B.C. soils. Future changes in site conditions (e.g. the deposit of organic or alkaline fill) would be captured by this range.

Summary of the method:

- 3 (or potentially 4) parallel extractions of soil at various pH's. 5, 7, 9 and natural site soil pH,
- There are 6-9 extractions done per sample and multiple titrations,
- Extractions are tested for desired compounds (eg: ICPMS for Metals),
- Data as a function of all 4 pH's is reported per sample.



Why would you want to use this method?

- Intended to be used as part of an environmental leaching assessment for the evaluation of disposal, beneficial use, treatment effectiveness, and site remediation options.
- A leaching characterization method that is used to provide values for intrinsic material parameters that control leaching of selected inorganic and organic substances under equilibrium conditions.
- Intended as a means for obtaining a series of extracts of a solid material (i.e., the eluates), which may be used to estimate the liquid-solid partitioning (e.g., solubility and release) of constituents as a function of pH under the laboratory conditions described.

When is this method not applicable?

- Not applicable for characterizing the leachability of volatile organic substances or semi-volatile organic substances with very low water solubility.
- Not for use under the Hazardous Waste Regulation for the classification of hazardous wastes (see TCLP) or for determining suitability for disposal in a secure landfill (see MLEP).



References:

PROTOCOL 27 FOR CONTAMINATED SITES - Soil Leaching Tests for Use in Deriving Site-Specific Numerical Soil Standards

Liquid-Solid Partitioning (Leachability) as a Function of pH (Metals, Inorganics, and SVOCs) – Prescriptive

Presentation - Protocol 27, Soil Leaching Assessment for Use in Deriving Site Specific Standards: BC Ministry of Environment and Climate Change Strategy
https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/presentations/stg11-2017/webinar_5_ppt-nov_28.pdf

Method 1313 – pH Dependence: Vanderbilt University
<https://www.vanderbilt.edu/leaching/leaching-tests/test-method-1313/>

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