1.0 SCOPE

1.1 A neutral salt extraction is used to screen for elemental solubility. This method is applicable for testing soil, sediments, and municipal/industrial byproducts.

2.0 DEFINITIONS

2.1 Laboratory Control Sample (LCS): The laboratory control sample is an intralaboratory developed sample whose true active C value is approximated by the average of repeated measures.

2.2 Preparation Blank: A sample that contains only the reagents used in the extraction procedure. The preparation blanks is processed through the same procedures as samples and therefore gives an indication of potential contamination in the sample preparation process.

2.3 Duplicate Samples: A duplicate test involves splitting a sample into two or more sub-samples and processing each through the same sample preparation procedure in order to determine the precision of the method.

2.4 ICP-AES: Inductively Coupled Plasma-Atomic Emission Spectrometry.

3.0 EQUIPMENT AND SUPPLIES

3.1 Shaker

3.2 Neutral salt solution

3.3 ≥18 MΩ deionized water

4.0 PROCEDURE

4.1 Samples should be oven dried at 60 °C, dried and sieved to <2mm.

4.2 Weigh 5g of well-mixed sample to the nearest 0.01 g into a 50 mL centrifuge tube.

4.3 Add 25 mL of 0.01 M CaCl₂ solution and cap vessel.

4.4 Equilibrate sample by shaking for 2h.

4.5 Filter (0.45µm) using nylon syringe filters, into ICP falcon tubes.

4.6 Refrigerate filtered extracts and analyze within 2 days or add 1 drop concentrated HCl to preserve samples.

5.0 QUALITY CONTROL
5.1 Sample Duplicates: The % relative standard deviation (%RPD) must be no more than 20%. One sample duplicate must be run for every twenty samples.

\[
\text{RPD} = 100 \times \frac{|S - D|}{\text{Avg. (S,D)}}
\]

5.2 Preparation Blank: If any analyte concentration is above the detection limit, the lowest concentration of the analyte in the associated samples must be 10 times the preparation blank concentration. A preparation blank must run every 10 samples.

5.3 Instrumentation: ICP-AES and ICP-HG-AES analysis are carried out on a Varian Vista-MPX ICP-OES (Varian Inc., Walnut Creek, CA).

6.0 REPORTING

6.1 If the QC limits are not met for any element or sample, the effect on the data set will be evaluated by the project manager and analyst.

7.0 CORRECTIVE ACTION

8.0 REFERENCES


9.0 APPENDIX

10.0 INTERPRETATION