	Geochemistry Global	Doc Type Method Summary Method Code GE_ISE20V Service Testing Issued Date April 2022
Natural Resources	The Determination of Fluoride in Exploration Samples by Sodium Hydroxide/Potassium Nitrate and Ion Selective Electrode	Approved by K. Williams

1. Parameter(s) measured, unit(s):

Fluoride (F⁻): mg/kg

2. Typical sample size:

0.1 g

3. Type of sample applicable (media):

Crushed and Pulverized exploration samples.

4. Sample preparation technique used:

Crushed and pulverized exploration samples are fused with a mixture of sodium hydroxide and potassium nitrate in a muffle furnace with silica gel as complexing agent. The fused mixture is extracted from the crucible using dilute nitric acid.

5. Method of analysis used:

Aliquot portion of the resulting sample solution is mixed with an ionic strength adjustment buffer solution before measurement by ISE.

6. Data reduction by:


The results are exported via computer, on line, data fed to the SGS Laboratory Information Management System (SLIM) with secure audit trail.

7. Figures of Merit:

This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates, duplicates and blanks to calculate accuracy, precision, linearity, range, limit of detection, reporting limit, specificity and measurement uncertainty.

The reporting limit has been determined as follows:

Lowe Report Limit (mg/kg)	25
Upper Report Limit (mg/kg)	100,000

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8. Quality control:

Quality control materials include method blanks, replicates and reference materials and are randomly inserted with the frequency set according to method protocols at ~11% for exploration grade analysis. Quality control materials will also include preparations blanks and duplicates if samples have been taken through the sample reduction process. Instrument calibration is performed for each batch or work order and calibration checks are analyzed within each analytical run.

9. Accreditation:

SGS Natural Resources conforms to the requirements of ISO/IEC 17025. Scopes of Accredited tests are site specific, please visit <https://www.scc.ca/en/search/laboratories>