SGS	**Geochemistry** **Global**	Doc Type **Method Summary** Method Code **GE_CSB02v** Service **Testing** Issued Date **June 2021** Approved by **K. Williams**
Natural Resources	Determination of Inorganic Carbon in Exploration Samples by Coulometric Titration	

1. **Parameter(s) measured, unit(s):**
   Total Inorganic Carbon (TIC), CO_2 and CO_3: %

2. **Typical sample size range:**
   0.02 g - 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 weighed in coulometer test tubes.

5. **Method of analysis used:**
   Total inorganic carbon, CO_2 and CO_3 are determined by coulometric titration. The sample is treated with 17% HClO4 and the evolved C in the form of inorganic carbon is quantitatively absorbed by monoethanolamine then is titrated using Pt and Ag/KI electrodes.

6. **Data reduction by:**
   The results are exported via computer, online, 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 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:

Analyte	Reporting Range %
C(TIC)	≥0.01
CO_2	≥0.05
CO_3	≥0.05

8. **Quality control:**
   Quality control materials include method blanks, replicates, duplicates and reference materials and are randomly inserted with the frequency set according to method protocols at ~11%.
   Quality assurance measures of precision and accuracy are verified statistically using SLIM control charts with set criteria for data acceptance. Data that fails is subject to investigation and repeated as necessary.

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