# Method 16 - Major Elements by Inductively Coupled Plasma (ICP), Lithium Metaborate Fusion (ICP-16)

**Sample Weight: 0.2 g**

## Summary

Sixteen major, minor, and trace elements are determined in geological materials using a lithium metaborate fusion with an Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES). The sample is fused with lithium metaborate and dissolved using dilute HNO3

in a graphite crucible. The resulting solution is analyzed by ICP-OES.

## Method 16 Elements and Reporting Limits

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| Element  | Concentration (low) | Concentration (high) |
| Aluminum, Al  | .005% | 75% |
| Barium, Ba  | .005% | 10% |
| Calcium, Ca  | .005% | 60% |
| Chromium, Cr  | .005% | 10% |
| Iron, Fe  | .005% | 75% |
| Magnesium, Mg  | .005% | 30% |
| Manganese, Mn  | .005% | 10% |
| Niobium, Nb  | .001% | 10% |
| Phosphorous, P  | .005% | 25% |
| Potassium, K  | .005% | 25% |
| Silicon, Si  | .005% | 90% |
| Sodium, Na  | .005% | 30% |
| Strontium, Sr  | .005% | 10% |
| Titanium, Ti  | .005% | 25% |
| Yttrium, Y  | .001% | 10% |
| Zirconium, Zr | .001% | 10% |
| LOI  | 0.01% | 50% |

## Analytical Performance

Data will be deemed acceptable if recovery of each element is ±15% at five times the Lower Limit of Determination (LOD) and the calculated Relative Standard Deviation (RSD) of duplicate samples is no greater than 15%.