



## ANALYTICAL SERVICES

640 North 13<sup>th</sup> Street  
Easton, PA 18042  
610.250.3380

Throughout its 40 year history, the Analytical Services Group of Specialty Minerals Inc (SMI) has provided analytical and investigative services to Minteq, Pyrogenics and SMI's Research, Sales, Marketing, and Quality Assurance departments. These same services are now commercially available. The Group will function as both a service organization and a research facility engaged in developing new and improved analytical methods.

The Analytical Services Group is accredited by the American Association for Laboratory Accreditation (A2LA) to comply with ISO/IEC 17025-2005. The services are problem solving as well as solely analytical. We strongly recommend that the analysis objective, problem to be solved, or question to be answered be discussed and reviewed with SMI prior to sample submission. This discussion will guide the selection of appropriate methods, sampling techniques and control samples. Contact us at 610-250-3380 for a quotation.

### Material Characterization

- Refractory materials
- Slag reaction zones
- Contaminants
- Steel Inclusions
- Quantitative Mineral Identification
- Thermal Properties
- Research Projects

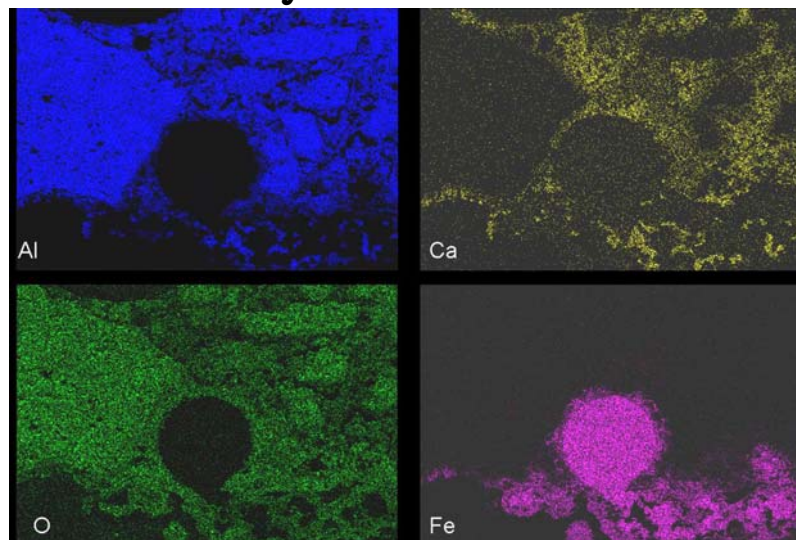
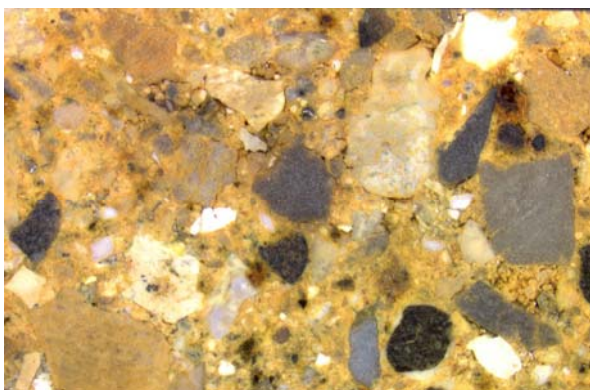
### Chemical Analysis

- Bulk Elemental Analysis
  - Refractory materials
  - Steel
  - Glass
  - Minerals
  - Steelmaking slag
  - Process water
- Organic Identification
- Low Temperature Carbon

### Microscopy

- Particle Size and Shape
- Elemental and Phase Mapping
- Grain Size

- Slag Reactions
- Thickness and Identification of multiple layers
- Porosity



# 2009 Estimated Price List

**Analysis is customized per client's request.  
Please request a quotation.**

<b>Light Microscopy</b>	\$200 per hour
Transmitted and reflected with Bright Field, Darkfield, Differential Interference Contrast, Phase Contrast, Fluorescence, Imaging and Polarized Light Illumination	
<b>SEM</b>	\$200 per hour
Scanning Electron Microscopy	
<b>FESEM</b>	\$250 per hour
Field Emission Scanning Electron Microscopy	
<b>XEDS</b>	\$200 per hour
Xray Energy Dispersive Spectroscopy	
<b>EBSD</b>	\$200 per hour
Electron Back Scatter Diffraction	
<b>Quantitive Image Analysis</b>	\$200 per hour
Computerized image analysis system used for size analysis, coating coverage, And more	
<b>XRD</b>	
Qualitative phase identification as major, minor or trace	per quote
Semi-quantitative estimates as a range of the percent present	per quote
<b>Surface XRD</b>	
Surface layer phase identification using Parallel Beam Optics	\$400 per sample
<b>Thermal XRD</b>	
Mineral phase characterization vs. temperature to 1550°C	per quote
<b>Thermal Characterization</b>	
TGA-DTA - Scouting Runs to 1685°C	\$400 per sample
TGA-DTA - Quantitive testing to evaluate temperature of chemical and physical changes, monitor mass losses & assist phase identification	\$400 per sample
TGA-DSC - Enthalpy to 1500°C	\$400 per sample

<b>Elemental Analysis by XRF</b>	
Steelmaking slag	\$200 per sample
Limestone	\$200 per sample
Other minerals	\$450 per sample
<b>Trace Elemental Analysis ICP-MS</b>	\$100 per element
Elements determined by client.	
<b>Anion Analysis</b>	
F, Cl, NO <sub>2</sub> , NO <sub>3</sub> , PO <sub>4</sub> , SO <sub>4</sub> , CO <sub>3</sub> , HCO <sub>3</sub>	\$250 per sample
	\$125 per sample
<b>FTIR</b>	\$200 per sample
Characterization by FTIR	
<b>Solvent Extractive</b>	\$150 per sample
Determine weight extracted with specified solvent	
<b>Loss On Ignition (LOI)</b>	\$100 per sample
Determine weight loss of volatile compounds, performed at specified time and temperature	
<b>pH</b>	\$50 per sample
Cold or Hot Extraction	
<b>Ash Content</b>	\$100 per sample
Determine weight of residue at specified time and temperature	
<b>Additional Charges</b>	per quote
Sample Preparation, polish	
Custom Reporting	per quote
<b>Rush Analyses (call for availability)</b>	
3-5 Day turnaround	100% Premium
24-48 hour Turnaround	200% Premium
<b>Multiple Sample Discounts</b>	
6-10	5% Discount
11-20	10% Discount
21-40	15% Discount

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**Specialty**  
MINERALS

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