



SGS **CORE SERVICES**

FOURIER TRANSFORM INFRARED (FTIR)



SGS - YOUR TECHNICAL PARTNER IN EXPLORATION

SGS knows the value of your samples and we have the technical and logistical skills to help you manage it. As your field partner, we can help you document and maintain the value of your project. As part of our commitment to providing leading edge technical services, we have invested in new, portable analytical technologies that can be deployed quickly and remotely.

FOURIER TRANSFORM INFRARED

One of these innovative analytical technologies is Fourier Transform Infrared (FTIR). FTIR is a technique which is used to obtain an infrared spectrum of absorption or emission of the mineralogical components of a geological sample.

This technique can provide:

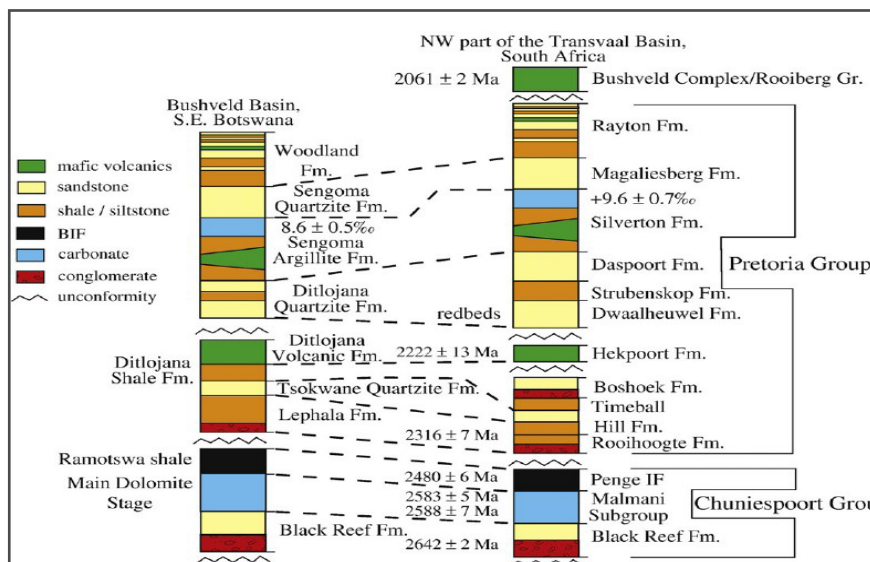
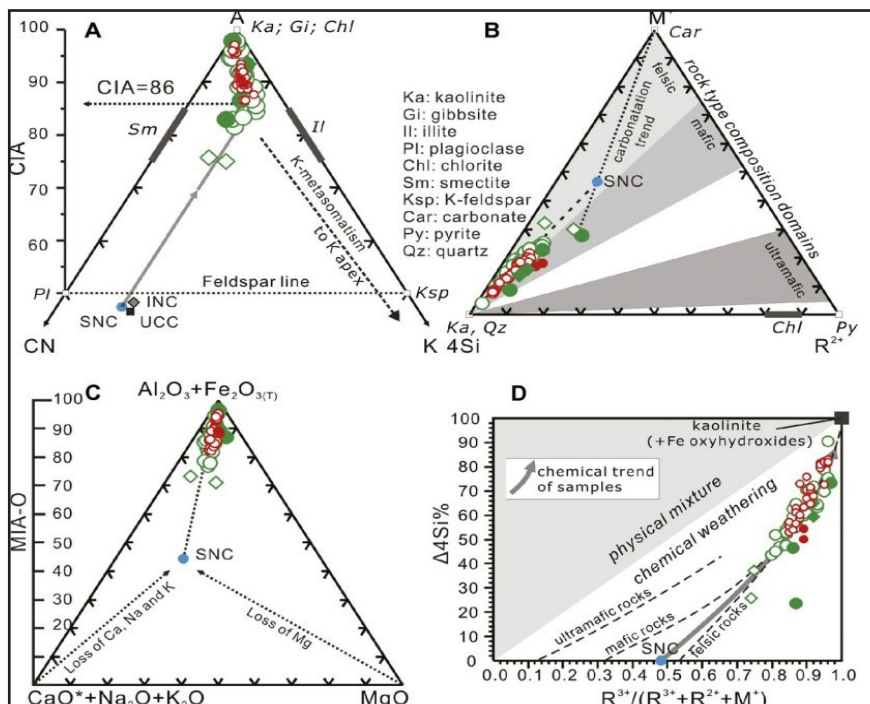
- Direct mineralogical phase identification
- Quantitative mineralogy over a wide dynamic range

Mining-related application areas include:

- Geosteering
- Exploration
- Correlation
- Weathering Index
- Process Mineralogy
- Clay characterisation
- Brittleness Index
- Predictive process recovery (Bauxite)

APPLICATION OF FTIR

The application of FTIR has been developed in response to emerging commodities of interest, allowing you to understand your ore characteristics when historical data may not be in abundance as with traditional commodities.



Development has occurred in the following mineral-group application areas within SGS:

Clays

- Total Clay Content
- Clay speciation
- Clay Binding Capacity
- Weathering Index/Profile
- Brittleness Index

Lithium

- Mineralogy Identification and Quantification
- Ore Body Characterisation
- Production Control

Bauxite

- Mineralogy Identification and Quantification
- Available Al, Reactive Si, Total Al, Total Si & Total Fe
- Production Control and Asset Development

QA/QC

As with other technologies provided by SGS, you can expect the same levels of QA/QC that SGS has become known for. The backbone of the service you receive from us is the global quality protocol used by our laboratories worldwide. It controls methodology, data management and reporting, quality control and governance activities, service attitudes and response.

CALIBRATION

The FTIR instrument is calibrated:

- Prior to use; by known matrix matched standards
- During use; by internal response checks
- Upon completion of use; by known matrix matched standards and internal checks

REFERENCE LIBRARIES AND VERIFICATION OVERSIGHT

The spectral libraries for each application are calibrated against other mineralogical instruments; such as XRD and the analysed spectra is identified against control libraries. These control libraries can be custom generated or are available from groups such as the USGS. Through the calibration process, a custom reference library for your deposit is created, after which, the analysis can be completed, processed and reported at-site by a technician. Your QA/QC data verification oversight is provided to you via the Cloud and SGS' laboratory network, ensuring that you can trust the results that SGS provides.

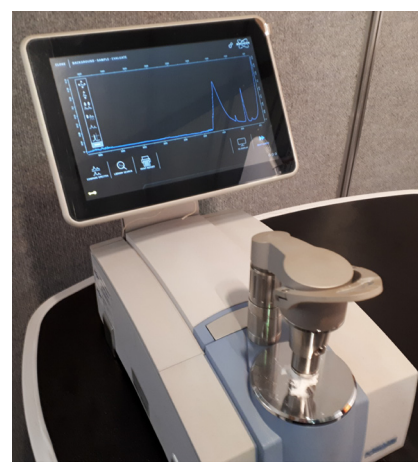
EXPERIENCE LIST

Name	Product	Project Type
Hanree Holdings	Pegmatite	Research
Metro Mining	Bauxite	Quantification
Forbex	Bauxite	Quantification
Venture Minerals	Dolerite	Quantification
Murdoch University	Pegmatite	Research
Atlas Iron	Pegmatite	Quantification
JSC Tin	Porphyry	Quantification

HOW FTIR HELPS YOU

Through using FTIR, you will know earlier than with traditional laboratory based methods if there are chances for processing problems, allowing you to take the steps to determine solutions. Our robust, bench-mounted design that is ideal for onsite deployment, allowing us to quickly reach your site and to begin analysis to allow you to meet the demands of your stakeholders. SGS' technical activities and supervision skills are globally accepted by financiers, environmental agencies and the international mining community. We bring these capabilities to you, your project and your site with our core services package, including FTIR.

When you partner with SGS for core services, you, your stakeholders and your financiers will feel confident that this valuable resource, and all the data derived from it, is in trustworthy hands.



CONTACT INFORMATION

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WHEN YOU NEED TO BE SURE

SGS