



SGS IRON ORE CAPABILITIES

WHEN YOU NEED TO BE SURE

SGS

SGS METALLURGY - IRON ORE TESTWORK SPECIALISTS

SGS METALLURGY IS A **WORLD LEADER** IN THE PROVISION OF BANKABLE METALLURGICAL TESTWORK SOLUTIONS



A CUT ABOVE THE REST

SGS Metallurgy is a proven world leader in the development of bankable process flow sheets for iron ore projects.

In today's challenging economic environment, the accurate metallurgical characterisation of an iron ore resource is critical to effective project evaluation, process design, risk management and project execution.

SGS collaborates with major, global iron ore producers and consistently delivers accurate metallurgical test work results.

SGS has recently completed the expansion of its state-of-the-art iron ore testing facility based in Perth, Western Australia. The site is fully licenced for quarantine, dangerous goods and NORM materials.

SGS OFFERS COMPREHENSIVE IRON ORE METALLURGICAL TESTING SERVICES:

Mineralogical Analysis

- Optical mineralogical assessment (Zeiss microscopes)
- Quantitative mineralogical assessment (QEMSCAN)

Chemical Analysis

- XRF
- FeO
- TGA for LOI



Physical Characterisation

- Sieve (Rotap & Cheers) and sub-sieve size analyses (Cyclosizer and Laser sizer)
- UCS & Youngs Modulus
- Brazilian tensile strength test
- Drop tower testwork (to max' height of 20 m in 0.250 m increments)
- JK drop weight test
- JK SMC test
- Minnovex SPI test



- Bond impact crushing strength test
- Bond abrasion index test
- High pressure grinding rolls (Polysius SMALLWAL studded rolls)
- Bond rod mill work index test
- Bond ball mill work index test
- Minnovex MODBOND grindability test
- Bulk Density/True SG/Apparent Relative Density (ARD)
- ISO/JIS Tumble Strength
- Shatter test
- Screenability test
- Wettability test



Thermal Characterisation

- ISO/JSM Decrepitation
- ISO/JSM Reduction Disintegration Index
- ISO/JIS Reducibility Test
- Midrex test

Crushing, Screening, Splitting and Blending

- Three on-site sample preparation facilities (one dedicated to preparation of samples containing asbestiform mineral species)
- Batch jaw, cone and rolls crushers Micron mills and pulverisers. Rotary splitting devices
- Three stage, continuous crushing plant for processing bulk ore samples
- MASE bulk rotary splitting device (2 to 5 t/h throughput)

Heavy Medium Separation

- Ericson cone
- Pilot HMS cyclone plant (currently being designed)



Grinding (batch and continuous)

- Rod mills
- Ball mills
- Regrind mills
- Stirred media mills



Classification

- KASON and SWECO vibrating screens
- Nordberg single deck, vibrating screen
- Sieve bends
- Eriez cross flow separator
- Hydrocyclones (Krebs, Warman, Mozley, Multotec and Concord)

Drum Scrubbing (batch and continuous)

- 500 mm by 1000 mm dia' variable speed batch scrubber (ISO tumble drum)
- 750 mm by 1500 mm EGL variable speed continuous scrubber

High Intensity Attritioning (batch and continuous)

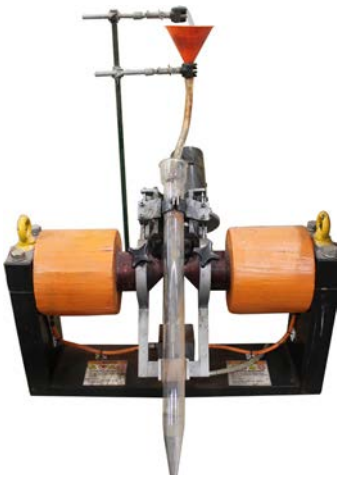
- Quinn pilot attritioners
- Denver batch attritioner
- Lightnin batch attritioner

Gravity Concentration (batch and continuous)

- Allmineral Alljig®
- Batch stratification jigs
- Denver jig
- Wilfley table
- Holman Moody table
- Spiral concentrators

Magnetic Separation (batch and continuous)

- UltraDynamics Magnasat
- Eriez Davis Tubes
- Sala LIMS
- Sterns LIMS
- Eriez LIMS and REMS
- Eriez WHIMS
- SLon 100 and SLon 500
- Eriez rare earth rolls
- Readings high tension roll
- Readings induced roll
- Roche MT single plate separator



Dewatering (Continuous)

- Outotec paste thickener (0.9 m dia by 6 m high)
- High rate thickeners (0.6 m dia)
- Vacuum belt filters
- Automated plate and frame filter presses



Froth Flotation (Batch and continuous)

- Agitair, Essa and Denver bench scale flotation machines
- Agitair, Essa and Outotec pilot flotation machines

Geometallurgical Consulting Services

The SGS Geometallurgical Consulting Services Group provides comprehensive technical assistance to the mining industry, with particular focus on the assessment, interpretation and effective use of metallurgical results.

The SGS geometallurgical approach integrates geological, mineralogical, geochemical and metallurgical information to develop an enhanced understanding of an ore resource, thereby allowing more informed decisions to be made during the exploration, feasibility and operational phases of a project.

Process Modelling and Simulation

- JKSimMet V5.3
- Integrated Geometallurgical Simulator (IGS)

Acid Rock Drainage Testing

- Desktop studies
- Static tests (ABA, NAG & ASLP/ TCLP)
- Kinetic tests (free draining, column leach tests & humidity cell)

Piloting

SGS will custom configure its pilot plant facilities, allowing clients to assess a variety of process options to identify the optimum process flowsheet and generate critical process design data.

SGS Metallurgy has extensive experience with hematite, goethite and magnetite iron ore projects.

SHOULD YOU WISH TO ARRANGE A MEETING OR FACILITY VISIT, PLEASE DO NOT HESITATE TO CONTACT:

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