

IRON ORE PROCESSING

SGS MINERALS SERVICES

SGS Lakefield Orestest Pty Ltd (SGS) was originally founded in 1993 as Orestest Pty Ltd. SGS has since developed into a major metallurgical services organisation located in a purpose-built laboratory in Perth, Western Australia.

The laboratory is dedicated to providing high quality metallurgical testing across the broad spectrum of the minerals industry including:

- Gold ores
- Nickel laterites
- Base metal
- Iron ore
- Mineral sands
- PGM ores
- Rare-earths and other exotics
- Diamond ores
- Environmental services

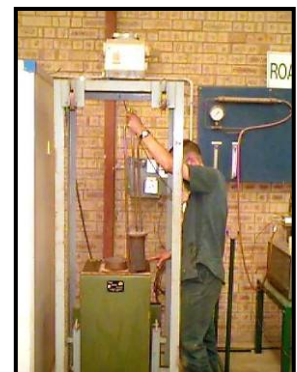
SGS provides a comprehensive range of test work capabilities including bacterial leaching, crushing, screening, grinding, ultra fine grinding, gravity, magnetic & electrostatic separation, solvent extraction, electrowinning, flotation, pressure leaching, pressure oxidation, pressure acid leach and cyanide speciation. Pre-feasibility studies, on-site diagnostic metallurgical services, environmental testing and analytical services are also included in our range of capabilities.



IRON ORE TEST FACILITIES AT SGS

The main tests and facilities available include the following:

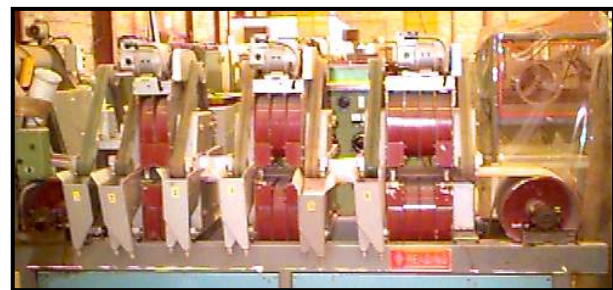
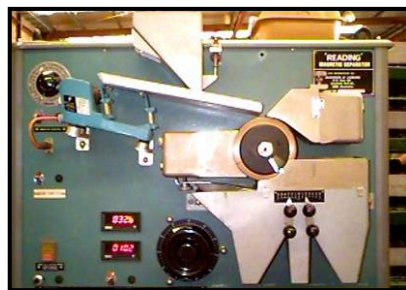
- Shatter Index Test (ISO/JIS).
- Tumble Strength Test (ISO/JIS).
- Reduction Disintegration Index Test (ISO/JSM).
- Reducibility Test (ISO/JIS).
- Decrementation Index Test (ISO/JSM).
- 20 litre Stratification Jig.
- Trommel scrubber: 2500 mm long x 300 mm Ø.
- Attritioning Cells: 5 litres to 500-litre capacity.
- Cyclones: Various sizes from 12 mm to 150 mm.



- Screens various sizes up to 250 TPH.
- Spiral test rig: capable of housing four different spiral types at any time and recirculating material in closed loop up to 6.0 tonnes per hour.
- Dense medium separation using a laboratory scale Erickson cone.
- Electrostatic plate separator: Reichert production scale plate separator with built in heating for stable conditions.
- Eriez wet drum magnet: for separation of strong paramagnetic minerals such as magnetite and hematite.



- Upcurrent classifier: hydrosizer design classifier for separation of differing heavy and light minerals or sizing of similar minerals.
- Induced roll magnet: Readings pilot scale top fed induced roll magnet with vibratory feeder.
- Crossbelt magnet: Readings 3 pole, 7 belt half-size crossbelt magnet capable of 2.0 tonnes per hour.
- High tension roll: bench scale Readings: 240 mm high tension roll separator with built-in heating for stable conditions.
- Wet high intensity electromagnets, using the induced matrix to capture magnetics, which are then washed off. Our models are Eriez and Readings.
- We have a laboratory version of the Eriez Ferrous Wheel. This unit incorporates interchangeable permanent rare earth magnets and is gravity fed. Several matrix types are available for testing.
- Davis tube separator. This is a well-known laboratory separator, using the shaking action of a tube in an electromagnetic field.



IRON ORE TESTWORK COMPLETED

- Large winze programmes including the complete suite of ferrous burden and physical tests.
- Processing of lump material to produce natural and generated fines, and lump:fine ratios.
- Flotation studies for upgrade of feed stocks.
- Investigation into separation efficiency of various spiral concentrators on fine iron ore.
- Effect of iron upgrading of iron ore fines by attritioning and desliming.

MAJOR CLIENTS

- BHP Iron Ore
- Robe River Mining Company
- Hope Down Management Services
- Hamersley Iron Pty Ltd
- Rio Tinto Ltd
- Kingstream Ltd
- Ausi Iron Pty Ltd
- Asia Iron
- Portman Mining Ltd

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