

ASSAY LABORATORY

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.



Introduction

As part of developing the facility as it stands today, SGS established an Assay Laboratory to handle the analytical requirements for our in-house projects. Quality of results and turnaround times are critical to the successful completion of these projects, and these are strictly monitored with corrective action being taken whenever required. The large amount of samples in short timeframes generated during pilot-plant campaigns has ensured that the Assay Laboratory has the systems and procedures in place to cope with most scenarios. This has made the laboratory well-placed to handle custom assay work.

Facilities at SGS

The main facilities at the SGS laboratory are:

- **Digestion.** Four-acid, aqua regia and sodium peroxide fusions.
- **Atomic Absorption Spectroscopy (AAS).** Two Varian instruments are used - a model 200 and a model 220FS.

- **Inductively Coupled Plasma – Optical Emission Spectroscopy.** A Perkin Elmer Optima 3000 ICP-OES is used; this instrument is generally more sensitive and less prone to interferences than the Atomic Absorption technique.
- **Leco.** SGS has two Leco Sulphur Analysers, enabling both low and high concentrations of sulphur to be analysed.
- **Gold.** DIBK extraction of cyanide solutions and AAS assay are routinely conducted.
- **Titrimetric.** Ethylenediaminetetraacetic Acid (EDTA) and acid/base titrations are regularly performed (free acid; acid neutralising capacity (ANC)).
- **Leaching.** Laboratory-scale leach tests such as acid-soluble copper and cyanide-soluble copper are performed.



Elements Determined And Their Detection Limits By ICP-OES

Ag (1 ppm)	Al (10 ppm)	As (5 ppm)
Ca (10 ppm)	Co (2 ppm)	Cr (5 ppm)
Cu (1 ppm)	Fe (10 ppm)	K (20 ppm)
Mg (10 ppm)	Mn (1 ppm)	Na (10 ppm)
Ni (1 ppm)	Pb (5 ppm)	S (10 ppm)
V (2 ppm)	Zn (1 ppm)	

For more information, please contact us:

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