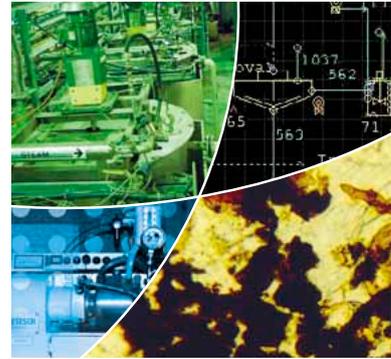




**hrltesting**

# News at hrltesting

October 2012



## Another Year Rolls Around

**Welcome to our 6th issue of the hrltesting Newsletter.**

**hrltesting** has a unique set of skills. We combine a sharp minerals testing business with a strong research and development capacity. This gives our clients access to commercially focused services coupled with an unsurpassed professional interpretive offering. We form lasting relationships with our clients and value their repeat business highly.

2012 has seen our skill set brought to the fore, with trials of major innovative technologies in scandium solvent extraction, alkaline sulphide leaching, electrowinning and improved analytical methods.

Our Assay Laboratory has continued to grow with new instrumentation and people to support our testwork programs. Its services are also available to external assay clients.

We truly value your business and would like to take this opportunity to thank you for your support. We look forward to being of assistance to you in the future.

Read on about our projects, new services in the assay laboratory and more new faces at **hrltesting**.

**Chris Casingena**, General Manager – Metallurgical Testing

**Geoff Whebell**, Chief Operating Officer

### Alkaline Sulphide Leaching

This novel technology provides an effective process to remove arsenic from base metal concentrates. In work done to date we have demonstrated a reduction in arsenic levels from a prohibitive 1.2% As, to levels as low as 0.05% As, making previously unmarketable concentrates highly attractive. We see this new technology as being an enabling process for large segments of the base metals industry. It is being developed in partnership with Xstrata Copper.

Testwork continued over the past year with the successful completion of a mini pilot plant of the primary leach circuit running continuously over 30 days. The pilot campaign was successful in demonstrating that the primary leach circuit could achieve high extractions (>90%) of arsenic from the various copper concentrates. The campaign confirms that the process is robust and well understood.

Another key objective of the campaign was to provide sufficient leach bleed solutions for further downstream flowsheet development work ahead of designing and running a larger integrated pilot plant later in 2012.

Following this successful downstream flowsheet development, the next phase of testing will examine continuous operation of the integrated flowsheet, with a large pilot plant campaign scheduled to start in November.

### Albion Process and Pilot Campaigns

Albion Process testwork continues to expand, with a high level of enquiry continuing particularly for refractory gold projects. This is being supported by the commissioning of the world's first gold-only Albion Process plant for Panterra Gold's Las Lagunas project in the Dominican Republic.

Equipment upgrades are now complete for a new generation pilot plant to support future pilot programs more effectively.

## hrltesting introductions



**Sibasis Acharya**  
Project Manager

Sibasis completed his Masters degree in Materials science & technology at the Banaras Hindu University, India in 1999. He obtained his doctorate degree in Metallurgical Engineering from the Indian Institute of Science, Bangalore, India in 2005 on Thermodynamics and Phase equilibria studies for systems involving electronic materials. Sibasis subsequently held the positions of Guest Scientist at the Technical University, Clausthal, Germany and Research Engineer at Arcelor Mittal Ltd, France. More recently, he worked as a Research fellow at The University of Queensland, Australia. Sibasis is a welcome addition to our team and brings with him extensive experience in mineral processing, pyrometallurgy, hydrometallurgy, process and physical metallurgy, THERMOCALC and METSIM modelling.



**Phillip Whittle**  
Assay Laboratory Manager

Phil started with **hrltesting** in May and has a significant role in expanding the capability of the assay laboratory. He has had considerable analytical chemistry experience across a diverse range of minerals and mineral products over 25 years either in site based or in commercial laboratories. Most recently he ran the Bureau Veritas Laboratory in Mount Isa. He is enjoying "the experience" of living in Brisbane.

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## Analytical Services

**Mineral Analysis:** We commissioned a second ICP during the year increasing our analytical capacity and service delivery.

**Ion Speciation:** We have built on our expertise in the speciation of many ions. The recent addition of a state of the art mass spectrometry chromatography system has further strengthened our expertise. Our sulphur speciation methodologies continue to broaden and we now offer validated methods for both Leco and wet chemical procedures.

**Accreditation:** The Assay Laboratory has also embarked on a program to gain NATA accreditation.

This year we have also been concentrating efforts on developing our Laboratory Information Management System (LIMS) to track our quality and turnaround times.

## Scandium Recovery and Refining Project

In March 2012, a mini-pilot (40 mL/min) solvent extraction circuit was run at hrltesting Pty Ltd for the recovery of scandium from a nickel laterite leach on behalf of Metallica Minerals. The circuit comprised two extract and four strip mixer/settlers.

The mini-rig ran for over 300 hours with very little downtime. 750 L of PLS was processed, producing over 90 L of strip liquor containing approximately 500 ppm scandium (equivalent to >50 g Sc<sub>2</sub>O<sub>3</sub>). Organic recycle achieved over 150 turnovers, with no reduction in extraction efficiency. The results indicated that a commercial plant with three extraction stages would likely achieve in excess of 95% scandium extraction. There were no major operational problems, with only minimal residue accumulation in the organic, despite an unfiltered PLS. A larger pilot plant (900 mL/min) was then constructed to process the remainder of the HPAL pilot run PLS (see photo to right).

The strip liquors from these programs were then further processed using Metallica's scandium recovery technology and hrltesting produced approximately 1 kg of high purity scandium oxide (Sc<sub>2</sub>O<sub>3</sub>) at >99.9% in June/July 2012. Samples of this product were for evaluation by potential customers and JV partners.

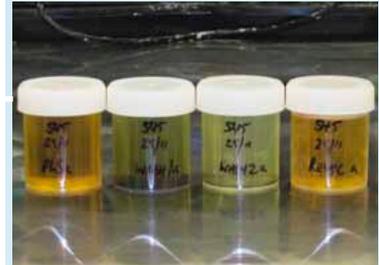
## General Expansion

David Holley joined our team as Warehouse Controller in June 2012 and immediately set to work establishing our new dedicated sample storage warehouse at 9 Moore Street. Dave's background in warehousing and supply for large civil construction projects has been just the ticket to establish this new facility.

Flotation capacity continues to grow with expansion of these facilities on the back of growth in our capabilities and strong client support. A 300 mm Jameson Cell has also been refurbished and is available for laboratory and site based testwork.



Alkaline Sulphide Leaching Mini-Pilot



Alkaline Leach Circuit Solutions



Jameson Cell – Lead Flotation



Scandium Solvent Extraction Pilot

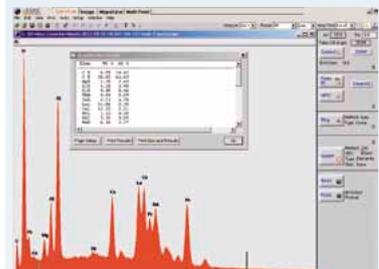
## hrlAnalytical

hrltesting makes its assay laboratory services available for commercial use. The unsurpassed level of service that has been developed for hrltesting's use is now available to you.

**Quality, timeliness and safety** are the cornerstones of the service. Specialising in:

- Mineral Chemical Analysis
- Environmental Testing
- Analytical Chemical Services
- Laboratory Technical Audits
- Bulk Mineral and Concentrate Shipment Sampling

*Come and join us at booth 112 at Mining 2012 in Brisbane.*



Electron Microprobe (EMP) analysis of a rare earth carbonate mineral from a client's project. Significant rare earth elements (Ce, La, Nd and Pr) are shown to be present in solid solution in the mineral lattice.

## hrltesting

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