WHAT WERE THE KEY OUTCOMES?

Identification of superior collector

Optimised flotation performance

3.5% improvement in copper recovery

Reduction in reagent costs

$2M increase in annual gross revenue due to higher mineral recovery rates

WHO WAS THE CLIENT?

Xstrata Mount Isa Mines form one of the largest underground mining operations in the world. The mines, based in North Queensland, produce both copper and zinc-lead-silver. Established in 1924, 5,700 employees and contractors today work across Xstrata Mount Isa’s twin mining and processing streams.

WHAT WERE THE CHALLENGES?

Xstrata needed to improve copper recovery and called on Orica to identify and test collectors. Orica formulated a collector that would enhance milling and flotation of slow cooled copper slag. Ultimately, the process needed to achieve superior recovery of copper at a natural pH over a specific grind fineness.

Xstrata’s key requirements were to:
• Identify superior collectors
• Reduce reagent costs
• Optimise flotation performance
• Integrate improvements into existing operations

HOW DID ORICA HELP?

Orica developed a laboratory test work program using Xstrata’s current performance as a benchmark. Our expert technical team supported Xstrata throughout the project-analysis of laboratory test results, execution of plant trials and statistical analysis of plant data in order to quantify the benefits. The program confirmed improved recovery rates when DSP 330 was combined with sodium isobutyl xanthate (SIBX). As a result, DSP 330 was chosen for plant trial.

The plant trial supported the initial laboratory results, with copper recovery improving by 3%. Further laboratory testing and plant trials conducted by Mount Isa Mines found an improvement in overall recovery of 3.5%. As a result, DSP 330 was adopted as specialty collector of choice when treating slow cooled copper slag.

“Greater understanding, improved performance”

The best flotation performance was achieved with the 50:50 addition ratio of DSP 330 and SIBX, with a copper recovery of 92.4% for a head grade of 5.4% and a cut-off copper grade of 24-25%.”

Pengfu Tan, Alberto Galvez, Lucya Yunus– Mount Isa Mines

For further information please visit www.orica.com/flotation or contact the National Customer Service Centre
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To achieve increased mineral recovery and reduce total costs for both flotation and leaching, talk to us about Orica’s PRO Service. Our expert metallurgists provide a proactive and systematic technical support service, supporting you to ensure that you get the most out of our products, at your site.

### ADVANTAGES OF USING ORICA TO OPTIMISE PERFORMANCE

Orica’s metallurgical team combine an in-depth understanding of mineral processing with specialised expertise – transforming our product and service portfolio into a range of valuable customer solutions. Services are customised to meet specific site challenges and implemented using our systematic approach; working together to enhance the performance of your processes, optimising your productivity and outputs, and partnering to drive the revenue of your business.

- Bespoke Solutions
- Enhanced Performance
- Optimised Productivity
- Reduced Costs

### References


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