



Parker Cooperative Research Centre
for Integrated Hydrometallurgy Solutions

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MANY GREAT RESEARCH STORIES TOLD AT SCIENCE DAY

Over 60 people, including senior representatives from the minerals industry, heard 21 fascinating science stories on Wednesday 22 November that illustrated the breadth and depth of the Parker Centre's work for the alumina, base metals and gold markets. The 2006 Parker Centre Science Day, held at Curtin University of Technology, turned a spotlight on the fruits of the first year's research by the Parker CRC for Integrated Hydrometallurgy Solutions.

Two examples of these stories were:

Successful pilot testing of new synergistic solvent extraction systems by industry

Commercialisation of the Parker Centre's novel synergistic solvent extraction (SSX) technologies for improved metal(s) separation and recovery has passed the pilot stage and is close to implementation in the minerals industry.

A limited number of extractants are available commercially for the separation of metals in solvent extraction, and the development and production of new extractants is extremely expensive. This has generated strong interest in SSX systems which use a combination of two existing extractants to improve metal separation.

Three mining companies have so far pilot tested novel SSX systems developed by the Parker Centre's Solvent Extraction team at CSIRO Minerals, and a number of other pilot plant trials are under negotiation. These new systems include an SSX system for separating copper, zinc and iron from nickel and cobalt with improved cobalt product quality, an SSX system for directly separating cobalt and zinc from manganese, magnesium and calcium and an SSX system for directly separating nickel and cobalt from manganese, magnesium and calcium.

Contact Dr Chu Yong Cheng (Ph: (08) 9334 8916; e-mail: Chu.Cheng@csiro.au) for further details.

New stripping method to get gold-thiosulfate off resins

There's the "secret ingredient" in Coca-Cola and the Colonel's "secret recipe" for KFC chicken. And now there's the Parker Centre's "secret additive" in a new method for eluting gold from the resin used to recover gold in a thiosulfate leaching system.

Thiosulfate is the most promising alternative to cyanide for leaching gold from ores and concentrates in niche applications. However, activated carbon can't be used to recover the dissolved gold because the gold-thiosulfate complex won't bind to the carbon. Ion exchange resins can be used instead but previous methods for eluting the gold from the resin have their problems.

Parker Centre gold researchers at CSIRO Minerals have developed a new elution method (incorporating the "secret additive") that is more effective than previous methods, provides low cost elution and would enable the gold to be eluted without introducing untenable levels of eluent into the circuit.

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