



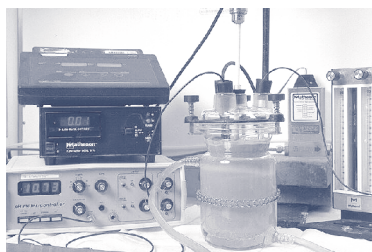
METALLURGICAL PROCESSING

THE CHALLENGE

Improving productivity and minimizing the costs associated with processing and environmental issues represent a constant challenge for mining companies. Economic considerations drive the mining industry's interest in optimizing metallurgical processing techniques, improving mineral and metal recovery, recycling and lessening environmental impact.

NRCAN CAN HELP

CANMET-MMSL's metallurgists are a group of experts with the capability to characterize systems, carry out research, improve existing operations and help develop new processes and techniques. Our projects range from solving small, isolated problems to developing whole new processes. Objectives include improving process efficiency by optimizing mineral processing techniques and developing cost-effective treatment processes. Our strength is our ability to integrate characterization studies with our understanding of the process, so that we can better define the problem and develop solutions.



*Experimental set-up
for gold leaching*

OUR EXPERTISE

CANMET-MMSL has developed a range of expertise through R&D activities:

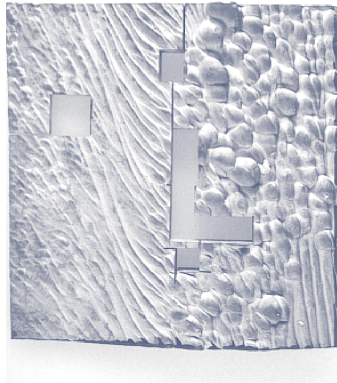
- **Mineral processing expertise**
 - Optimizing sulphide ore flotation
 - Specialized knowledge in fine grinding and fine particle separation
 - Magnetic and gravity separation
 - Behaviour of impurity elements during refining
- **Hydrometallurgy of precious and base metals**
 - Leaching and electrorefining
 - Laboratory scale and pilot plant scale trials
- **Recycling and environmental control of metallurgical processes**
 - Developing effective recycling technologies
 - Reducing environmental impact by improved understanding of metallurgical processes
- **Mineralogical characterization during metallurgical processing**
- **Agglomeration, cold pelletizing and cementing to bond materials**



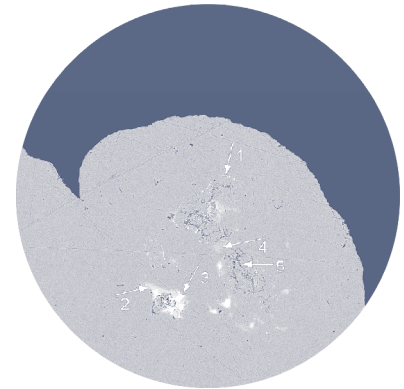
SUCCESSFUL PARTNERSHIPS

Examples of successful partnerships are:

- CANMET-MMSL demonstrated on a flotation mini-plant that by improving control of the existing operation, our client could achieve higher recoveries of zinc and copper for the same processing cost. This represented significant annual cost savings for the client by using an enhanced flotation process.
- A gold mining company estimated substantial annual savings resulting from an improved understanding of their gold processing. As a part of this project, CANMET-MMSL's study of the process indicated that some reagents were being used in excessive quantities, offering no benefit and with the potential to be detrimental. Reducing quantities of these reagents led to both cost savings and improved recovery.
- An iron ore mining company estimated significant annual savings as a result of improved recoveries of iron ore from the tailings, stemming from CANMET -MMSL characterization work and mineral processing studies. As a part of this project, significant quantities of recoverable iron ore was identified in the tailings, which further testing showed could be recovered by changing operating conditions.



Nodulated copper cathode



Cross-section of a copper cathode nodule showing the presence of slime clusters in the nodule

CONTACT US

CANMET-MMSL's goal is to help find sound, science-based solutions to operational challenges.

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