



MINING EFFLUENT TECHNOLOGIES

THE CHALLENGE

The Canadian mining industry has an ongoing challenge in complying with regulatory requirements for effluents, as well as in reducing liabilities related to waste streams produced during treatment.

NRCAN CAN HELP

CANMET-MMSL has established a team of experts in inorganic chemistry, hydrometallurgy and biotechnology to develop treatment technologies to help the mining industry meet regulations. The integration of chemical and microbial expertise to provide a better understanding of natural and engineered degradation processes is the real strength of the team.

OUR EXPERTISE

We work directly with industry on the treatment of mine, mill and metallurgical effluents to develop and adapt effluent management strategies, including prevention and remediation technologies. We also collaborate with universities, other research organizations and consulting firms to provide a multidisciplinary approach to issues.

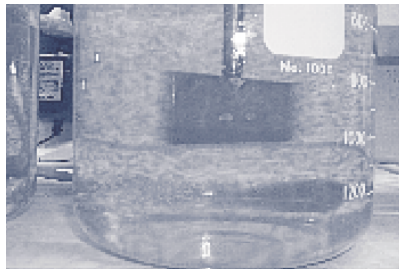
CANMET-MMSL has developed a range of expertise through R&D activities:

- **Contaminant removal from effluents using both chemical and microbial processes, including**
 - Ammonia
 - Cyanide
 - Thiosalts
 - Metals
- **Microbial ecology: characterization of microbial populations, their behavior in nature, and enhancement or inhibition of their activity**
 - Natural degradation processes and remediation options
 - Process microbiology related to bioleaching
- **State-of-the-art technical approaches to acid mine drainage and effluent treatment**
- **Assessment of site-specific environmental issues**
- **Leach protocols for metal-bearing wastes to meet regulatory requirements**
- **Transferring expertise in effluent treatment and mine rehabilitation to Canadian mining companies**
- **Environmental technology transfer to foreign governments**

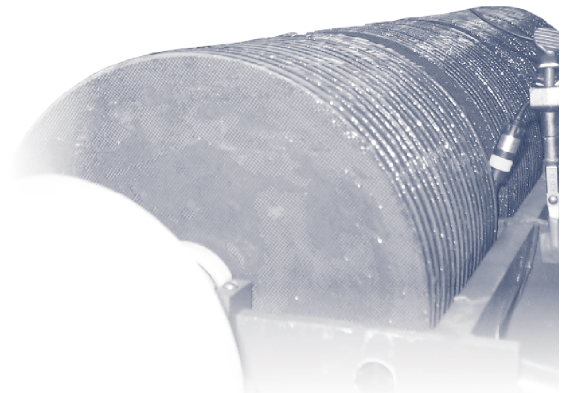


SUCCESSFUL PARTNERSHIPS

- CANMET-MMSL is coordinating the research efforts of an industrial consortium that is looking at ways to treat effluents containing thiosalts; a by-product formed during the processing of sulphide ores. This consortium is leading to the development of treatment options and management strategies to meet required regulations for thiosalts in a cost-effective manner.
- Through the Slag Leach Consortium, CANMET-MMSL investigated leaching protocols and their application to non-ferrous smelter slags. Investigations found that slags passed all leach protocols: they were stable, inert materials. Proper storage was all that was required to ensure little or no environmental impact.
- Eleven mining companies approached CANMET-MMSL for help in managing ammonia. Through the Ammonia Control Consortium, it was found that better management of ammonia would enable companies to meet regulations without implementing any new technologies.



Precipitation of dissolved metals using ferric hydroxide



Rotary Biological Contactor used for the treatment of mining effluents

CONTACT US

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

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