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Minerals and Metals Sector update

Research on Site-Specific Regulation of Metals

The Natural Sciences and Engineering Research Council of Canada (NSERC) recently announced the successful application by McGeer (CANMET Mining and Mineral Sciences Laboratories [CANMET-MMSL]), Wood and McClelland (McMaster University) for the research program "The Science Needed for Site-Specific Regulation of Metals in the Aquatic Environment - Improving and Extending the Biotic Ligand Model for Ambient Water Quality Criteria." The program is valued at $1 150 000, includes co-funding by industrial partners (International Lead Zinc Research Organization, International Copper Association, Nickel Producers Environmental Research Association, Teck Cominco, Noranda/Falconbridge and INCO), and will run for four years. In addition to the cash funding, there are significant in-kind contributions, including those of CANMET-MMSL, industry and a consulting group.

Contact: Jim McGeer, 613-947-3451, jmcgeer@nrcan.gc.ca

Appointment to the International Commission for Mine Closures

Dr. Marc Bétournay, of CANMET-MMSL's Ground Control Program, has been named the Canadian representative to the International Commission on mine closures and long-term stability established by the International Society of Rock Mechanics. The persistence of mine cave-ins around the world presents hazards to human safety, vital services and energy delivery infrastructure. Furthermore, land use in several mining countries is becoming critical to population support and requires mine properties to be returned to safe agricultural and residential use. While this Commission will focus on understanding the geomechanical aspects and establishing engineering risk-based assessment approaches, it will also develop best practices and an international standard to be adopted by practitioners and governments. Dr. Bétournay is an international authority on the stability and related risk management of abandoned metal mines. His comprehensive standard, which he has developed for the provincial governments and which has been transferred to international organizations, will form an integral foundation of the Commission's work.

Contact: Dr. Marc Bétournay, (613) 995-1147, mbetourn@nrcan.gc.ca

CANMET-MTL Develops Graphite Mould Casting Process for Aluminum Applications

The CANMET Materials Technology Laboratory (CANMET-MTL) has made improvements to the graphite mould casting process for aluminum alloys. One of CANMET-MTL's clients reports that aluminum alloy A357 castings made by CANMET-MTL using the improved graphite mould technology exceed the mechanical property requirements for certain aerospace applications. The company states that the process has generated considerable interest among several of its Canadian and American clients who want to use it to produce high-integrity thin-wall components.

Graphite moulds, which are commonly used for zinc castings, have not been used for aluminum previously because of the cost and casting defects. As a result of improvements made to several casting parameters, including mould design, melt and heat treatments, and mould and metal-pouring temperatures, components with excellent mechanical properties have been produced. The company considers this accomplishment a contributing factor in its decision to expand its Montréal operations.

Contact: Daryoush Emadi, 613-995-4850, demadi@nrcan.gc.ca

Minerals and Metals Sector
Natural Resources Canada
580 Booth Street
Ottawa, Ontario K1A 0E4
Canada

E-mail: CoordinationMMS@nrcan.gc.ca
Fax: (613) 952-7501

www.nrcan.gc.ca/mms