



CANMET MINING AND MINERAL SCIENCES LABORATORIES

Ground Control



Program objectives

The Ground Control Program promotes a safe mining workplace by reducing workers' exposure to rock hazards. The hazards include rockbursts, rock falls and ground instabilities associated with mining in high stress conditions and weak rock masses, such as mining at great depth or in altered ore deposits, permafrost and frontier environments.

Expertise

Staffed with a team of specialists in geomechanics, geodynamics, mine design and instrumentation, the Program ensures that state-of-the-art knowledge and expertise are available in its four main areas of activity

- induced seismicity
- rock mass characterization and stability
- ground support
- underground mine backfill

Key issues

Induced seismicity

- design of seismic instrumentation, systems and monitoring networks
- monitoring of deep-well and thermal stimulation petroleum extraction, underground mines and open pits
- analysis and interpretation of induced seismicity

Rock mass characterization and stability

- determination of rock properties (in both static and dynamic conditions) for mine design purposes
- extension of rock reduction processes, that is, drilling, blasting, crushing and grinding activities, for energy efficiency optimization
- assessment and modelling of rock mass stability

Ground support

- in situ and laboratory testing of ground support elements in both static and dynamic conditions
- rockburst simulation through blast experiments
- determination and optimization of fibre-reinforced shotcrete properties

Underground mine backfill

- evaluation of physical properties and quality control of backfill materials
- development of new products, such as composite fill and alternative binders as alternatives to existing materials for deep mining, high stress conditions or weak rock masses

Contact Us

This research is part of CANMET-MMSL's broader plan to foster sustainable growth in Canada's mining and mineral industry. To work with us, contact

www.nrcan-rncan.gc.ca/mms-smm/tect-tech/index-eng.htm

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Cat. No. M39-126/9-2009 (Print)
ISBN 978-1-100-50384-4

Cat. No. M39-126/9-2009E-PDF (On-line)
ISBN 978-1-100-14066-7

Her Majesty the Queen in Right of Canada, 2009



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