



## CANMET MINING AND MINERAL SCIENCES LABORATORIES

# Underground Mine Environment



### Program objectives

The Underground Mine Environment (UME) Program conducts research to improve air quality for workers in underground mines. State-of-the-art methodology and instrumentation are used to reduce worker exposure to toxic emissions and heat, and to assess the requirements for and the optimization of ventilation systems for underground mines.

### Expertise

The UME Program specializes in

- mine ventilation research associated with characterization, modeling and automation
- sampling, analysis and mitigation of underground mine contaminants, such as mineral dusts and diesel exhaust emissions
- diesel engine research related to emission control technologies, alternative fuels and diesel engine evaluation and certification

### Key projects

#### Mine ventilation research

- design of ventilation management and automation strategies
- tools to optimize ventilation requirements (airflow and activity simulation, tracer gas techniques)
- heat assessments and evaluation of heat stress instruments

#### Diesel research

- diesel engine and equipment certification testing
- development of diesel emissions standards
- research and development in emission control technologies (diesel particulate filters)
- evaluation of clean fuels (low sulphur, biodiesel)

#### Contaminant control

- contaminant sampling and analysis
- development of instrumentation and procedures to sample and measure diesel particulates (RCD and NIOSH 5040), gases and mineral dusts (silica)

### 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](http://www.nrcan-rncan.gc.ca/mms-smm/tect-tech/index-eng.htm)

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