



Minerals and Metals Sector *Update*

MMS Develops Technology for Cleaner Oil Production

Canada's oil sands reservoirs contain about one third of the world's known petroleum reserves. The economic recovery from such reservoirs relies on thermal processes such as steam stimulation, which can sometimes give rise to occurrences of fluid (oil) escaping through cracks in well casings. In extreme cases, oil could even leach into aquifers or the surface at ground level, resulting in significant environmental damage and remediation costs. Recently, Dr. Shahriar Talebi, a CANMET-MMSL scientist, has developed technology that addresses this issue.

In collaboration with Imperial Oil Resources Ltd., Dr. Talebi has successfully developed and implemented seismic monitoring technology that is capable of detecting breaks in well casings. The company has made a commitment to use this technology as a warning system for unwanted accidental fluid injection, leading to enhanced environmental safety and increased productivity.

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Patent Paves Way to Lighter Automotive Components

A Canadian patent on "Preforms for Magnesium Matrix Composites" has recently been awarded to Jason Lo, Raul Santos and A.K. Kuriakose of CANMET Materials Technology Laboratory. Currently, significant R&D activity is under way worldwide in the development of magnesium alloys

for use in automotive components. Magnesium, the lightest structural metallic element, is an attractive alternative to steels in lighter-weight automobiles for the purpose of reducing both gasoline consumption and greenhouse gas emissions. For structural applications where elevated temperatures are encountered, the mechanical properties of magnesium alloys do not currently meet the performance requirements. This patent describes a means of improving the elevated-temperature properties of magnesium components by incorporating a ceramic reinforcement in the selected region or regions of the component where improvement is needed. A U.S. patent on this technology was granted to the same authors in 2003.

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Mexico Awards Scientist Emeritus

CANMET's Dr. V.M. Malhotra, Scientist Emeritus, received an award recently in Mexico in recognition of his contribution to the transfer of materials technology. CANMET has been assisting Mexico in transferring technology since 1968. At the University of Nuevo Leon in Monterrey, Mexico, Dr. Malhotra has been participating in the broad area of concrete and cementitious materials. In May 2005, in recognition of this, the University of Nuevo Leon gave an award to Dr. Malhotra during a symposium to honour the late Professor Raymundo Rivera. The citation of the award read: "For his invaluable support to Raymundo Rivera in the implementation and dissemination of the New Concrete Technologies in Mexico."

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