



TECH TO BUSINESS

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## Ionic Liquids for Tailings Treatment

Tech ID# 1176.02

### Background

Ionic liquids are liquid salts that exhibit complex anionic-cationic interactions that yield unconventional properties, including selective solubility, purification and miscibility. University of Calgary and McGill University researchers have recently synthesized a new ionic liquid that has the potential to enhance current tailings treatment and management processes. This technology has the potential to replace polyacrylamide as the treatment of choice for accelerated tailings settlement.

### Areas of Application

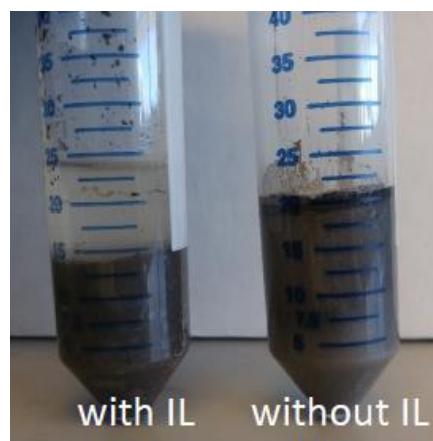
- Tailings remediation

### Competitive Advantages

- Improved shear stability
- Increased chance to be stackable and trafficable
- Potential to reduce future environmental and regulatory liabilities
- Can be used with existing tailings treatment equipment

### Intellectual Property Status

- Provisional Patent Application filed



*Figure 1: Treatment of Mature Fine Tailings with Ionic Liquid. IL was mixed with MFT, and then centrifuged. Turbidity of the water phase is substantially lower with IL treatment.*



*Figure 2: MFT treated with IL that had been premixed with superparamagnetic iron oxide nanoparticles. Clay has been magnetized and can be attracted to the side of the vessel using a magnet.*