

OPTIMIZING OIL-SANDS AND TAILINGS SETTLING AND WATER RECYCLE WITH INLINE PARTICLE CHARACTERIZATION

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Alberta, Canada is home to massive deposits of oil sands, estimated to contain approximately 300 billion barrels of recoverable bitumen. However byproducts of the oil recovery are tailings which include a mixture of water, sand, silt, clay, and residual bitumen. To minimize environmental concerns posed by tailing ponds, it is important to separate tailing solids to ensure efficient water recycle and speed water recovery process.

Flocculation is a common separation technique in the oil sands industry for tailings management. Performance of flocculation polymers and chemicals greatly depends on the incoming particle size distribution, solids concentration, mixing efficiency, and additive type and dosage. Flocculation effectiveness influences downstream separation, settling, flotation, and purification. By implementing probe based particle measurement technology, such as FBRM[®] (Focused Beam Reflectance Measurement) and PVM[®] (Particle Vision and Measurement) real time changes can be tracked to the floc distribution while measuring inline at full process concentrations with no sampling required. These tools allow flocculent performance to be quickly optimized in the laboratory and are used to control solids flocculation and downstream separations in the field. This poster will focus in the implementation of FBRM[®] and PVM[®] technologies in optimizing oil-sand tailings flocculation.