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## Effects of MgCl<sub>2</sub> on Potash Solution Mining and Processing

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### Abstract

Solution mining is becoming the process of choice for proposed new potash production plants in Saskatchewan. A combination of increasing depths of available potash resources and the projection of continuing relatively low prices for natural gas favor solution mining economics. Solution mines are also quicker to bring into production and require lower capital costs to construct, compared to a conventional shaft mine.

The Saskatchewan potash zones contain varying amounts of MgCl<sub>2</sub> and other impurities. The accumulation of MgCl<sub>2</sub> and other impurities in the solution mining brine does affect the performance of both the solution mining and the potash processing plant.

This paper will outline how the presence of MgCl<sub>2</sub> and other impurities affect the saturation potential of the solution mining brine. The effects on the capacity and efficiency of the potash processing plant due to the accumulation of MgCl<sub>2</sub> in the process brine will also be discussed.

**Key words:** Brine Chemistry, Cavern Operation, Potash, Potassium Minerals (Carnallite), Saskatchewan

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