



Role of Vibration in Solid-Liquid Separation using a Vacuum Belt Filter

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The science of solids and liquids separation is currently applied in many forms to a wide variety of applications at an industrial level all around the globe.

Focusing on processing plants in the Mining industry (for example, metallurgical coal and iron ore for steel making, and battery material minerals (lithium, rare earth, etc.) to support electric vehicles and renewable industries), it is typical that at some point in their process these plants will utilise a solid-liquid separation technology for the production of commercial bulk solids for sale as well as the processing of mining waste streams for storage.

One such solids-liquid separation technology is the Vacuum belt filter. This industry-proven technology has been in operation for decades as a reliable and robust continuous system to separate large volumes of solid-liquid streams.

A recent innovation to this technology has improved the system's efficiency dramatically. The efficiency gain unlocks this filtration technology for new applications such as mine waste dewatering for dry stockpile storage. It has the potential to save millions of dollars per year for existing and new operators. An introduction to the Viper technology will be provided during the group presentation.

In this topic we would like to:

- explore the mechanisms that facilitate the efficiency gain that has been observed with saturated to semi-saturated beds of particles,
- propose methods to validate these mechanisms and
- consider models that could be used to optimise the system's performance.