Opportunity is "wear" science & awareness meet!

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Abstract

If your role involves making decisions about the design of elements in an iron ore value chain, procurement of consumables or how it operates, then you are (consciously or unconsciously) making decisions about the trade-off between wear rate and cost. These decisions have numerous and far reaching consequences for operations, so they should to be informed by the available science.

In this paper the phenomenon of wear is explored from an iron ore flow perspective. Starting with the common wear impacts of bad (ill informed) decisions the paper identifies the benefits of the science informed ones before articulating the specific mechanism responsible for wear in iron ore operations. Accelerated testing has an important role to play test selection is critical in order to maximise the benefit. Both the applicability and utility of the various qualitative and quantitative accelerated wear testing options is addressed with practical guidance in relation to the approach required for iron ore operations.

Once the wear rate for a given iron ore-contact material combination has been quantified, the knowledge can be used directly to improve value chain design choices as well as predict the impact of optimisations changes from a wear perspective. Wear rate, throughput and ore quality are directly linked so any informed decision relating to throughput and/or the flow characteristics of the ore needs to incorporate its wear implications in order to avoid a false economy and ensure increases in the instantaneous rate and/or product quality are not achieved at the expense of operational availability.

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