OreVia

Rock

MOLYCOP
A tega company

Measurement and Analytics

Milling



Advanced precision with the OreVia suite

Molycop's cutting-edge OreVia technology suite revolutionises mining operations by stabilising and optimising mineral processing. Using Artificial Intelligence (AI) and advanced machine learning, OreVia delivers real-time insights to:

- increase efficiency
- reduce wear
- improve product consistency
- increase profitability.

OreVia technologies can be placed at the primary crusher discharge, secondary crusher discharge, above the mill feed, above flotation tanks, or directly in slurry pipes and use advanced AI capabilities to learn the context of each location. Using robust, high-resolution cameras, they detect and alert operators to process variations, providing high-resolution imagery and real-time data and analysis with remote monitoring and playback feature options.

OreVia technologies

The OreVia suite of advanced AI-based technologies includes:

Rock: Detects and measures rock particles to ensure a consistent blend into the mill, stabilising throughput and reducing liner wear.

Slurry: Detects and measures fine particle size and fragmentation in pipes for robust, affordable and accurate particle-size insights.

Froth: Monitors froth pulp velocity and bubble size and reports anomalous flotation conditions in real time to maximise mineral extraction efficiency.



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OreVia – Rock overview

OreVia is an advanced, AI-learning rock fragmentation system that accurately detects rock sizes, adapts to variations in ore and installation locations, and delivers fast, real-time particle measurements.

The technology measures the size of coarse particles on a conveyor belt using AI-powered technology to identify the outline of each rock. It then calculates rock size based on the best-fitting ellipse for each rock. The outcome is a Particle Size Distribution (PSD) that measures the fragmentation of the ore.

The system offers remote monitoring or playback features and integrates seamlessly with existing control systems. OreVia can easily be evaluated off-site through quick video-based demonstrations provided by Molycop free of charge using video footage of the mill feed.



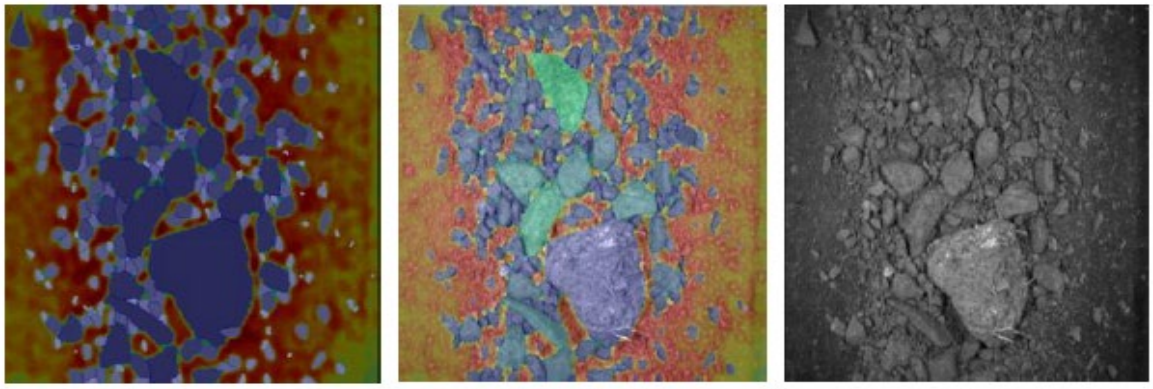
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Features

- Measures coarse particle sizes in the range 0.1–500mm
- AI system learns and improves over time
- Learns location context so can be placed on belts, inside feeders and directed at crushers
- Offers high-resolution fines analysis
- Detects and adapts to ore variations
- Integrates with control systems and the Molycop VIP Platform
- Ignores surrounding areas, including belts, feeder walls, crusher surfaces and rollers

Benefits

- **Reduced costs:** Improved crusher and mill operation while reducing power draw and liner wear due to size instability, leading to overall cost reductions.
- **Increased throughput:** Improved process control with real-time adjustments for optimal mill control delivers improved crusher and mill throughput and product specification consistency (system will emit an alarm if material is out of specification).
- **Increased profitability:** With reduced mill operation costs and improved energy consumption, along with improved throughput and product specification consistency, OreVia delivers real-world profitability improvements.



OreVia measures rock fragmentation particle size in real time to improve throughput.

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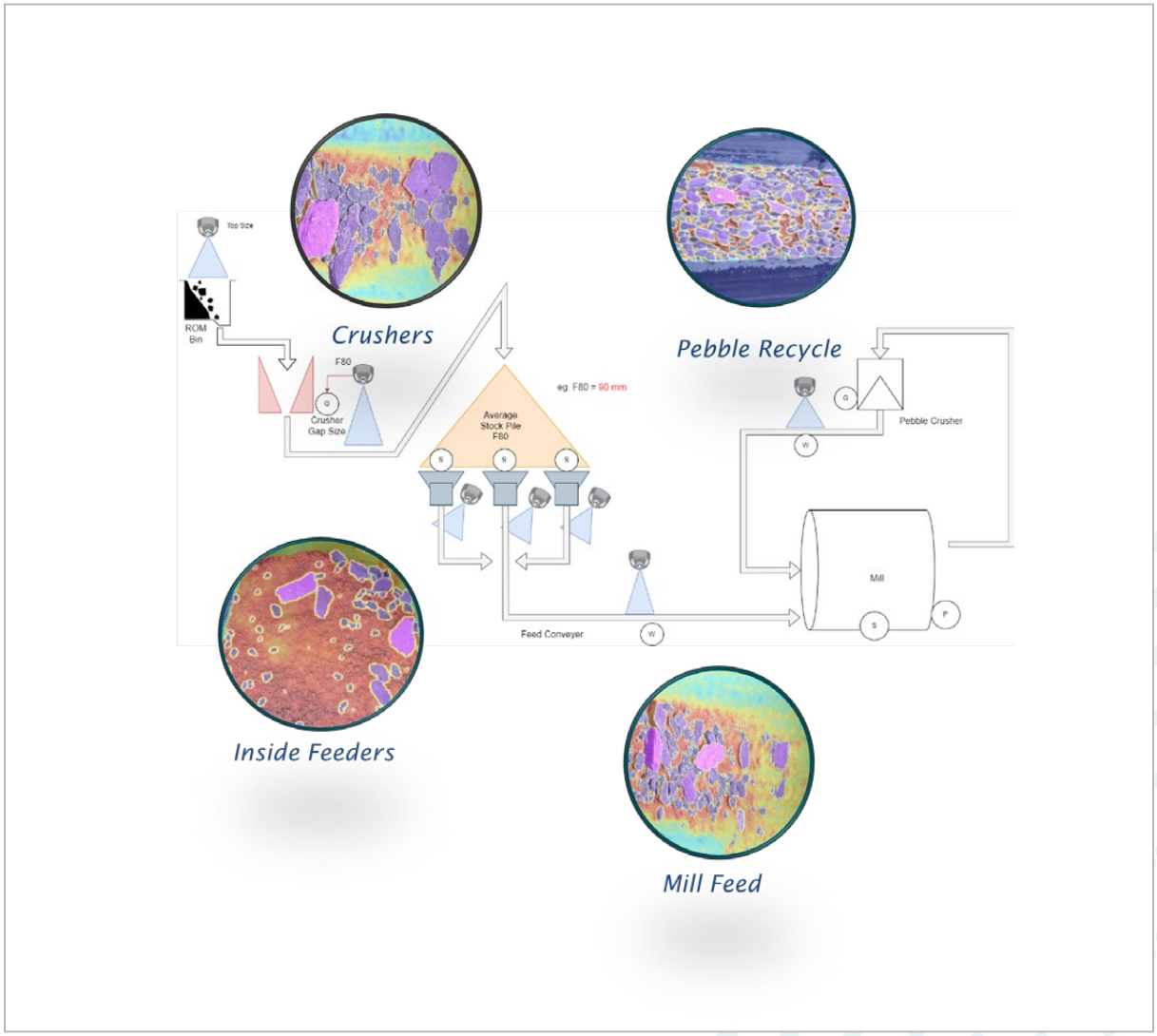
Real-time fragmentation control

Artificial Intelligence has paved the way for robust, affordable and accurate particle-size insights without the need for expensive laser-based systems.

Measurements from the primary crusher discharge are helpful in ensuring optimal operation. For most plants, the mill feed is a typical measurement as it significantly affects the mill operation. Control systems can use this measurement to adjust the mill operation based on the particle size of the ore fed. If the ore is reclaimed from a segregated stockpile, fragmentation measurements can be used to ensure the optimal blend reaches the mill.

Data is collected and stored in a time-series database and is readily available for analysis by Molycop's VIP Platform or output to the plant SCADA/Historian via OPC.

With deep expertise in control solutions, Molycop seamlessly integrates OreVia into control systems to enhance operational efficiency. Designed for compatibility with Molycop's advanced optimisation suite, including MillSlicer and MillStar APC, this solution ensures precise mill performance and process control.



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Case for OreVia and Control

How does particle size affect your process?

- Particle size can significantly affect milling power draw and stability. See Figure 1.
- When running a circuit in load control with a fixed feed rate, the mill must speed up to maintain the load under coarse ore conditions.
- This results in greater mill impacts at a higher speed as seen by Molycop's MillSlicer instrument in Figure 2.
- After controlling particle size, the liner impacts stabilise. See Figure 3. This should significantly reduce peak liner wear periods.

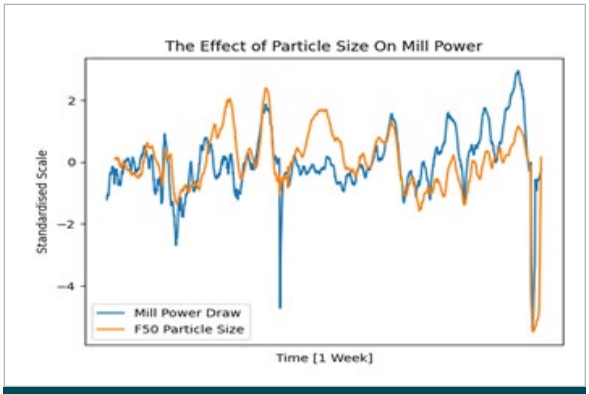


Figure 1: Effect of particle size on mill power draw.



Figure 2: Prior to controlling particle size (yellow) we see liner impacts (LDL) and possibly wear increasing.



Figure 3: After controlling particle size (yellow) we see that liner impacts (LDL) and possibly wear have stabilised.

Stabilising particle size with feeders

- Advanced control can be used in various cases to stabilise particle size. In Figure 4, feeders have been ratioed based on natural stockpile segregation.
- OreVia can be integrated to any part of the upstream crushing process to further stabilise feed.



Figure 4: Controlling feeder particle size.

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Typical uses

OreVia is primarily used by mining operations to improve crusher and mill operation and productivity. The system provides real-time data on particle size, which is then used to optimise stages of the mineral processing circuit, from crushing through to flotation.

OreVia is primarily installed at the primary crusher discharge, secondary crusher discharge, or above the mill feed.



Contact Molycop to find out more about how Molycop OreVia optimises mineral processing operations.

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