

# Grinding Optimization Application

## Datasheet

IntelliSense.io's Grinding Optimization Application guides metallurgists, operators and lower level control systems on how to operate the grinding circuit to achieve optimal performance.

### The Problems Faced by Grinding Circuits

Grinding circuits reduce ore to sub-millimeter sizes, an extremely energy intensive process. As a result, the majority of a plant's energy cost is normally spent here. They are also asset intensive. The high impact, abrasive environment is challenging to equipment making maintenance costs and mill stoppages a big factor.

Operators are often unsure how to achieve the best performance due to a lack of transparency on what is happening inside the mills and variable feed conditions. Contributors to this uncertainty are:

- Lack of insight into ball charge levels requiring frequent mill stoppages
- Limited visibility of the state of mill liners prompting frequent inspections
- Variability of mill feed properties causing unexpected overloads and maintenance
- Limited data on the composition of the mill content, making it challenging to feed the mill to maximise throughput and efficiency

Optimizing your Grinding Circuit increases throughput and reduces energy consumption

### The IntelliSense.io Solution

IntelliSense.io's Grinding Optimization Application directly addresses these challenges:

1. **Ball Charge Virtual Sensor:** Shows the current ball charge in real-time, alerting operators when new balls need to be added
2. **Liner Wear Virtual Sensor:** Displays the current state of the mill liner, its wear rate and an

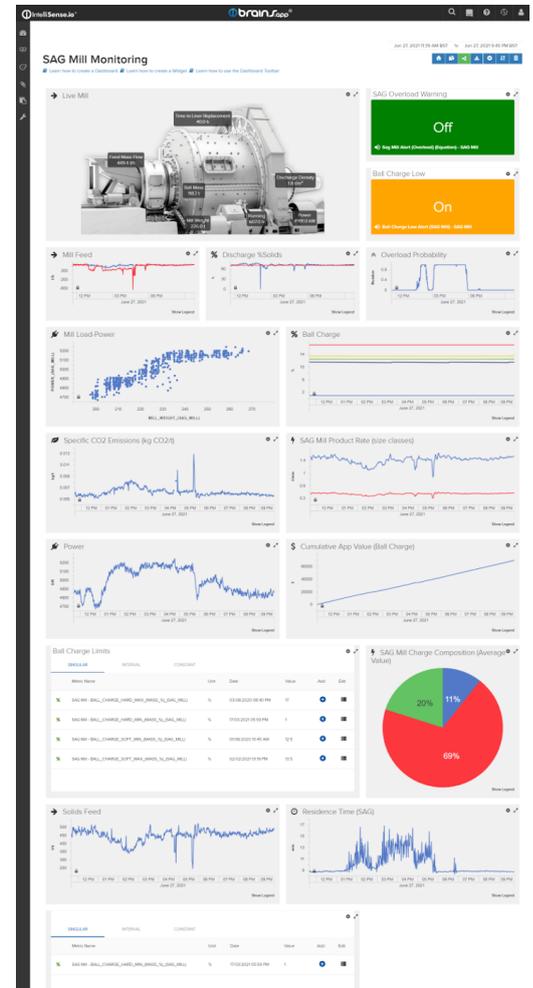
estimate of the best time to replace each section

- 3. Overload Predictions:** Predicts and alerts operators of potential mill overload events long before they happen allowing for corrective action
- 4. Mill Charge Virtual Sensors:** Provides real-time values of key properties inside the mill (charge volume, slurry density, charge trajectory & particle size distribution)

## The Value Gained from Optimization

The IntelliSense Grinding Optimization Application will:

- **Increase throughput** by preventing costly mill stoppages to check ball charge levels and **improve grind performance** by consistently maintaining the optimal ball charge
- **Decrease unplanned liner replacements** and unnecessary maintenance checks
- Achieve more **stable Grinding Circuit performance** by eliminating mill overload events
- Increase throughput and **reduce energy cost** by safely pushing the mill to its optimal operating point for the current feed conditions



The IntelliSense.io Grinding Optimization application has been developed and refined over several years at multiple customer sites, creating an 'out-of-the-box' product that can be rapidly deployed to deliver value within weeks.

Altynalmas Aktogay Gold Mine is achieving \$1.3M in value generation per year by optimizing their grinding circuit

## Mine to Market: Value Chain Optimization

Powered and connected together by the brains.app platform, the Grinding Optimization Application is one of a suite of real-time decision-making applications that uses Artificial Intelligence (AI) to optimize each process, from mine-to-market.

Our Material flow model connects these applications together to drive even greater efficiency gains.

 **Book a demo**  
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