MINERALITY OPTIMIZATION PACKAGE

GET THE MOST FROM YOUR PLANT

METALLURGIST TRAINING

OPTIMIZATION SOFTWARE

PLANT SURVEY & OPTIMIZATION REPORT
“The typical benefit of an optimization study is a **5-10% increase in throughput** at a given product size. For a more complex circuit, the gains may be more dramatic.”

*Mineral Comminution Circuits: Their Operation & Optimization, JKMRC, Page 332.*
If a once-off optimization study can result in a 5-10% throughput increase, what would a more continuous optimization strategy achieve?
By itself, doing an optimization study will make your mining operations more money, but by following a continuous approach you will be saving even more.

How much can your operating plants improve?
Improvement range from optimization (USD per hour extra)

*For 0.5% Cu grade, 17% Recovery at USD 5,700/ton Cu

Throughput (tph)

USD $ per hour extra
Improvement range from optimization (USD per hour extra)

For a 2,000 tons per hour Copper Plant you can expect between $2,423 per hour or $4,845 per hour more.

For a 5,000 tons per hour Copper Plant you can expect between $6056 per hour or $12,112 per hour more.

*For 0.5 % Cu grade, 17 % Recovery at USD 5,700/ton Cu
Even a 1% improvement in a 2,000 tph plant will result in USD 12,000 improvement per day

*For 0.5% Cu grade, 17% Recovery at USD 5,700/ton Cu
A Minerality optimization package adds value through a combination of three elements:

1. *Plant survey & optimization report:* For immediate improvements

2. *MetSMART optimization software* to continuously increase yield & recovery

3. *3 Day training workshop* for process metallurgists
Cyclone Issues

Feed Size Changes

Slurry Pooling in Mill

Improve recovery

Respond to ore changes

Prevent bad decisions by testing with MetSMART

By Minerality

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Slurry conditions

Slurry pooling or low slurry levels can not be diagnosed by measurement devices. MetSMART can diagnose and solve this.

Slurry pooling may drop throughput by up to 10%.

**MetSMART solves this, expert control systems do not**
Slurry pooling costs money - MetSMART fixes this

![Graph showing throughput over time with a notable increase after adjusting SAG mill variables.]

After changing the SAG mill variables the slurry pooling stopped. 2050 tph to 2300 tph. 10% improvement.

250 tph * 1.5% Cu grade * 85% Recovery = 3.2 tph Cu extra

5700 USD/tons * 3.2 tph = USD18,240 more per hour

MetSMART solves this, expert control systems do not
Feed size changes

Changes in feed size may occur suddenly resulting in a drop of throughput and drop in energy efficiency.

MetSMART solves this, expert control systems do not
Feed size changes cost money- MetSMART fixes this

MetSMART solves this, expert control systems do not

After changing the SAG mill variables to account for new F80, throughput increase from 1620 tph to 1700 tph.

80 tph*1.5 % Cu grade*85% Recovery = 1 tph Cu extra

5700 USD/tons *1 tph = USD 5,700 more per hour
Prevent bad decisions by testing with MetSMART

An overloaded mill will result in hours of down time and subsequent losses.

MetSMART solves this, expert control systems do not

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Bad decisions = downtime. MetSMART fixes this

After checking changes before making them, the availability of plant increased from 90% to 92%.

12,000 tons per day operation becomes 12,250 tons per day operation.

250 tph*1.5 % Cu grade*85% Recovery = 3.2 tph Cu extra

5700 USD/tons *3.2 tph = USD 18,240 more per hour

MetSMART solves this, expert control systems do not
Cyclone issues

Recirculating Loads

Roping cyclones effect recirculating loads, leading to a major drop in product quality.

Wrong recirculating loads cause valuable minerals to go to waste.
Cyclone issues cost money- MetSMART fixes this

After changing operation to reduce recirculating load from 500 % to 300 %, the recovery changed from 78 % to 80 %.

On 600 tph operation
600 tph*1.5 % Cu grade*2% Recovery = 0.18 tph Cu extra

5700 USD/tons *1 tph = USD24,000 more per day

MetSMART solves this, expert control systems do not
Ore body variability

Feed ore hardness changes continuously. The effect of a feed change on the plant must be known.

MetSMART solves this, expert control systems do not
Feed ore variability costs money—MetSMART fixes this

After changing operation to deal with new ore, throughput increases from 1620 tph to 1700 tph.

80 tph*1.5 % Cu grade*85% Recovery = 1 tph Cu extra

5700 USD/tons *1 tph = USD5,700 more per hour

*MetSMART solves this, expert control systems do not*

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The interaction between valuable minerals and waste must be known. If they float at the same rate reagents must be changed.

Improve recovery

Stop sending valuables to the tailings dams.
Poor flotation decisions cost money - MetSMART fixes this

After making flotation adjustments the recovery improved from 76% to 78%.

On 1500 tph operation
1500 tph * 1.5 % Cu grade * 2% Recovery = 0.45 tph Cu extra

5700 USD/tons * 0.45 tph = USD60,000 more per day

MetSMART solves this, expert control systems do not
For more information

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