



Superior mill liners, service and support combine to improve mine's success

In an effort to reduce downtime, increase productivity and increase the milling efficiency of their SAG mill, a leading gold and copper mine in South America conducted side-by-side tests of FLS's high performance, lightweight PulpMax™ Composite Shell Mill Liners and liners from another supplier. It also gave the mine the opportunity to evaluate both suppliers' service and support capabilities.

With the results in, it's easy to see why FLS was this mine's obvious choice.

Background and objective

With a production capacity of 22,000 tonnes per day, this gold and copper mine depends on their 24' x 14.5' SAG mill to continuously operate at peak efficiency.

They know dependable mill liners not only boost their mill's reliability and performance, they protect it from the intense wear and tear that comes from constant grinding of hard, raw materials. They also know dependable mill liners boost their operation's productivity, whether by reducing downtime or increasing tonnes milled.

With the aim being to increase throughput and milling efficiency, and to reduce downtime, the mine sought to compare the performance of composite mill liners from a new supplier against composite mill liners from their current supplier.

That new supplier was FLS.

The benefits of using PulpMax™ Composite Shell Mill Liners

- Increased profits with higher throughput
- Decreased downtime with proven durability
- Safer, with less parts to handle and install

A winning combination of process experience, products and service

Defining the project

Shell liner life is a crucial component in a mine's up-time, efficiency and output, and this mine owner knows that not all mill liners are created equal.



In order to accurately compare the wear life of two different suppliers' composite mill liners, it was determined that a side-by-side test of the liners would be undertaken.

Side-by-side testing allowed both suppliers' liners to be exposed to exactly the same mill conditions, at exactly the same time.

FLS proposed to the mine that they trial the PulpMax Composite Shell Mill Liners. FLS anticipated that the liners would last 120 days, reduce the total weight, avoid cracks and allow a higher ball charge level without increasing the stress on the mill.

The solution

In March 2018, FLS installed their PulpMax Composite Shell Mill Liners in the mine's 24' x 14.5' SAG mill. The installation comprised three FE Shell Lifters and three FE Shell Liner Plates. The competitor also installed their liners in the same mill. The trial protocol was established, and it was determined that technical reports would be presented at the time of installation and during the mid-campaign shutdown. A final report would also be delivered.

In addition to supplying high-performance, lightweight composite mill liners, FLS made frequent site visits to provide any needed services, checks or adjustments.

The mid-campaign inspection revealed the PulpMax Composite Shell Mill Liners displayed wear patterns and wear ratios as initially expected. Most importantly, there were no cracks or adherence problems between the rubber matrix and the steel inserts.

Additionally, based on the wear patterns and wear ratios, liner life was forecast to exceed the expected 120 days.

At the final inspection, FLS used 3D scanning technology to examine the liners. Then, they removed the liners for further analysis.

FLS PulpMax liners installed side-by-side to competitor liners.





3D scanning used to examine the liners.

The results

Our PulpMax Composite Shell Mill Liners lasted 124 days. The continued use of these liner types would result in decreased down time and improved wear life.

While the mine found the PulpMax liners outperformed the competing supplier's liners, they particularly valued the exceptional tailored service and support they received from FLS during the trial period. It was far superior to what they received from the competing supplier and FLS's support helped the mine's operations to run more efficiently.

At the end of the trial, the mine's choice was obvious. The superior performance of FLS PulpMax Composite Shell Mill Liners and our outstanding service and support helped the mine to meet their objective of increased productivity and milling efficiency, and reduced downtime.

A full set of FLS PulpMax Composite Shell Mill Liners is now in place in the mine's 24' x 14.5' SAG mill and we continue to support their use.

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