

“In 2014 at each major shutdown, it was normal for as many as 10 pulleys to be taken out for refurbishment. Today that is down to an average of one pulley per major shutdown.

The implementation of the Elastotec HVCL at the site has delivered a substantial reduction in pulley refurbishment costs and has eliminated unplanned down time due to lagging failure.

- Maintenance Personnel”

CASE STUDY: INCREASED SERVICE LIFE OF PULLEYS WITH ELASTOTEC HVCL

Australia's biggest gold producer was experiencing significant conveyor downtime due to frequent pulley lagging failures. A successful trial of Elastotec's Hot Vulcanised Ceramic Lagging in 2014 led to the adoption of Elastotec HVCL across 50+ pulleys by 2017. A study in 2023 reported zero reported lagging failures, with the HVCL remaining in excellent condition - eliminating the need for reinstallation and costly downtime (the lagging actually outlasted the mechanical components of the pulleys themselves). This case study highlights how Elastotec's HVCL significantly improves durability, reduces maintenance costs, and enhances operational efficiency.



LOCATION: Western Australia

YEAR: 2014 - 2023

APPLIC.: Pulley Conveyor

SOLUTION: Hot Vulcanised Ceramic Lagging

ISSUES ON SITE:

Australia's biggest producing mine, situated in Western Australia, produces 750,000 ounces of gold and 80 million pounds of copper annually, supporting a workforce of 2,000 employees. Since its reopening in 2009, the site has depended on high-performance conveyor systems to ensure smooth operations.

By 2014, frequent pulley lagging failures were leading to significant conveyor downtime (over 12 hours per change-out), prompting mine maintenance personnel to seek a more reliable solution.

Additionally, the use of direct bond adhesives and ceramic resins was time-consuming and labor-heavy, leading to safety risks during maintenance.

The key issues identified included:

- Lagging debonding from the pulley shell
 - Edge lifting, compromising adhesion and durability
 - Water penetration at lagging joints, leading to debonding and shell corrosion
 - Tile loss due to adhesion failure
 - Excessive lagging wear, reducing overall service life
- These failures occurred long

before pulley bearings or locking elements showed signs of wear, forcing the use of in-situ cold vulcanised lagging as a temporary fix. However, this approach resulted in inconsistent performance, especially on drive and high-tension bend pulleys.

THE SOLUTION:

In 2014, mine maintenance personnel asked for recommendations on extending lagging service life, as frequent failures were the leading cause of pulley breakdowns and conveyor downtime.

The mine site's trusted supplier of pulley refurbishment services proposed Elastotec's Hot Vulcanised Ceramic Lagging (HVCL) as an effective alternative.

After reviewing the proposed solution, site maintenance personnel approved a trial installation in mid-2014 to evaluate its effectiveness in real operating conditions. This trial aimed to determine whether Elastotec's Hot Vulcanised Ceramic Lagging (HVCL) could significantly extend lagging service life, reduce pulley failures, and minimise unplanned conveyor downtime. The trial also provided an opportunity to assess HVCL's durability, adhesion strength, and resistance to wear under the mine's demanding conditions before full-scale implementation.



Extended Lagging Service Life
up to 9 Years



Zero Pulley Lagging Failures
Since Installation

Reduced Conveyor Downtime

Improved Pulley Performance

Increased Production Efficiency

THE RESULTS:

Following the trial's proven success, the mine revised its lagging specifications, adopting Elastotec Dimpled HVCL for drive pulleys and Elastotec Plain HVCL for non-drive pulleys. As of 2017, more than 50 pulleys have been installed with zero failures. Several pulleys have even been returned for bearing replacement, and in each case, the Elastotec HVCL remained in excellent condition, eliminating the need for reinstallation. These results demonstrated HVCL's superior reliability, wear resistance, and long-term cost savings, making it the preferred solution for the mine.

A routine inspection in October 2023 has confirmed the exceptional durability of Elastotec Hot Vulcanised Ceramic Lagging, originally applied in 2014. The lagging remained securely bonded to the pulley shell, with no signs of debonding or separation at the joints, effectively preventing water penetration and preserving the pulley's integrity. Additionally, after nine years in operation, there was no significant tile debonding or noticeable lagging wear. Elastotec' Hot Vulcanised Ceramic Lagging continues to enhance conveyor availability and increase production efficiency. When lagging is engineered for performance, it can outlast the mechanical components of the pulley itself.

