

Case Study – K-Floshield® Polished High Chrome Liner

Kinder Australia Product:

K-Floshield® Polished High Chrome Liner

Product Category:

Materials Flow Solutions

Location:

Victoria

Conveyed Materials:

Recycled Building Materials

Installation Date:

March 2019

Installation Review Date:

November 2021

CHALLENGE:

- Resolve regular blockage issues.
- Reduce on-site hang-up.
- Minimise production downtime.
- Extend the wear life of liner.

Recycling of building waste is a growing sector in the Melbourne metropolitan civil construction materials handling and processing industry. For approximately 8 hours per day, 6 days a week, our customer operates a large recycling facility in the city's southeast, accepting brick, concrete, asphalt, glass and other mixed waste, turning it into road base, aggregate and sand products.

One of the final processes, the aggregate is combined and blended within the plant using a pugmill to produce its quality sellable products. This process mostly involves the additive of water amongst others to an already abrasive bulk material mix, resulting in a sticky solution which the site was observing in the form of hang up on the pugmill walls, floor and other surrounding chutes. Our customer reported that, due to some blockages, operators would be hosing out the pugmill multiple times a shift and in some instances, would have to isolate the plant and manually remove the hardened material.



Previous Wear Liner Install (after 3 months service)



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SOLUTION:

K-Floshield® Polished High Chrome Liner



Initially, to reduce the hang-up, the site attempted using a UHMWPE polymer sheet (recommended to assist with hang-up issues, where finer material is present, yet impact is minimal). Although somewhat successful with reducing the hang-up, our customer advised that the impact within the operating environment seemed too aggressive and the UHMWPE liner wore away prematurely after only 3 months of service. Due to the awkward and confined space of the pugmill, frequently replacing liners took a lengthy amount of time contributing to the site's downtime and was raised as a manual handling concern.

After speaking with Kinder Australia about the issue, it was recommended they proceed with an installation of Pugmill Liners such as K-Floshield® Polished High Chrome Liner, highly effective when utilised in heavy duty applications.

The K-Floshield® Polished High Chrome Liner's purpose is to combat both extreme abrasion and hang-up via its integration of a pre-polished chromium carbide overlay on a mild steel backing. By polishing the K-Floshield® Polished High Chrome Liner, a reduction in friction coefficient is achieved, aiding to the slipperiness of the wear liner.

RESULTS:

- Hang-up issues resolved immediately.
- Productivity efficiencies realised.
- Reduction in cleaning time.
- Product expectations exceeded.

Our Customer reported installation was straightforward, as they were able to use traditional cutting and welding methods.

The results were in hang-up reduction were immediate. At the end of each shift the pugmill still needs to be hosed out, however the time required to complete this task has been greatly minimised. It is expected that the longer the K-Floshield® Polished High Chrome Liner is in service, the material will continue to polish, enhancing the application and further reduce the cleaning time.



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After 3 months and 123,609 tonnes of 20mm minus crushed concrete, brick and cement treated concrete later, the Pugmill Liners performance was checked again to see how the material was wearing and the customer happily reported that the 'any wear was almost negligible' and the 'initial weld line was still present in the wear liner'.

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INSTALLATION REVIEW – NOVEMBER 2021

Kinder Field Applications Specialist recently touched base with our recycling operator to inspect and monitor the condition of K-Floshield® Polished High Chrome Liner since the initial installation in March 2019, within the plant's pugmill. Initially a small section of the pugmill was lined, fast track a few years later the pugmill underwent an upgrade and is now completely lined with K-Floshield®. After close inspection, the operator is pleased to report the pugmill targeted areas continues to realise huge success utilising Kinder's innovative material flow solution, K-Floshield®.

With the ongoing success of K-Floshield® in the plant's pugmill, the operator trialled Kinder's innovative K-Floshield® Liner at plant's pan feeder location. The pan feeder collects and doses varying size/types of sand, mud, clay, bricks, rocks etc and is notorious for frequent hang ups and production shutdowns. A low-grade liner material was previously used, this did not resolve the hang up issues and the abrasive/sticky nature of materials collected in the pan feeder.



Photo Left: Pan Feeder collects & doses sand, mud, clay, bricks, rocks and experiences frequent hang ups.

The combined polishing action delivered by K-Floshield®'s top layer and the highly abrasive nature of the bulk materials ensures a very smooth "polished" finish that truly outshines and outlasts other liner equivalent products.

Site maintenance teams are also pleased to report very minimal hang-up, simple and seamless removal of the lining material for repair and maintenance.

K-Floshield®'s has withstood 350,000+ tonnes of recycled material thus far, and with the liner surface still intact and showing virtually no sign of wear and tear the client expects many seasons ahead before replacement. This is worthy of mention and applaud!

The recycling operator will continue to partner with Kinder with the view of making future materials flow and conveyor productivity improvements in other areas of the plant.



Photos Above: K-Floshield® after install shows no signs of wear and maintains original shine and slipperiness. Hang up issues resolved.