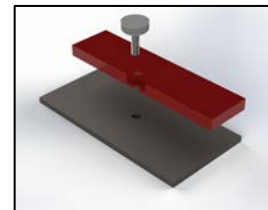


Case Study – K-Slide® UHMWPE Low Friction Liner

Kinder Australia Product:	<u>K-Slide® UHMWPE Low Friction Liner</u>
Product Category:	Materials Flow Solution
Location:	Brisbane region, QLD
Conveyed Materials:	Manufactured Sand
Conveyor Belt Width/Speed:	N/A
Rate (tonnes per hour):	2 off 100 tonne MS Bins
Installation Date:	Early April 2021



CHALLENGE:

- *Material hang-up on uneven corrugated steel bins.*
- *Ratholing and build-up related issues.*
- *Up to 20% loss of production.*
- *Awkward and restricted shape area to fit with working-at-heights.*



ABOVE
K-Slide® UHMWPE Low Friction Liner installed in MS Bin.

Our customer in the Brisbane region is a manufacturer of precast concrete products and produces their own concrete on site. The manufactured sand is an essential ingredient in concrete mix, and of critical importance to the site's production.

The plant was originally designed for the storage and handling of natural sands and coarse aggregates, however a change to handling manufactured sand resulted in flow issues including substantial ratholing and hang-ups, and a corresponding 20% reduction in production rate.

Their two bins previously had no lining present; a corrugated steel structure, square and tall, featuring uneven surfaces and ledges.

Flow of manufactured sand from the bins was maintained by keeping the level in the bins low, and by almost constant cleaning. This came at a cost: additional labour for cleaning; and logistics issues associated with more frequent, smaller deliveries.

The challenge for the concrete operator when seeking an improved materials flow solution was to take into consideration predictable manufactured sand factors such as particle size/shape, consistency of the manufactured sand material as well as humid conditions.

All these factors helped Kinder Australia together with FSI Engineering and Pentral Fultum, determine the ideal lining media and grade to be installed.

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SOLUTION:



K-Slide® UHMWPE Low Friction Liner

In partnership with:



K-Slide® UHMWPE Low Friction Liner was selected to line the bins because of its low co-efficient of friction and abrasion resistance. It is also light-weight and able to be cut to shape to suit challenging and restricted spaces.

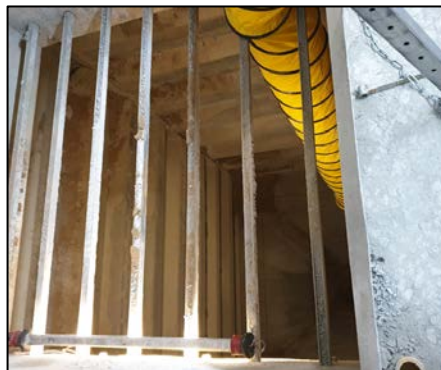
Kinder Australia partnered up with **FSI Engineering**; Queensland based, reliable and well acquainted with Kinder to provide an excellent solution. The installation involved working-at-heights and in confined space – suited to FSI, as all their personnel had undergone extensive industry training and certification to safely cover this project constraint.

Process improvement specialists, **Pentral Fultum** recommended changing the geometry of the internal bin from a rectangular to octagonal profile.

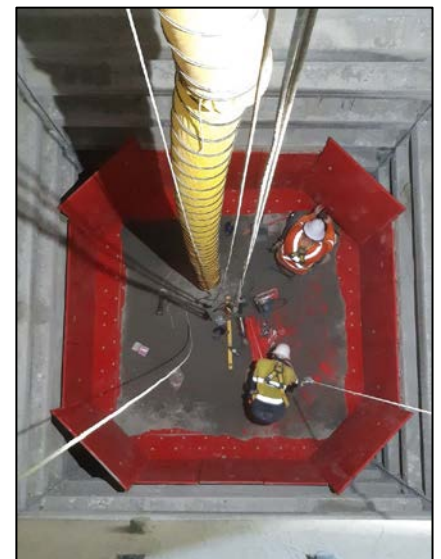
Due to the uneven surface of the bins, a specialised skin needed to be inserted over the corrugations before fastening. Combinations of studs and coated bolts were used to provide a flat and even surface and further aid in material flow.

RESULTS:

- Smooth and even surface for optimal flow.
- Material hang-up issues eliminated.
- Minimal product loss.
- Wear protection to withstand abrasion.
- Improvement of bin geometry.



ABOVE
Prior to K-Slide® UHMWPE Low Friction Liner installation in MS Bin.



RIGHT
K-Slide® UHMWPE Low Friction Liner cut and arranged in specialised manner for optimal coverage and flow.

The result of the K-Slide® UHMWPE Low Friction Liner installation, along with the specialised skin and fasteners, has led to the bins becoming smooth and even, with the manufactured sand moving freely with no hang-up occurrence. Build-up of manufactured sand on the walls and corners is no longer observed and the manufactured sand exhibits mass flow.

Productivity is at an all-time high with a minimal amount of the product lost to ratholing and caking. The K-Slide® UHMWPE Low Friction Liner provides thorough wear protection to the bins, so they can withstand any abrasion from the material.

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