

CASE
STUDY

ARGONICS SHEETS

POLYURETHANE LINERS

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| PRODUCT: | Polyurethane Lining Sheet |
| PRODUCT CATEGORY: | Flow & Anti-Wear |
| LOCATION: | Brooklyn, Victoria, Australia |
| PRODUCT DESCRIPTION: | Solid polyurethane sheet, B93 |
| CONVEYED MATERIALS: | 13/16" (20mm), 11/16" (17mm) and 9/16" (14mm) aggregate and manufactured sand |
| DROP: | Vertical drop of 2-3 meters |
| CAPACITY/VOLUME: | 118 yd ³ /hr (90m ³ /hr) |
| INSTALLATION DATE: | January 2013 |

PROBLEM DESCRIPTION:

The customer is one of the world's leading heavy building materials companies, producing aggregates, including stone, gravel and sand, to premixed concrete for use on residential, commercial, civil or industrial projects.

They use an aggregate weigh hopper constructed out of sheet steel. Vibrators are used as a mechanism to transit the flow of aggregate and sand through the hopper. Steel was typically used in hopper construction due to its robust properties, and for this application it needed to withstand the high volumes of highly abrasive materials being handled.



Photo of the internal sides of the hopper, showing the worn and uneven surface.

The position of the hopper at the Brooklyn site meant that the aggregate and sand was dropped from several upper levels down into the hopper itself, causing a high level of abrasion to the internal steel surface. As a result, product was being lost through cracks and holes that were developing. Steel patches were being welded in as a "quick fix." However, because the appearance of the abrasion damage was becoming more frequent, it was resulting in more frequent plant shutdowns. With the accumulation of labor costs due to the need for maintenance in an area that has poor accessibility and confined space requirements, the customer decided to search for a better wear resistance solution.



RESOLUTION:

The customer already had a general awareness of Argonics liners, having worked with it on a different site with a different application. They were very interested in using it for this aggregate and sand application.

The installation was very simple and didn't need much manpower to fit and cut the sheets to size because the polyurethane is significantly lighter than steel. The Argonics sheets incorporate a unique bolt-in system to attach the polyurethane sheets so it was a very safe procedure that didn't require any welding – a key benefit when installing lining in a confined space. After some minor grinding and cleaning of the interior surface, the sheets attached without complication.

KEY BENEFITS:

- Longer lasting anti-wear protection
- Reduced material hang-up
- Greater tear resistance
- Light weight
- Simplified installation
- Significantly lower noise levels

The Argonics liner has now been installed at the Brooklyn site for more than 18 months and the customer is delighted to report that no signs of wear or tears from the aggregate have been observed. Even with the weigh hopper positioned below a system of 8-10 gates that contain different product before it drops into the hopper from a height of 6½-10 feet (2-3 meters), the overall abrasion of the polyurethane lining sheets has been kept to a minimum.



Argonics sheets were easy to install and have exceeded the customer's expectation of the durability potential.