Success Story

Copper - Dust & Spillage Control

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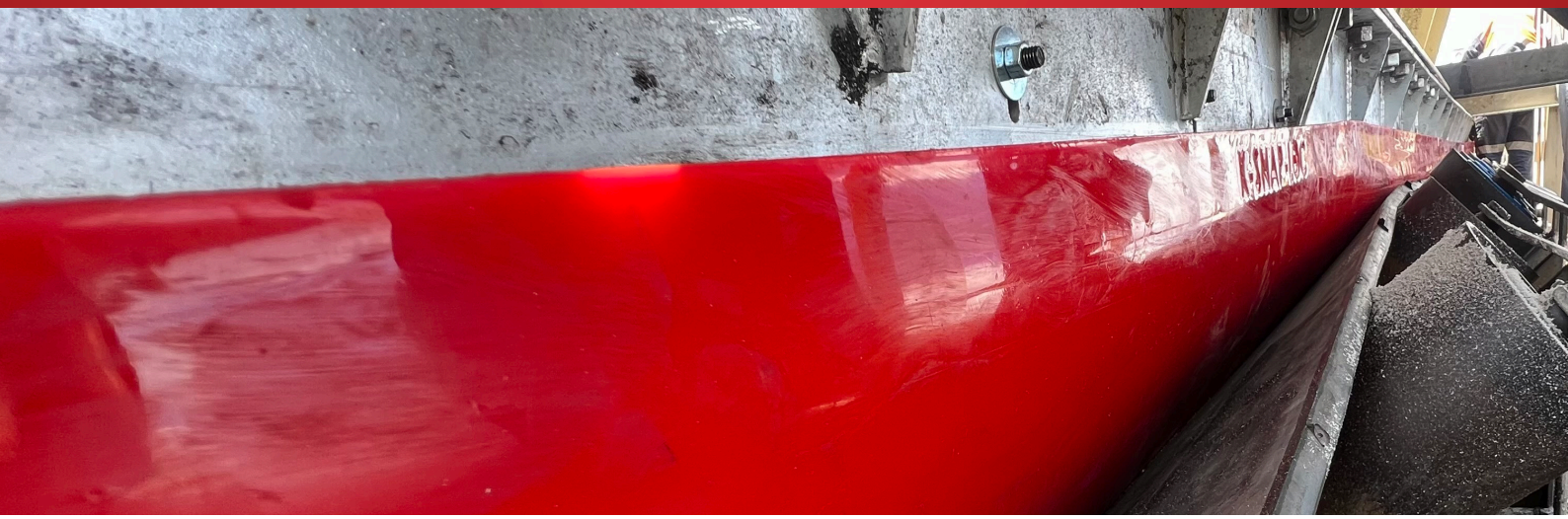
40 YEARS OF INNOVATION



Kinder Australia Product:	**K-Snap-Loc® Dust Seal System**
Product Category:	**Conveyor Skirting & Transfer**
Location:	**North Queensland**
Conveyed Materials:	**Copper**

Engineered Sealing for High-Impact Copper Transfer Points.

OVERVIEW

A large open-cut copper mining operation in Queensland operates high-capacity conveyor systems to transport crushed ore from primary processing infrastructure to stockpiles and downstream conveying networks. These conveyor circuits include primary crusher discharge, plant feed, and overland conveyors designed to handle continuous, high-tonnage flows of coarse, abrasive material.
Material transfer points within this network—particularly the discharge from the primary crusher to downstream conveyors—represent critical control locations due to extreme operating conditions. Large lump sizes, substantial material drop heights, and high impact energy generate significant material turbulence, placing increased demand on sealing effectiveness, dust suppression, and overall transfer point containment performance.

CHALLENGE

The transfer point between the primary crusher discharge and the receiving conveyor was identified as a persistent source of dust emission and fines escape. Coarse ore impact and turbulent material flow created pressure differentials within the chute, forcing airborne particulates outward through insufficient sealing interfaces.

- Excess dust and fines from high-energy crusher discharge.
- Fugitive escape due to inadequate sealing.
- Material build-up driving maintenance & wear.
- Reduced visibility elevated safety and reliability risks.

Escaped fines accumulated on structural members, walkways, and beneath the conveyor, increasing manual clean-up frequency, exposing maintenance personnel to dust-laden environments, and contributing to premature wear of nearby components. These conditions also posed an increased risk of conveyor mistracking, unplanned stoppages, and reduced overall system availability.

A targeted engineering solution was therefore required to effectively capture fugitive dust at the transfer interface while maintaining compatibility with existing conveyor infrastructure and minimising installation downtime.

Photo: Excessive dust and spillage at transfer point.

SOLUTION

Kinder supplied and installed the **K-Snap-Loc® Dust Seal**, engineered specifically for secondary dust containment in high-tonnage, abrasive bulk materials handling environments. The system was selected to provide a continuous, resilient sealing barrier capable of capturing airborne fines and preventing dust migration beyond the skirted transfer zone.

Manufactured from durable, wear-resistant materials suited to harsh mining conditions, the K-Snap-Loc® Dust Seal maintains consistent contact pressure and sealing integrity under vibration, impact loading, and fluctuating material profiles typical of primary crusher discharge applications. This ensures effective interception of fugitive dust before it can disperse into the surrounding operating environment.
The snap-in modular design enabled rapid installation with minimal structural modification and reduced conveyor downtime. In addition, simplified removal and replacement procedures improved maintainability and reduced personnel exposure during routine inspection or servicing activities.

By concentrating on high-efficiency dust interception at the source of generation, the installed solution delivered measurable containment improvements without the need for extensive chute redesign or additional mechanical systems.

RESULTS

- Significant reduction in airborne dust emissions and fugitive fines.
- Improved housekeeping performance, visibility, and access safety.
- Lower clean-up frequency and maintenance intervention.
- Increased conveyor reliability from reduced build-up risk.

Post-installation performance monitoring confirmed sustained improvements in dust suppression and environmental control around the transfer structure. Previously visible dust plumes generated during ore discharge were substantially reduced, resulting in clearer sightlines for operators and improved working conditions for maintenance personnel.

Accumulation of fines beneath the conveyor and on adjacent structures decreased markedly, supporting improved housekeeping compliance and lowering the labour demand associated with routine clean-up activities.
The site has achieved a significant reduction in airborne dust concentration, decrease in spillage and clean-up volumes, and maintenance hours saved overall due to reduced manual intervention. Improved dust containment also contributed to more stable conveyor operation, lowering the likelihood of mistracking events and unplanned downtime linked to material build-up.

Through implementation of a focused, engineered secondary dust-sealing solution at a critical primary crusher transfer location, the operation achieved safer maintenance access, reduced ongoing operating costs, and improved reliability across a key segment of its copper ore conveying system.

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