

Aggregate Quarry Stops Conveyor Slippage Losses with Flex-Lag® High-Traction Ceramic Pulley Lagging

Industry

Aggregate

Application

Primary crusher discharge conveyor

Product

Flex-Lag® Ceramic Pulley Lagging

Objective

End downtime due to conveyor-belt slippage

Conveyor Detail

Belt: 6'7" (2 m) wide, 3/4" (19 mm) thick, with 3/8" x 1/4" (9 x 5 mm) rubber top/bottom covers over fabric construction

Drive Pulley Diameter: 32 7/16" (824 mm)

Belt Length: 246' (75 m) between end pulley centers

Configuration: starts horizontally, bends upward at 7° rising 31'2" (9.5 m) into a transfer, troughed at 45°.

Typical Load: granite crushed to -9" (-225 mm) @ 1,800 tonnes/hour.

Typical Speed: 4'3" (1.3 m) /sec.



Problem

While the crusher and belt conveyor are building-enclosed, the mountainous seaside location at 1,640' (500 m) elevation, often wrapped in clouds, keeps everything wet ... and in winter, glazed with ice. Fines thrown onto the drum occasionally helped, but over a period of time, they just polished the belt and made it slip easier. In worst-case conditions, even fines didn't help, and production was simply lost for up to an entire shift. Various kinds of rubber lagging were tried over the years and didn't help, and increasing belt tension by adding about 3 tonnes to the gravity takeup only brought tracking problems and faster wear on the return rollers.

Solution:

Flex-Lag® Ceramic Pulley Lagging, was brought in to cover the drive pulley face with 3/4" (19 mm) square tiles of high-grade alumina ceramic, molded into a flame-resistant rubber backing bonded onto the drum surface.

Flex-Lag was chosen because while other ceramic lagging has a flat, smooth surface primarily aimed at minimizing wear, Flex-Lag tiles are embossed with small bumps that embed into the belt's underside to provide maximum traction as well, even as the bottom cover becomes harder and slicker with age.

Result:

With Flex-Lag on the drive, the discharge conveyor ran so reliably under the worst icing conditions that the second conveyor in line couldn't keep up with it because of minor slippage there. That belt, an equally wide and thick steel cord construction spanning a horizontal distance of 761' (232 m) between end pulley centers, also received Flex-Lag on its 47 1/2" (1,200 mm) diameter drive drum. Proven effective on these two critical conveyors, Flex-Lag since has been added to several other key conveyors in the plant's reclaim/blending and ship loading system to keep the stone flowing in any weather, and in some cases has saved money by allowing smaller motors and drive drums, or avoiding need for snubbers.