

Tips:

## Troubleshooting five common belt conveyor buildup problems

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**Are you digging your way out of material buildup problems with your belt conveyor? Not only can buildup endanger your workers and screw up your equipment, it can put a real strain on your conveying efficiency. Read this tip for help troubleshooting five common problems with belt conveyor buildup.**

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**M**aterial buildup can cut your belt conveyor's efficiency by prematurely wearing idlers and pulleys, causing belt mistracking and slippage, and damaging splices. Buildup can also cause worker accidents that lead to medical costs and lost labor. Material buildup can increase labor costs for spillage cleanup and, in some cases, can prevent your operation from complying with environmental regulations.



*Here, on a belt conveyor carrying sand, a belt scraper mounted at the head pulley removes carryback from the top cover.*

Buildup's primary source is *carryback*, which is material that clings to, rather than discharges from, the belt. The problem is common to almost all belt conveyors handling bulk materials and is especially severe when the conveyor operates in wet conditions.

Carryback on the belt's top cover (or carrying side) can transfer buildup to idlers and pulleys, which commonly leads to belt mistracking, belt edge damage, and, ultimately, even belt failure. Carryback on the bottom cover can create spillage that wears the tail and takeup pulleys.

Buildup and associated spillage can be found in chutes, at belt transfer points, and in loading areas, where these problems can impair the conveyor's performance. And if buildup occurs in several areas simultaneously, the belt and other components can quickly fail.

There are no magic solutions to controlling a dry bulk material's behav-

ior on your belt conveyor and potential buildup on the belt and other components. But there are ways to greatly reduce buildup problems. The following information describes five common buildup problems on belt conveyors and gives troubleshooting advice for each.

### **1 Excessive material carryback on the belt's top cover causes buildup on the snub pulley and return idlers.**

Install a belt scraper (also called *belt cleaner*) at the head pulley to prevent excessive carryback on the top cover. Scraper blades that continuously, evenly contact the top cover work best. You can also cover the head pulley and snub pulley with a layer of high-quality rubber (called *lagging*) to repel buildup. (The snub pulley is located close to the head pulley on the return side to increase the belt's degree of wrap around the head pulley.) Covering the return idlers with rubber or plastic sleeves can also help them repel buildup.



**Preventing material buildup will help you avoid spillage like that piling up under this processed-sand belt conveyor.**

scraps to make the skirting because they can wear your conveyor belt.

## 5 The belt splices are separating.

Particles can migrate from the buildup, grind into the top cover and into small imperfections in a belt splice, and eventually cause the splice to fail. To avoid the problem, use good-quality skirting at loading points and other spots where spillage is likely and install lagging on the head and snub pulleys. To prevent trapping material between the belt and tail pulley, you can also install a belt plow (a V-shaped blade) to contact the belt's bottom cover before the tail pulley.

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This tip is adapted with permission from an article that appeared in the February 1996 issue of the National Industrial Belting Association's (NIBA's) newsletter, *NIBA Belt Line*.

## 2 The belt runs to one side for a long distance.

This problem is probably caused by off-center loading, the result of buildup in your chutes. Install non-stick, wear-resistant (for example, rubber) chute liners to center and evenly distribute the load on the belt. Choose the liner material carefully to ensure it can resist wear from contacting your conveyed material.

## 3 The belt mistracks and runs off at the head pulley.

Spillage and worn lagging can cause material to build up between the head pulley and belt, which can make the belt mistrack and run off at the head pulley. Prevent the spillage and buildup by installing a slider-bed skirtboard system at the loading point and a belt scraper at the head pulley. If your conveying conditions are wet and sticky, use grooved lagging on the head pulley; the grooves

repel water and help prevent buildup on the belt.

## 4 The belt's top cover and belt edges are wearing excessively.

Buildup on the snub pulley and return idlers often wears the top cover. You can reduce the wear by installing rubber or plastic sleeves on the return idlers and smooth lagging on the snub pulley. Improper loading can also damage the top cover and belt edges. Again, install nonstick, wear-resistant liners in your chutes to provide the proper loading angle and distribution on the belt.

Also create a stable, positive seal between the chute's bottom edge (or skirtboard) and the belt by using impact rollers or slider beds below the belt, which shape the belt into a trough. Also use good-quality skirting along the belt conveyor to prevent spillage. Avoid using old belt