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Technical Article
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Keeping Conveyors Clean—The Why and How

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*Ant hills, gob, carryback, fugitive material, dirty *$%#^&!—no matter what you call it, it's that nasty material that has ended up in places other than where it was intended to be conveyed. And it is the stuff that can bring a bulk handling conveyor system to a grinding halt, costing the operation countless dollars in lost material, downtime, clean-up, personnel injuries, and/or damaged conveyor components. There is no doubt that a clean conveyor system makes for a more profitable operation, but before elaborating on "how" to achieve this lofty goal of a clean conveyor, let's firmly establish "why" it should be viewed as a necessity for any well-managed operation.*

Why invest the time and effort to keep your conveyor clean?
First, let's consider the cost of the material. You are mining, processing, or simply moving that substance because it is valuable to do so. Therefore, if you are losing, contaminating, or dropping it, you are losing value—losing money. The amount of money you're losing obviously varies depending on how much material is lost or spoiled in the process and the cost of that material per ton. Some quarries and gravel pits measure up to 10 percent loss from "pit to sale." If you're mining a million tons per year you can readily see you are losing a great deal of money and can justify substantial investment in preventing such loss.

Next, there is the cost of downtime that can be directly attributed to carryback. It builds up on rollers and structure causing mistracking, spills, and conveyor component damage. The conveyor must oftentimes be stopped to correct the problem. This cost in lost production can run from hundreds of dollars per hour to tens of thousands of dollars per minute.

Then there is clean-up cost. The manpower to plow, scrape, or shovel this material out of the way or back onto the belt is expensive. And it's during this type of maintenance work around conveyors that dangerous and costly accidents occur. Studies indicate that upwards of 42 percent of all accidents in facilities using bulk handling conveyors occur while maintaining the conveyor system.

Last, but not least, there is the cost of damaged conveyor components. Rollers with build-up cause mistracking, which results in damaged structure and/or torn belting. Fugitive material generally wears on components, shortening the life of structure, rollers, and pulleys. Consider also, the impact of carryback on the life of the belt itself. Some have voiced concern that belt cleaners would shorten the life expectancy of a belt. At first glance, it might appear that polyurethane or carbide steel blades scraping on a rubber belt cover would do more harm than good. But to the contrary, studies have proven that even though a belt cleaner can induce some cover wear, the rate of that wear is much less than the wear occurring if no belt cleaning is attempted. The axiom holds—the cleaner the belt, the longer it lasts.

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How can you keep your conveyor clean?

How difficult can it be? A little sticky sand or clinging coal—just scrape it off! Well, it's not as easy at it may seem from casual observation. It takes a well-engineered and maintained cleaning system to minimize carryback and its associated cost. Because there are so many variables in the material, the environment, the condition of the belt, etc., it takes a careful analysis and a well-designed system to do the job. Here are just some of the factors you must assess when selecting the proper belt cleaning system:

- Belt width and speed
- Type of material
- Ambient temperature
- Size of material
- Material moisture content
- Surface condition or profile of belt cover