

Q&A on Mitigating Conveyor Explosions and Fires

Part III

How Can I Prevent Fires in My Mill?

Short Answer

A dust hazard analysis should allow you to identify ways to prevent fires at your facility.

Long Answer

While a thorough dust hazard analysis is the only way you can determine your fire risks and how to prevent them, there are some things you can do, in general, to reduce your risk. These include:

- **Reducing or Eliminating Friction Sparks** by selecting nonsparking metals (i.e. nonferrous or nonmetallic) for components in your equipment. This may not an option for conveyors and could result in additional design and component costs if requested from manufacturers. This option is, however, available from some dryer manufacturers and for other machines in which friction heat can build quickly.
- **Purchase Conveyors with Minimal Metal-On-Metal Contact.** Many drag chain conveyors are designed with the chains running on the bottom pan and with paddles that scrape along the floor and sidewalls. This increased friction creates an opportunity for sparks to form, especially when the paddles are formed of metal.
- **Purchase Enclosed Conveyors.** While heat can dissipate better in open conveyors and such conveyors pose no risk for an explosion, they're not safer. Open conveyors commonly increase the dust hazard risk at the mills in which they operate because material can so easily escape, either due to an overflow situation caused by a surge or wind kicking it up, etc. We've been to MDF mills where material from open conveyors practically fills the air like snow—indoors. We've also seen too many open conveyors with dust accumulated into piles around them, which is a major fire hazard. Open conveyors furthermore do not restrict air to a fire, do not prevent flash fires, and leave material unprotected from outside ignition sources.

While there are safety measures you can take, you cannot guarantee your operation will never experience a fire. When working with dust and flammable materials, such risk is a reality.

I have Sprinklers. Isn't that Enough?

Sprinklers do not always work well in practice. The problem with sprinklers is that by the time it gets hot enough for the sprinkler pin to release, the fire has escaped the conveyor and moved further up the

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system. As a result, the sprinkler system plays “catch up” with the fire; it doesn’t get ahead of the flames, which can thus spread from one conveyor and machine to the next. Building-based sprinklers also cannot extinguish the flames inside enclosed conveyors.

This is why we **advocate mills equip their enclosed conveyors with deluge systems**. A deluge system will flood the entire conveyor when sensors detect a spark or fire, so the fire has much less chance of escaping.

Are YOUR conveyors protected with fire-suppression systems? If not, your mill is at risk for thousands to millions of dollars in damage and lost production. Plus, you may be in violation of updates to NFPA codes.

For more information on rules related to dust hazards, see [NFPA 664](#) and [NFPA 652](#).

[Reach out to us today](#) to learn more about our solutions for conveyor fire and explosion safety.