



The Manufacturing Link

Dust Bill Gathers Dust

By Robert Kravitz

In early 2008, the House of Representatives approved legislation that would require the Occupational Safety and Health Administration (OSHA) to issue standards and regulations to help prevent combustible dust explosions in the workplace, most commonly occurring in industrial warehouse- and factory-type settings. By late summer, the bill was sent over to the Senate where, according to U.S. Rep. John Barrow, a Savannah, Georgia, Democrat, it is essentially “gathering dust.”

The holdup is somewhat of a surprise to many promoting workplace safety after what can only be described as “chilling testimony” before the House. They believe such legislation is long overdue. After all, from 1980 to 2006, there were 119 fatalities and 718 injuries attributed to dust explosions—seven of which were considered “catastrophic” dust explosions involving multiple fatalities and causing significant community economic harm. (See section below to read about two cases.)

However, a variety of factors put the bill on hold. Among them are the downward-spiraling economy as well as a lack of support and consensus by the White House and among many Senate members.

It is likely the legislation will be revisited in 2009 or 2010. However, until then, facility and plant managers are essentially on their own when it comes to preventing combustible dust explosions.

What Are Dust Explosions?

A dust explosion is caused when dust particulates essentially explode. In a warehouse or factory setting, there may be all kinds of airborne dust. But the reason we have dust explosions in some settings and not in others is because certain components must all be present in sufficient quantities in order for them to occur. These are:

- Oxygen.
- Ignitable dust, referred to as the fuel of the explosion, suspended or airborne in sufficient concentrations.
- Heat from a furnace, a machine, a light fixture, etc.

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- Confinement—all components located in the same general area.

There are also two different types of dust explosions. The first is the primary explosion. This occurs in a specific area of the facility, for instance near the heat source. The other is the secondary explosion. This is the more serious of the two. It occurs after and as a result of the primary explosion and spreads throughout several areas of the facility.

Prevention Key

Whether Congress and OSHA will implement new regulations to help prevent dust explosions is, as mentioned earlier, uncertain. However, according to Mike Schaffer, President of Tornado Industries®, a leading manufacturer of professional cleaning equipment, there are steps managers can take now to help prevent dust explosions. These include:

- Installing dust-collection systems.
- Reducing the amount of dust generated by and escaping from industrial equipment by altering processes or adding filtering systems.
- Minimizing the recirculation of dust through HVAC systems by cleaning and/or installing enhanced filtering systems.
- Making sure all areas of a facility are accessible so that they can be inspected and cleaned as necessary.
- Using vacuum cleaners approved for industrial dust collection and cleaning methods that do not generate dust.

“Without question, proper cleaning and maintenance, especially with professional, industrial-type vacuum cleaners, is imperative,” says Schaffer. “These are not conventional wet/dry vacuum cleaners similar to those typically sold in ‘big-box’ hardware stores. These are professional machines marketed by janitorial distributors with ‘critical filtration’ capabilities to trap and contain dust.”

Because they are so crucial in helping to prevent dust explosions, Schaffer adds that facility and plant managers should look for an industrial vacuum cleaner with two or more horsepower, in excess of that found in a business-grade vacuum. Additionally, “the machine should have a multistage filtering system such as a main HEPA filter with prefilters to increase effectiveness and filter life, as well as a HEPA filter specifically for the vacuum motor to protect the motor’s carbon brushes and other components,” he says.

He also suggests selecting industrial vacuums designed with the motor installed in the “power head,” the top of the machine over the tank. “This helps prevent dust from being released when the tank must be emptied,” Schaffer says. “This protects the health of the cleaning professional as well as helping to prevent dust from being released into the air.”

Educate + Listen = Prevention

A final tip Schaffer offers is to educate staff and workers on how and why dust explosions occur and ways to prevent them. “And if and when they report a suspicious condition [that could lead to a dust explosion], managers must listen

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and pay attention,” he says. “Workers are on the front lines and often know the factory or warehouse floor better than anyone else. If they know what to look for and managers investigate their concerns, we can do a great deal to help prevent explosions in the future.”

Tornado Industries is a leading manufacturer of professional cleaning equipment. Visit their Web site at www.tornadovac.com

Impact of Dust Explosions

One recent dust explosion occurred in February 2008. It took place in a Georgia sugar refinery and killed 6 workers and injured 42 others. The impact of the explosion, according to investigators, was like a bomb landing on the building. The structure was determined to be so unsafe that before an investigation could begin, structural engineers were brought in to see if anyone could enter the remains of the facility.

A few years earlier in Kinston, North Carolina, locals thought a plane hit a nearby pharmaceutical-manufacturing plant, which was a reasonable assumption because the plant was next to an airport. However, it was not an airplane that blew up the plant—killing 6 people and injuring 38 more; it was dust. Further, it took 18 months before this factory could resume operation, causing considerable economic harm to the community.

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