Six Combustible Dust Housekeeping Dos and Don’ts

The saying “If it ain’t broke, don’t fix it” has no place in workplace safety. Just because your workplace has never experienced a combustible dust fire or explosion doesn’t mean it won’t happen someday. Here are six housekeeping dos and don’ts relating to combustible dust.

The saying, “If it ain’t broke, don’t fix it” isn’t a wise model to follow in the workplace safety world. Chilling examples of the danger in that type of thinking can be found in any industry where combustible dust accumulates.

Do not think that just because your workplace has never experienced a dust explosion, you don’t need to worry about letting dust accumulate. It can take years for materials such as sugar, flour, feed, grain, wood, metal, textile and other types of dust to accumulate to levels where they can suddenly explode, with devastating consequences for workers.

These types of explosions and fires are far from rare in Canada and the United States. For example, British Columbia experienced two fatal wood dust explosions at sawmills within a short span in 2012. Two workers were killed in each of those incidents, and more than 40 others were injured in both blasts.

In the United States, 281 combustible dust incidents killed 119 workers and injured 718 others between 1980 and 2005, according to the US Chemical Safety and Hazard Investigation Board (CSB).

Poor housekeeping practices, in which various types of dust are not cleaned up and left to accumulate, are a major cause of dust explosions. These six conditions set the stage for an explosion:

1. Dust must be suspended in air.
2. Dust particles must be small.
3. Dust concentrations must be within the “exposable range.”
4. There must be enough oxygen or other oxidizing agent

available.
5. There must be an ignition source having enough energy to generate flame.
6. The dust cloud must be in a closed or partially enclosed space to create pressure effects.

If dusts are created by processes in your workplace, good housekeeping is extremely important in controlling dust buildup. Here are six housekeeping dos and don’ts related to combustible dusts, with the information provided by senior process safety engineer David E. Kaelin Sr. in a 2012 webinar:

DO:

- Use water to clean areas where dust may fall, whenever possible.
- Perform regular cleaning on horizontal surfaces, floors and walls, including equipment, ducts, pipes, hoods, ledges, beams, stair rails, and above suspended ceilings and other concealed surfaces.
- Clean floors and work areas at least once per week.
- Use a vacuum cleaner that is listed for use in Class II hazardous locations, or a fixed-pipe system with a remotely located exhauster and dust collector.

DON’T:

- Allow dust layers to accumulate to hazardous levels. The National Fire Protection Association (NFPA) defines hazardous surface dust accumulations as being as little as 1/32 of an inch.
- Use compressed air or steam to blow down surfaces unless there is no other practical alternative. If compressed air or steam must be used, it is vital to apply it under low pressure to avoid disbursing clouds of dust to other areas.