

Combustible dust hazards are everywhere!

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Number of Dust Incidents by Industry, 2006-2017



Figure 1: CSB Dust Explosion chart (source: https://www.csb.gov/assets/1/6/csb_dust_incidents.pdf)

The US Chemical Safety Board (CSB) collected data from 105 dust explosion from 2006 through 2017. The CSB did not review all the incidents from that timeframe. The CSB data was then categorized into several broad industry types.

The CSB chart shows that combustible dust explosions occur across many industries and operations. While the chemical industry has a small fraction of the explosions studied, solids handling can be anywhere in the product flow from raw material receiving to the final product.



Figure 2: Vented dust continues to burn outside of the vessel



Figure 3: Explosion relief warning label

Did You Know?

- There are five requirements for a dust explosion:
 1. A combustible dust,
 2. The dust is suspended,
 3. An oxidant,
 4. The dust is confined, and
 5. An ignition source.
- Combustible dusts are present in many industries or areas of a plant. They may be where you do not expect them, like utilities or waste handling. Unattended areas may accumulate combustible dust that is unseen.
- Dust collectors are a frequent dust explosion source. They trap the smallest particles, which have greater explosion potential. They are typically equipped with an explosion relief panel to relieve the overpressure. (See Figure 2).
- Maintenance or fabrication operations may have combustible metal dust present in grinding or polishing operations.

Some dust explosion prevention strategies are:

1. Do not let dust accumulate. (See Jan-20 Beacon on housekeeping).
2. Reduce dust at the source with effective dust collection systems.
3. Identify and eliminate potential ignition sources.

What Can You Do?

- Follow the company or unit housekeeping requirements, but if you see dust accumulating, report it to your supervisor
- When working near dust collectors, notice where the explosion relief panel is located and avoid it if possible. Relief panel should be labeled (See Figure 3).
- Areas around relief panels should be free of obstructions such as piping or conduit. Other materials should not be stored in the relief zone.
- If you handle solids in your area, understand their properties and follow the guidance from the Safety Data Sheet and your procedures.
- If you see dust leaking from equipment, report it to your supervisor.
- View the CSB dust hazards video: <https://www.csb.gov/videos/combustible-dust-an-insidious-hazard/>

Dust Explosions - Don't ignore this hazard!