



# SafetyAlert

We're Serious About Safety

## Combustible Dust

Combustible dusts are fine particles that can present an explosion hazard when suspended in air in certain concentrations and conditions. A dust explosion can be catastrophic and result in injuries, death and property destruction. In many combustible dust accidents, both employers and workers were unaware that a hazard existed.



Image courtesy of OSHA

### Know the Risks!

Recognize the five elements comprising the “dust explosion pentagon.”

1. Combustible dust
2. An ignition source
3. Oxygen
4. Dispersion of the dust in a concentration above the lower explosive limit (LEL) and below the upper explosive limit (UEL).
5. Containment of the dust cloud within a confined area.



Image courtesy of Oregon OSHA <http://www.cbs.state.or.us/osha/pdf/hazards/2993-17.pdf>

### Additional Resources

**National Fire Protection Association** *NFPA Guide to Combustible Dusts*

<http://www.nfpa.org/>

**Occupational Safety and Health Administration** *Combustible Dust An Explosion Hazard*

<https://www.osha.gov/dsg/combustibledust/index.html>

**U.S. Chemical Safety and Hazard Investigation Board** *Combustible Dust Hazard Study*

<http://www.csb.gov/>

### Employer Responsibilities

Recognize the five elements comprising the “dust explosion pentagon.”

- Conduct a hazard analysis
- Assess workplace conditions
- Analyze each component of the facility
- Determine control methods, corrective actions and facilitate changes
- Conduct employee training

### Prevention

The NFPA states a **hazard analysis is needed** to assess risk and determine the required level of fire and explosion protection. Any analysis must be conducted by a “competent person” – most often by an outside consultant. Regardless, the analysis should ultimately be reviewed and approved by the authority having jurisdiction.

Determine whether the dust created by facility operations is explosive. **Not all explosive dust is created equal.** If dust is determined to be explosive, additional testing will be required to determine the explosive index and maximum pressure. The additional measures are necessary for a competent person to evaluate existing dust collection systems or to design new ones.



Beacon Mutual offers a variety of training opportunities for employees, supervisors and managers.

Please check our seminar schedule for more information.

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