

Deadly Sawmill Dust Explosions

Attention: Sawmill employers in Washington State

Devastating sawdust explosions have recently occurred at two sawmills in British Columbia that process dry, beetle-killed wood. The force from such explosions has catastrophic impacts on lives, property, and communities.

Mills operating in Washington State may also have increased risk for similar explosions, since beetle infestations are present in areas where timber is harvested. When cut, logs from beetle-infested areas can generate finer combustible sawdust particles than logs from non-infested areas.



Sawdust can become a combustible dust hazard when conditions are right. Fine sawdust from beetle-infested wood may increase risk for explosions at Washington State sawmills.

What causes dust explosions?

The 5 basic elements needed for a combustible dust explosion are:

- An accumulation of fine, powder-like combustible dust. Accumulations as thin as a paper clip, or even thinner can pose risk depending on physical characteristics.*
- Dispersion of the dust into the air in sufficient amounts.
- Confinement of the dust cloud inside a room, machine, or other space.
- Oxygen in air.
- An ignition source such as a flame, hot work, spark, electric arc, or static discharge.

**Per NFPA 664, Standard for the Prevention of Fire and Dust Explosions in Wood Processing and Woodworking Facilities.*

Dust explosions often occur in series. For example, the pressure wave from an explosion inside a piece of process machinery can shake dust accumulations loose from ceiling beams and other surfaces outside of the machine, suspending dangerous dust into the air and leading to a second, more devastating blast. The destructive forces from an explosion can kill or injure workers and bystanders, cause fires, send out flying debris, and destabilize building structures.

To learn more about combustible dust explosions, see OSHA's *Hazard Alert* and Safety & Health Information Bulletin at www.osha.gov/dsg/combustibledust/index.html#hot_topics.

How can I prevent explosions in my workplace?

Reduce the possibility for dust explosions by improving your process machinery and housekeeping practices and by controlling ignition sources.

Here are some preventive measures:

- Look high and low to identify surfaces in the workplace where sawdust accumulates. Pay particular attention to hidden areas such as the tops of beams and above suspended ceilings. Target these surfaces for process and housekeeping improvements.
- Identify and minimize possible ignition sources such as:
 - Heating equipment, burners, welding torches, metal halide lights, and other hot surfaces.
 - Damaged electrical wiring on fixtures and equipment, overloaded circuits, switches and equipment that can spark or arc or build up static charge.
 - Mechanical friction heat from grinders, chippers, and moving equipment that jams due to metal or other stuck objects.

- Maintain dust collection systems so they don't leak dust to surrounding work areas. When possible, locate these systems outside of buildings.
- Bond and ground all dust-producing equipment to help dissipate static-electrical charge that can build up when dust is moving through ductwork and machine parts.
- Use only vacuum cleaners and other electric-powered equipment that are approved for Class II hazardous locations.
- Address combustible dust hazards in your required Accident Prevention Program.
- Engage your safety committee to help find ways to reduce risk for dust explosions.
- Train workers on the dust hazards and proper work practices.
- When possible, avoid processing dry, beetle-killed wood.

To learn more about the recent explosions in British Columbia and to find new prevention resources developed specifically for dust control in sawmills, go to:

www.WorksafeBC.com/news_room/features/2012/sawmills/

Other resources you can access

To find an **electronic** copy of this Hazard Alert with active links to the following resources, go to www.Lni.wa.gov/Safety/Basics/HazAlerts.

Rules: Rules that address Accident Prevention Programs, housekeeping, hazard communication, and other requirements for sawmills can be found in Sawmills and Woodworking Operations, Chapter 296-78, WAC and Safety and Health Core Rules, Chapter 296-800, WAC at www.SafetyRules.Lni.wa.gov.

For more information, please visit www.Lni.wa.gov/Safety/Topics/AtoZ/combustibledusts.

Information includes:

- Combustible dust topics page
- List of all applicable rules
- Combustible Dust poster for printing
- OSHA's Sawmills topic page

How can I get help from Labor & Industries?

The Department of Labor & Industries provides consultations, training, and technical assistance at no cost to employers. Call today to schedule a free confidential consultation or go to www.SafetyConsultants.Lni.wa.gov for more information. You may also call 800-423-7233 or visit a local L&I office and ask for the Consultation Manager.

*This alert was developed by L&I's Division of Occupational Safety and Health (DOSHS) to alert employers, labor groups, and employees to potential hazards associated with work activities. **This is not a rule and creates no new legal obligations.** The information provided includes suggested guidance on how to avoid workplace hazards and describes relevant mandatory safety and health rules. DOSHS recommends you also check the related rules for additional requirements.*

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