

Crew Talk Backgrounder

for Supervisors and Safety Managers

Combustible dust and your right to refuse unsafe work

In 2012 — as you know — two British Columbia mills suffered devastating explosions. On January 20, an explosion and fire at Babine Forest Products killed two workers and injured several others. Three months later, on April 23, a massive explosion and fire at the Lakeland Sawmill killed two more workers and injured many others.

These events prompted two of the province's largest-ever workplace investigations. In its investigations, WorkSafeBC identified combustible wood dust as the source of these explosions.

WorkSafeBC subsequently introduced a “Combustible Dust Strategy,” involving frequent and targeted inspections of sawmills and other facilities that manufactured wood products.

On April 26, 2012, WorkSafeBC delivered a directive order to all sawmill employers, requiring every sawmill employer to do as follows:

- Undertake a comprehensive risk assessment with respect to hazards created by combustible dusts, including a thorough inspection of the employer's facility
- Develop and implement an effective combustible dust control program, based on the risk assessment

To address the recognized risks of combustible dust, members of the industry, employers, workers, organized labour, government agencies, and regulators joined forces. Their aim was to reduce combustible dust dangers for workers in B.C.

Industry was learning that hazardous combustible wood dust conditions are present wherever accumulations greater than one-eighth of an inch exist on surfaces that comprise more than five percent of a contained area.

As an industry, we were learning that all fine wood dust was potentially explosive. Even dust generated from “wet” wood could create potential for explosion, once it had settled and had time to dry. We had also learned that uncontrolled cleaning activities — such as the use of high-powered compressed air — could disturb the dust, generating a potentially explosive dust cloud. Clean-up crews were being asked to address not only the primary dust accumulations on production floors, but also the secondary combustible dust accumulations that settled on cable trays, in duct work, in false ceilings, and in other hidden places.

WorkSafeBC continued its Combustible Dust Strategy inspections throughout 2012 and 2013. Inspection results indicated that many sawmill operators had put significant efforts into improving the management and control of combustible dust; however, not all employers were found to be compliant.

On January 31, 2014, WorkSafeBC concluded Phase 3 of its inspection activity, a three-month inspection process that involved re-inspecting 144 operating locations. The objective of these targeted inspections was to evaluate existing

compliance with combustible dust management requirements, and confirm that every sawmill had an effective and sustainable plan for the management of wood dust.

Of the 144 inspected locations, 83 were in compliance at the time of inspection and received no orders related to combustible dust. Many of those locations had dust control plans incorporating significant engineering controls to augment and mitigate the required degree of manual dust clean-up.

However, these inspections uncovered an ongoing problem. Sixty-one employers received a total of 93 orders related to combustible dust. Most of these orders were for unacceptable levels of dust accumulations outside normal production areas, such as basements, crawl spaces, overhead areas, areas hidden behind motor control centres or cabinets, and outside areas. Eleven employers received a total of 13 stop-work orders due to unacceptable accumulations of dust that posed an immediate hazard to the health and safety of workers. Inspection officers recommended 17 warning letters during this inspection phase advising employers of a possible imminent administrative penalty, should similar violations of the regulations take place in future. Finally, three employers received administrative penalties for violations of the regulations.

WorkSafeBC officers will continue to inspect sawmills on a regular basis to ensure that employers continue to manage and safely remove combustible dust from their workplaces.

Employers and workers must exercise vigilance in monitoring dust accumulations and mitigating combustible dust hazards.

Starting in April 2014, WorkSafeBC officers will go back to the 61 facilities that weren't compliant with combustible dust regulations in 2013, and visit other randomly selected B.C sawmills. They'll also

visit all operating wood-processing facilities that produce compressed wood pellets, medium density fiberboard, and oriented strand board.

As they go from site to site, they'll be hand-delivering tools and information about the best prevention practices, and speaking face to face with workers and employers — ensuring employers understand their role in enforcing combustible dust programs and workers understand the steps to combustible dust safety and are well-versed in their rights to refuse unsafe work.

Employers and workers must all exercise vigilance in monitoring dust accumulations and mitigating combustible dust hazards.

The Occupational Health and Safety Regulation states that a person must not carry out work, or cause others to carry out work, if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person.

Wood dust is considered an undue hazard if it creates the potential for an explosion.

Some of the conditions that may indicate the potential for an explosion are as follows:

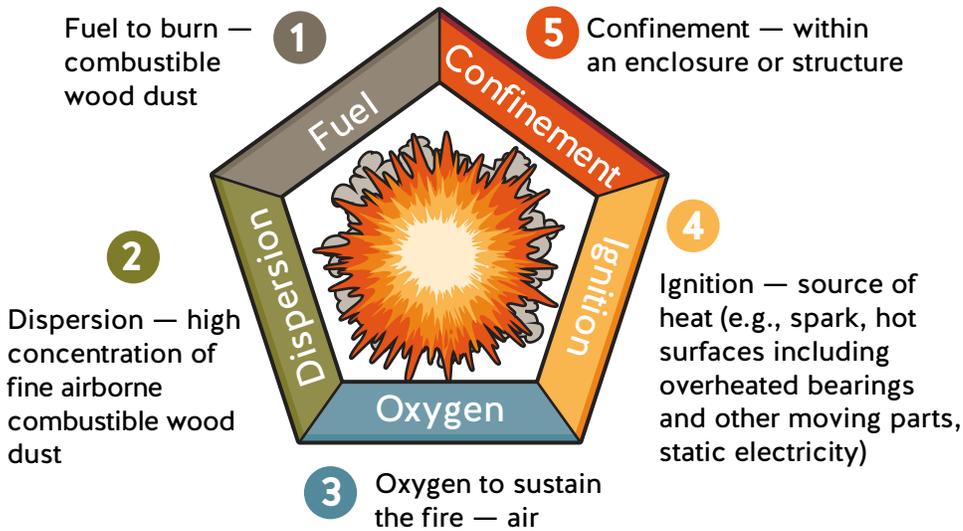
- A dust cloud in the air
- Dust accumulations on floors and other surfaces, which are one-eighth of an inch thick and cover more than five percent of a contained area

Important: If wood dust significantly accumulates on surfaces, the risk of explosion is real. All it takes is for the dust to become airborne in the form of a cloud, and come into contact with an ignition source, and with sufficient containment — an explosion will occur!

Remember, if a cloud of wood dust is present; the risk of an explosion is both real and immediate.

From dust cloud to lethal fireball

To create a perfect storm, all it takes is a handful of fine wood dust, a contained area, and an ignition source.



If a high concentration of wood dust becomes airborne and contacts an ignition source in a contained area, an explosion will likely occur.

How to spot an explosion in the making

If you spot a scene like this, respond immediately....

A handful of fine wood dust can be enough to fuel an explosion: all it takes is an eighth of an inch of accumulated dust, covering as little as five percent of the surface in a contained area.

Or, if you see something like this....

If dust contacts a heat source in a contained area, an explosion is highly likely. Report this hazard to your supervisor immediately.



Work areas must be kept clear of wood dust accumulations.



How to help prevent an explosion

- Prevent the accumulation of dust in your workplace.
- Minimize the risks associated with hot work procedures and the sources of heat or ignition.
- Have a clear understanding of everyone's roles.

How to protect yourself

- Learn to recognize the combustible dust accumulation and ignition source hazards in your work area.
- Take preventive action whenever possible. Report unsafe conditions or activities to your manager or supervisor.
- Learn and follow your worksite's safe work procedures to prevent fires and explosions (e.g., compressed air and hot work), and wear and maintain your personal protective equipment.
- Know when to refuse unsafe work.
- Learn what to do in an emergency.

You have the right to refuse unsafe work

As a worker, you play a key role in your own safety — as well as the safety of your fellow workers. That's why, under the Occupational Health and Safety Regulation, you have the duty and right to refuse work that presents an undue hazard.

If your workplace produces large quantities of wood dust, it's considered an undue hazard to allow that dust to accumulate in a contained area that's near a source of heat or ignition.

Should you see an accumulation of dust you believe could lead to a fire or explosion, you must refuse to continue working. And, you must immediately report the undue hazard to your supervisor or employer.

If you refuse to work under conditions that could lead to a combustible dust explosion, you're doing the right thing. Remember, you cannot be disciplined or fired from your job for putting safety first.

The role of your supervisor

Once you've reported the hazard, your supervisor or employer must investigate it immediately. They'll need to ensure the hazard is removed — without delay.

In most cases, your supervisor or employer will be able to fix the problem. But, in instances where they decide no undue hazard exists, they're obliged to let you know. At that point, they're required to investigate the issue with you and one of the following other people:

- A worker who's a member of your joint occupational health and safety committee
- A worker selected by your union
- Or, if you don't have a joint occupational health and safety committee or a union, any other worker you select

What to do next

If the issue remains unresolved after the joint investigation, you and your supervisor or the employer must report the matter immediately to WorkSafeBC.

Find out more

Contact WorkSafeBC's Information Prevention Line at 604.276.3100 or 1.888.621.7233. For more information on protection against combustible dust hazards, visit [worksafebc.com](https://www.worksafebc.com) or [fipibc.ca](https://www.fipibc.ca).