

Using vacuum trucks to remove wood dust

Static electricity can be hazardous

Many employers in the wood products industry create large amounts of wood dust. This wood dust is combustible and must be safely removed before it builds up and creates a fire hazard or a combustible dust explosion hazard. Using vacuum trucks can be a safe and effective method of removing wood dust from buildings, machinery, and equipment, if suitable equipment and safe work procedures are used.

Static electricity is one of the hazards that industry employers and vacuum truck operators need to be aware of when vacuuming wood dust. Static electricity discharges can ignite wood dust and therefore must be eliminated or adequately controlled during vacuuming. This bulletin explains some important steps that vacuum truck operators can take to minimize the hazards of static electricity discharges when they are removing wood dust. Employers who hire vacuum truck operators to remove wood dust from their premises should also be aware of these steps.

Choose suitable hoses, nozzles, and connectors

When wood dust or other fine, dry materials are vacuumed through a hose (or pipe), the friction between the dust and the hose can generate static electricity. If the hose is made of a material that conducts electricity and is

properly grounded, the static charge will safely dissipate into the earth. However, if the hose is nonconductive, a static charge will build up on its interior surface and could discharge with enough energy to ignite wood dust or other combustibles.

Since plastic does not conduct electricity, plastic hoses are not safe to use for vacuuming wood dust unless they are embedded with a static wire. Also, hoses that have ridged or corrugated interior surfaces should not be used for vacuuming wood dust. Using hoses with ridged interior surfaces results in more physical interaction between the



Do not use hoses with ridged or corrugated interiors (as shown) to vacuum wood dust.

dust particles, and between the dust particles and the hose, than using hoses with smooth interior surfaces. This increased interaction results in a static charge with higher amounts of static energy, making static discharge more likely.

When vacuuming wood dust or other dry combustible materials, use only conductive hoses, nozzles, and connectors that are designed to be used with those types of materials. If unsure whether a hose or other equipment is safe to use for vacuuming wood dust, check the manufacturer's instructions.

Ensure proper grounding and bonding

Staying safe while vacuuming wood dust requires proper grounding and bonding of all equipment. Ensure that trucks are grounded directly to the earth or another verified ground before vacuuming starts. Also, the hoses and all other parts of the truck and vacuum system should be properly bonded to each other.

Pay particular attention to ensuring proper bonding in baghouses. The risk of dust ignition is high in baghouses due to the high volumes of dust and air that flow through them. Make sure the bond between the truck's baghouses and its filter cages is adequate. To prevent static electricity from building up on the surfaces of baghouses and other conductive equipment, the total bonding resistance to ground should be less than 100 megohms. Verify the resistance using an ohmmeter or megohmmeter.

Inspect and maintain equipment

Ensure that vacuum trucks are regularly inspected and properly maintained. Pay particular attention to potential problem areas such as hoses, baghouses, vacuum pumps, collection boxes, and filtration systems. Conductive hoses should be tested regularly and removed from service if they have lost their conductivity.

Poor maintenance of vacuum pumps and blowers can result in excessive heat and contact between metal parts, such as blower lobes. When a baghouse on a vacuum truck is poorly maintained, dust may be carried over from the baghouse onto the hot surface of the vacuum pumps, and the dust could be ignited.

Employer responsibilities

Here are some of the safety requirements that are relevant to vacuum truck operators and employers who hire vacuum truck operators to remove wood dust.

Employers must ensure that

- Wood dust is safely removed before buildup of the dust could cause a fire or combustible dust explosion.
- Static electricity and all other sources of ignition are eliminated or adequately controlled while combustible dust is vacuumed.
- Each tool, machine, and piece of equipment in their workplace is capable of safely performing the functions it is used for.
- Their workers follow manufacturer's instructions, safe work procedures, and the requirements of the Occupational Health and Safety Regulation.
- Their workers are informed of the known and foreseeable health and safety hazards they are exposed to through their work.
- Their workers are provided with the instruction, training, and supervision needed to ensure the safety of all workers at their workplace.

For more information on safety requirements, see the Occupational Health and Safety Regulation on WorkSafeBC.com