

Environmental Health &
Safety
Muncie, IN 47306

Hazardous Dust Control Guide



**BALL STATE
UNIVERSITY**

WE FLY

Revised February 2018, 2021

Created February 2012

Hazardous Dust Control Guide

Table of Contents

A. Purpose and Policy.....	Page 2
B. Introduction to Wood Dust.....	Page 2
C. Introduction to Combustible Dust.....	Page 3
D. House Keeping.....	Page 3
E. Other Hazards.....	Page 5
F. Personal Protective Equipment.....	Page 6
G. Things to Remember.....	Page 6
H. Dust Wrap Up.....	Page 7
I. Acknowledgements.....	Page 7

Hazardous Dust Control Guide

A. Purpose and Policy

The purpose of this program is to provide information about wood dust, combustible dust, potential health effects associated with wood dust exposure, and safety procedures that should be followed to reduce employee risk.

Ball State University is committed to the responsibility of providing a work environment that is free from recognized hazards for its employees. Consistent with this duty is the Hazardous Dust Control Guide, which has been drafted by the Environmental Health and Safety (EHS) Office. The Hazardous Dust Control Guide will be evaluated and updated on an as needed basis. This program will be made readily available to employees, students, union representatives, and any individual representing the Occupational Safety and Health Administration (OSHA).

B. Introduction to Wood Dust

Wood dust is defined by small particles of wood by varying size and shape that are created by sawing wood. Wood dust is common in the general industry and construction fields as a by-product of building and constructing things from wood.



However, wood dust is a complex biological and chemical material, which can create many hazards in the workplace. Wood dust can cause and create many problems including health hazards to individuals working with or being around wood. This guide will explain some of the hazards including health hazards that are associated with wood dust. This guide will also explain safety measures to implement in wood working areas and suggested personal protective equipment to use when working with wood.

Hazardous Dust Control Guide

C. Introduction to Combustible Dust

Combustible dust is defined as a combustible particulate solid that presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape. Although dust can be found in every environment on earth, there are certain dusts that can cause potential harm when there is enough accumulation and an ignition source. Materials that have the potential to form combustible dust include metals, wood, coal, plastic, biosolids, sugar, paper, soap, dried blood, and certain textiles. Combustible metals include but not limited to aluminum, chromium, iron, magnesium, and zinc.



The key factor in preventing combustible dust is regularly inspecting areas and implementing a regular cleaning schedule within those work areas. Additionally, the use of a principal engineering control (dust collection system) should always be used when generating dust specifically wood dust. Each area should be monitored on a regular basis for dust accumulations especially on vertical and horizontal surfaces.

Dust should also be monitored and regularly cleaned off of wood working machines to prevent the build-up of wood dust. Wood dust that settles on woodworking machines acts as an insulator trapping the heat from the machines and not allowing the heat to escape. If enough heat is trapped, wood dust could ignite and cause a fire. This fire can cause an explosion if the fine wood dusts in the air are at a high enough concentrated level.

D. House Keeping

Dust collection is best accomplished at the source or point of operation of the equipment. Therefore, it is essential to have on all dust control devices when machines are in operation that would be cutting, sanding, drilling, etc. of wood.

Hazardous Dust Control Guide

Any dust that escapes the control device(s) should be collected by a vacuum (shop vacuum) that utilizes a high efficiency particulate air (HEPA) filter. Never use compressed air to clean or push wood dust to the collection system. The use of compressed air could cause the fine particles to become airborne and cause increased respiratory problems. Dry sweeping should also be limited in the wood shop area. Never sweep metal shavings, nails or anything other than wood dust into the dust collection system. This could cause a spark within the dust collection system, leading to a fire and possibly an explosion. Along with a visual inspection of the debris, a hand held magnet should be used to collect metal pieces out of the debris pile before sweeping it into the collection unit.



A general cleaning of the area should be done after the end of each work day to avoid excessive dust accumulation. A thorough cleaning of the wood shop areas will be performed every three (3) to five (5) years to minimize excessive wood dust accumulation on out of reach horizontal and vertical surfaces. This thorough cleaning will be coordinated by the EHS Office. The EHS Office will periodically monitor the wood shop areas for proper housekeeping procedures and measure wood dust levels accumulating on vertical and horizontal surfaces.

Good housekeeping standards should extend to individuals who come into contact with wood dust. Wood dust can cause numerous health problems for individuals that include asthma, bronchitis, and other general respiratory problems. Wood dust can also cause skin dermatitis and hives.



Hazardous Dust Control Guide

It is recommended by EHS Office that individuals cover exposed skin with clothing or other appropriate personal protective equipment (PPE) to minimize wood dust contacting the skin. At the minimum, individuals should wash their hands and arms periodically during wood handling. It is also recommended that individuals vacuum themselves off (outer clothing) when done generating wood dust. Remember, all wood dust that can be reached with normal cleaning techniques is the responsibility of the wood shop attendants and/or employee(s). Areas should be kept clean and excessive wood dust accumulations should not be present.

E. Other Hazards

Wood dust can also cause a hazard on the floors of the woodworking areas. Accumulated wood dust can create walking and working conditions of the area to become slick. It is important to clean these areas frequently to prevent slippery conditions. When a floor area becomes visually impacted with wood dust, vacuum the area preferably with a HEPA filter until the area is visibly clean. All walking surfaces should be cleaned at the end of the day at a minimum.

Noise is also a factor in woodshops, which is caused by the wood cutting saws and machines. In general, a wood planner has a noise decibel level of 102 dBA and a circular saw averages around 105 dBA. At these levels, individuals should use hearing protection when using these types of machines. Ear plugs and ear muffs are recommended when wood cutting machines are in use in the wood shop areas.

It is also important to store any chemicals in the wood shop in approved storage areas. Never leave un-opened or empty chemical containers out in the wood shop area. Always re-seal and put away chemical containers in appropriate locations. The wood shop area should be clean and free of all chemical containers.

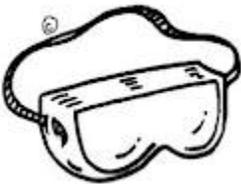
Since Ball State is a smoke free campus and as such no smoking should take place within any campus building or shop, including the wood shop areas. Smoking and/or lighters within a wood shop area have the potential to create sparks or small flames, which could pose as an ignition source for the wood dust and shavings and possibly lead to an explosion. Additionally, all ventilation and wood working machines should be bonded and grounded to prevent shock and sparks. All wood working machines and ventilation equipment should be affixed to the floor to prevent the machines from moving and possibly tipping over and seriously injuring someone.

Hazardous Dust Control Guide

F. Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is an important part in keeping individuals safe from injuries where potential dangers exist. If PPE is required or used in your area remember that individuals need to be trained prior to wearing it. If you need assistance with PPE training contact the EHS Office at 5-2832. Recommended PPE for wood working areas:

- Long sleeve shirts
- Goggles
- Face shields
- Safety glasses
- Gloves
- Hearing protection
- Dust Mask (Voluntary)



Additional PPE may be necessary depending on the area and work being performed. If you have any questions or need help with assessing a work area please contact the EHS Office.

G. Things to Remember

By adapting a few simple steps can prevent hazards associated with wood dust:

- Always vacuum wood dust when cleaning. Never use compressed air to clean dust.
- Wear the required and/or voluntary PPE.
- When using machines that create wood dust, always use the local exhaust ventilation system.

Hazardous Dust Control Guide

- Maintain ventilation duct velocity.
- Clear any blockages in ventilation piping.
- Immediately report any repairs needed on the ventilation system.
- Maintain a clean working area daily.
- Never allow more than 1/32 of an inch of any dust to accumulate on any surface including vertical and horizontal surfaces.
- Maintain wood working machines and saws.
- Properly store and maintain chemicals.

H. Dust Wrap-Up

Wood dusts and other material dusts are common in our daily environmental and can virtually been found everywhere. It is important that individuals working around areas that generate dust are able to recognize the hazards associated with it. The key to preventing dangerous levels of dust and wood dust specifically are following all the general housing keeping requirements, which can be reviewed in this plan. For more information or questions about dust or need a dust evaluation, please call the EHS Office.

I. Acknowledgements

Combustible Dust National Emphasis Program, OSHA; Safety and Health Information Bulletin (9731-2005) Combustible Dust in Industry: Preventing and Mitigating the Effects of Fires and Explosions; Guide for Protecting Workers from Woodworking Hazards, OSHA 3157, 1999; The Texas Department of Insurance, Wood Dust Hazards and Controls; NFPA 654, Standard for the Prevention of Fire and Dust Explosions from Manufacturing Processing, and Handling of Combustible Particulate Solids; NFPA 664, Standard for Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities.