

Combustible Dust

Combustible dust consists of fine particles that can **ignite or explode when suspended in air** under certain conditions. Many everyday materials become hazardous when processed into dust.

Common Combustible Dust

- Wood and paper
- Sugar, flour, grain, and food products
- Coal
- Plastics and rubber
- Metals (such as aluminum and magnesium)
- Textiles and biosolids

Why It's Dangerous

When dispersed in air, combustible dust can **cause fires, flash fires, or explosions** that results in serious injuries, fatalities, and major facility damage.

The Dust Explosion Pentagon

A dust explosion occurs when all five elements are present:

1. Combustible dust (fuel)
2. Oxygen (air)
3. Ignition source (heat, spark, flame)
4. Dust dispersed in the air
5. Confinement (enclosed space)

Remove just **one** element, and an explosion cannot occur.

High-Risk Activities

Combustible dust is often created during:

- Cutting, grinding, sanding, polishing
- Mixing, conveying, sifting, or crushing
- Drying of wet materials
- Poor housekeeping that allows dust buildup



Key Prevention Strategies

- Control and minimize dust generation
- Use proper ventilation and dust collection systems
- Eliminate or control ignition sources
- Keep equipment grounded and bonded
- Clean dust regularly, never used compressed air
- Design systems with explosion venting or suppression
- Use properly rated electrical equipment

Training and Awareness

Employers should ensure workers:

- Understand combustible dust hazards
- Know where dust may be generated or accumulate
- Follow safe work practices and emergency procedures

Proper hazard communication and training saves lives.

