

TRICOR Safety Consulting

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Combustible Dust Explosions

OSHA is reissuing the directive on the Combustible Dust National Emphasis Program to increase its enforcement activities and to focus on specific industry groups that have experienced either frequent combustible dust incidents or combustible dust incidents with catastrophic consequences. OSHA initiated its previous Combustible Dust National Emphasis Program on October 18, 2007. As a result of a recent catastrophic accident involving a combustible dust explosion at a sugar refinery, OSHA has decided to intensify its focus on this hazard. The Agency will increase its activities in outreach, training, the creation and dissemination of guidance and educational materials and cooperative ventures with stakeholders, as well as enhancing its enforcement activities through this amendment to the National Emphasis Program.

On March 12, 2008, Edwin G. Foulke Jr., Assistant Secretary of Occupational Safety and Health, testified on Capitol Hill to discuss the Occupational Safety and Health Administration's (OSHA) efforts to protect workers from combustible dust hazards. Mr. Foulke announced several initiatives that OSHA has undertaken to improve its enforcement and outreach. Employers and employees are urged to review a new OSHA fact sheet titled Hazard Alert: Combustible Dust Explosions, which is available online, [\[al_Facts/OSHAcombustibledust.pdf\]\(#\). \(Also see page 2\).](http://www.osha.gov/OshDoc/data_Gener-</p></div><div data-bbox=)

Combustible dusts are often either organic or metal dusts that are finely ground into very small particles, fibers, chips, and/or flakes. These dusts can come from metal, wood, plastic and organic materials such as grain, flour, sugar, paper, soap and dried blood. Dusts can also come from textile materials. Some of the industries in which combustible dusts are particularly prevalent include agriculture, chemical, textile, forest and the furniture industry. OSHA published a poster that lists the industries at risk and particular dusts that create the hazard along with corrective actions.

Dust control methods start with proper dust collection systems and filters to prevent fugitive dust in a facility. A good housekeeping program will address dusts that are not captured by the primary dust collection system. Dust needs to be removed from surfaces such as the building structure, equipment and materials. What is the allowable accumulation of dust? The Grain Handling Facilities standard (1910.272) specifies a maximum accumulation of 1/8 inch dust. Many dusts do not have OSHA standards. The general consensus standard such as NFPA 654—Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of

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Dust Control Recommendations

- Implement a hazardous dust inspection, testing, housekeeping, and control program;
- Use proper dust collection systems and filters;
- Minimize the escape of dust from process equipment or ventilation systems;
- Use surfaces that minimize dust accumulation and facilitate cleaning;
- Provide access to all hidden areas to permit inspection;
- Inspect for dust residues in open and hidden areas at regular intervals;
- If ignition sources are present, use cleaning methods that do not generate dust clouds;
- Use only vacuum cleaners approved for dust collection; and
- Locate relief valves away from dust deposits.

Ignition Control Recommendations

- Use appropriate electrical equipment and wiring methods;
- Control static electricity, including bonding of equipment to ground;
- Control smoking, open flames, and sparks;
- Control mechanical sparks and friction;
- Use separator devices to remove foreign materials capable of igniting combustibles from process materials;
- Separate heated surfaces from dusts;
- Separate heating systems from dusts;
- Select and use industrial trucks properly;
- Use cartridge activated tools properly; and
- Use an equipment preventive maintenance program.

Injury and Damage Control Methods

- Separation of the hazard (isolate with distance);
- Segregation of the hazard (isolate with a barrier);
- Deflagration isolation/venting;
- Pressure relief venting for equipment;
- Direct vents away from work areas;
- Specialized fire suppression systems;
- Explosion protection systems;

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

- Spark/ember detection for suppression activation;
- Develop an emergency action plan; and
- Maintain emergency exit routes.

Applicable OSHA Requirements Include:

- §1910.22 Housekeeping
- §1910.307 Hazardous Locations
- §1910.1200 Hazard Communication
- §1910.269 Electric Power Generation, Transmission and Distribution (coal handling)
- §1910.272 Grain Handling Facilities
- General Duty Clause, Section 5(a)(1) of the *Occupational Safety and Health Act* (Employers must keep workplaces free from recognized hazards likely to cause death or serious physical harm).

Resources

Readily available from www.osha.gov are:

- Combustible Dust National Emphasis Program
- Safety and Health Information Bulletin (SHIB) (07-31-2005) *Combustible Dust in Industry: Preventing and Mitigating the Effects of Fires and Explosions*

See the SHIB or www.osha.gov for other applicable standards.

The primary National Fire Protection Association (NFPA) consensus standards related to this hazard are:

- NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
- NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities
- NFPA 484, Standard for Combustible Metals
- NFPA 664, Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities
- NFPA 655, Standard for the Prevention of Sulfur Fires and Explosions
- See www.nfpa.org to view NFPA standards.

For more complete information:



U.S. Department of Labor

www.osha.gov

(800) 321-OSHA

DSG 3/2008

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Combustible Particulate Solids states that dust accumulations should not exceed 1/32 inch.

Ignition sources are to be removed or controlled. Electrical equipment must be evaluated to ensure it is appropriately rated, sealed, and vented to prevent heat accumulation. A “No Smoking” policy would be prudent along with requiring hot work permits for cutting, grinding and welding. Equipment maintenance and prevention programs help in eliminating bad bearings or metal on metal contact that may create excessive heat or sparks.

Where areas have been identified as high risk, isolating the hazard with distance or a barrier may help minimize injury and damage. Specialized fire suppression systems, especially in duct work, have saved many facilities throughout the years. Develop, implement and practice an emergency action plan for times of need.

OSHA has limited standards that address combustible dust other than the Grain Handling Facilities Standard. Several general standards are used such as Housekeeping (1910.22), Electrical Hazardous Locations (1910.307), and Emergency Action Plan (1910.38). OSHA is relying on the General Duty Clause 5(a)(1) for enforcement of recognized consensus standards. NFPA (National Fire Protection Association) has standards that are specific to dusts and that dusts’ hazards. See www.nfpa.org to view the NFPA standards.

Source: www.osha.gov

Local Emphasis Programs

Local Emphasis Programs (LEPs) are enforcement strategies designed and implemented at the Regional Office and/or Area Office levels. These programs are intended to address hazards or industries that pose a particular risk to workers in the Office’s jurisdiction. The emphasis programs may be implemented by a single Area Office, or at the Regional level (Regional Emphasis Programs) and applied to all of the Area Offices within the Region. Often times, these LEPs will be accompanied by outreach intended to make employers in the area aware of the program as well as the hazards that the programs are designed to reduce or eliminate. This outreach may

be in the form of informational mailings, training at local tradeshow, or speeches at meetings of industry groups or labor organizations.

The following is a list of Local (Area Office) and Regional Emphasis Programs, separated by Region and noting the office where appropriate. This list is current as of April 4, 2008, but may change without notice.

Region V- Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

- Amputations - Region-wide
- Building Renovation/Rehabilitation (GUTREP) - Calumet City, Madison, Milwaukee
- Fall Hazards in Construction (FALL) - Region-wide
- High Rise Building Construction for Inspections in Downtown Chicago - Calumet City
- Powered Industrial Vehicles - Region-wide
- Road Construction Work Zone Activities - Ohio Area Offices
- Primary Metals - Ohio Area Offices
- Region VII- Iowa, Kansas, Missouri, Nebraska
- Amputations - Region-wide
- Auto Body Shops - St. Louis, Kansas City
- Electrical Hazards in General Industry Establishments - St. Louis
- Falls, Scaffolds, and Electrocutions from Overhead Power Lines PSI (XFALLELE) - Region-wide
- Federal Agency Establishments (FEDSAFE) - Region-wide
- Grain Handling - St. Louis, Omaha
- High Hazard Workplaces Without an OSHA Inspection Since 1996 - Omaha, Wichita
- Logging and Sawmills - St. Louis
- Powered Industrial Trucks in Construction and Gen. Industry (FORKLIFT) - Kansas City, Omaha, St. Louis, Wichita
- Residential Construction (RESCON) - St. Louis (St. Chas. & Jefferson Counties)
- Demolition Work - St. Louis AO
- Oil & Gas - Wichita
- Maritime Employers - Des Moines
- Mechanical Hazards in the Cotton Gin Industry - St. Louis
- Servicing Multi-Piece and Single-Piece Rim Wheels - Wichita

Source: www.osha.gov

Training Grants Available

OSHA awards grants to nonprofit organizations on a competitive basis through its Susan Harwood Training Grant Program. Grants are awarded to provide training and education programs for employers and employees on the recognition, avoidance, and prevention of safety and health hazards in their workplaces. OSHA selects the safety and health topics and holds a national competition to award grants.

The training grants are named in honor of the late Susan Harwood, a former director of the Office of Risk Assessment in OSHA's Health Standards Directorate, who died in 1996. During her 17-year tenure with the agency, Harwood helped develop OSHA standards to protect workers exposed to bloodborne pathogens, cotton dust, benzene, formaldehyde, asbestos and lead in construction.

Nonprofit organizations, including community and faith-based organizations, that are not an agency of State or local government, are eligible to apply. State and local government supported institutions of higher education are also eligible to apply.

IMPORTANT NOTICE: Harwood grant applicants are required to submit their grant applications electronically through the government-wide *Grants.gov* web site. To participate in the Harwood Grant Program your organization must complete the *Grants.gov* registration process. The process takes 3 to 5 days to complete. Grant applications cannot be submitted until the registration process has been completed. It is strongly recommended that your organization begin the registration process as soon as possible.

Grants.gov is the Web site for all customers of federal grants to electronically find, apply for, and manage grants.

The 2008 Harwood Solicitation for Grant Applications (SGA) was posted on the government-wide *Grants.gov* web site on March 26, 2008. The complete SGA and Electronic versions of the grant application forms are available on *Grants.gov* and must be submitted electronically by the application deadline on Friday, May 23, 2008, 4:30 p.m., E.T.

Source: www.osha.gov

"Safety is Good Business"

Donald Shalhoub. Deputy Assistant Secretary of Labor, Occupational Safety and Health Administration In a speech to kick off NAOSH week 2008.

What is Your Injury & Illness Rate?

OSHA chief Edwin G. Foulke, Jr. recently announced (March 5, 2008) that he has notified 14,000 employers nationwide that their injury and illness rates are considerably higher than the national average.

In a letter sent this month to those employers, Foulke explained that the notification was a proactive step to encourage employers to take action now to reduce rates and improve safety and health conditions in their workplaces.

"A high injury and illness rate is costly to employees and employers in both personal and financial terms," Foulke said. "Our goal is to make them aware of their high injury and illness rates and to get them to focus on eliminating hazards in their workplace. To help them in this regard, OSHA offers free assistance programs to help employers better protect the safety and health of their employees."

OSHA identified businesses with the nation's highest rates of workplace injuries and illnesses through employer-reported data from a 2007 survey of 80,000 worksites (this survey collected injury and illness data from calendar year 2006). Workplaces receiving notifications had 5.4 or more injuries resulting in days away from work, restricted work activity, or job transfer (DART) for every 100 full-time employees. Nationally, the average U.S. workplace had 2.3 DART occurrences for every 100 employees.

Employers receiving the letters were also provided copies of their injury and illness data, along with a list of the most frequently cited OSHA standards for their specific industry. The letter also offered assistance in helping turn the numbers around by suggesting, among other things, the use of free OSHA safety and health consultation services provided through the states, state workers' compensation agencies, insurance carriers, or outside safety and health consultants.

Source: www.osha.gov

If your company has received a DART letter, please contact TRICOR Safety Consulting for assistance in lowering your injury and illness rate.