

NGFA Safety Tips: Combustible Dust and OSHA Housekeeping Requirements

...Committed to promoting safety and health in the workplace.

Housekeeping Assists in Mitigating Potential Combustible Dust Hazards...

Housekeeping is an important part of any safety and health program especially in facilities where combustible material might accumulate. The Occupational Safety and Health Administration's (OSHA) grain handling standard (1910.272) requires the employer to **develop and implement a written housekeeping program** to help eliminate these potential dangers.

The components of a housekeeping program primarily include: **1)** written instructions; **2)** frequency of inspections; **3)** frequency of cleaning; **4)** methods of cleaning; **5)** spills and leaks and **6)** dust control equipment.

Identify "priority" housekeeping areas in grain elevators that are known to be potential sources of ignition. OSHA requires that these include: Floor areas within 35 feet of inside bucket elevator legs, enclosed areas containing grinding equipment, and enclosed areas containing grain dryers located inside the facility.

Address the methods for removing grain spills from work areas, which include: Sweeping, shoveling and vacuuming, blow down and/or wash down. Note that the use of compressed air to remove dust is permitted by OSHA only when all machinery that presents a source of ignition in the area is shutdown, and all other known potential ignition sources are removed or controlled.

Clean and inspect priority areas daily. Other areas inside the grain elevator but outside of the priority housekeeping areas should be inspected and cleaned at least weekly, or more frequently if needed. Surrounding outside areas should be checked weekly and cleaned as needed.

Report and clean up spills and leaks promptly. Resolve the cause of leaks and spills before resuming operations. Dust collection systems need to be maintained on a regular basis to remain effective. Leaks need to be repaired as soon as possible and dust collection bags need to be replaced as needed. Employees should also notify their supervisor or manager of any housekeeping concerns at any time.

Dust Ignition requires three elements

- *Fuel (dust)*
- *Source (spark)*
- *Oxidizing Agent (oxygen in air)*

Dust Explosions require these additional elements

- *Confinement (leg, conveyor, tunnel)*
- *Dispersion in the air (first explosion)*

- The NGFA is committed to promoting safety and health in the workplace, and shares the Occupational Safety and Health Administration's (OSHA's) commitment to protecting employees.
- The NGFA's extensive efforts to enhance safety include unprecedented research and education efforts launched in the early 1980s that helped lead to a dramatic reduction in the number of fire and explosion incidents in commercial grain-handling facilities.
- Each year, NGFA jointly sponsors regional safety seminars in partnership with affiliated state and regional grain and feed associations. The one-day conferences focus on keeping grain handling employees physically safe.

OSHA Grain Handling 3103

[CLICK HERE](#)

OSHA Grain Handling
Special Instructions,
1910.272 App A (7)

[CLICK HERE](#)

Combustible Dust: An
Explosion Hazard, OSHA
Highlighted Standards

[CLICK HERE](#)

Preventing Dryer System
Fires and Explosions Blog

[CLICK HERE](#)

NFPA 61 [CLICK HERE](#)

NGFA Upcoming Events



To **REGISTER** for the 2016
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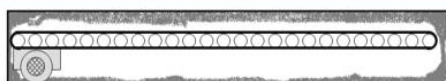
Grain dust is the main source of fuel for explosions in grain handling facilities: The OSHA grain handling standard allows a maximum accumulation of no more than 1/8th-inch in priority housekeeping areas. If dust accumulations exceed the 1/8th-inch action level, means or methods must be initiated immediately to remove such accumulations. The employer may use alternative means to the 1/8th-inch action level so long as the alternative can be demonstrated to provide equivalent protection from explosions.

The NGFA expands on an example of a housekeeping program in its Safety and Health Compliance Manual which can be [found here](#).

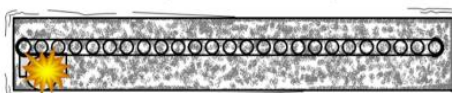


In 2014, OSHA issued 36 serious citations for failure to implement a written housekeeping program for fugitive dust - 1910.272 (j)(01).

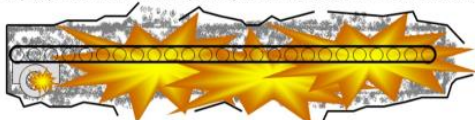
Secondary Explosions



Enclosed conveyor belt with dust build up on inside



Primary explosion from motor sparking creates a dust cloud inside enclosure



Dust cloud ignites causing much larger secondary explosion

*When combustible dusts ignite, there are often two explosions known as **primary and secondary explosions**.*

*The **primary dust explosion** is the first explosion. It occurs when there is a dust suspension in a confined space (such as a container, room, or piece of equipment) that is ignited and explodes. The primary explosion will shake other dust that has accumulated. When this dust becomes airborne, it also ignites. This **secondary dust explosion** is often more destructive than the primary one.*

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More safety information at www.ngfa.org

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