**What Will Inspectors Look for in Combustible Dust Inspections?**

We recently discussed in this blog [OSHA’s revised Combustible Dust National Emphasis Program](https://isienvironmental.com/combustible-dust-emphasis-program-blog). Along with that revision OSHA’s shared its instructions to inspectors on what how to conduct the inspection, what to look for, how to build a case for a citation and which standards they could cite in a citation.

In this article, we’ll list out exactly what an inspector will be looking for if they arrive to your site for a combustible dust inspection, the information you’ll need to provide, and which standards you can be cited under. There is no official OSHA combustible dust standard, so inspection instructions can help serve as a guidance to help you determine what you need to have in place not only to do well in an inspection, but to keep your people safe.

**How Will OSHA Determine Who Gets Inspected?**

First, will you be on the target list?

The NAICS codes who are likely to have combustible dust hazards are gathered together on [Appendix B](https://www.osha.gov/sites/default/files/enforcement/directives/CPL_03-00-008.pdf) of the emphasis program. OSHA will pull a list of all companies who qualify and generate a random order list. Each company will be assigned a number and OSHA inspectors who have had specialized training in combustible dust hazards will be assigned to conduct inspections. This list will remain active for 3 years before a new one is generated. Between 2013 and 2017, OSHA conducted approximately 500-600 per year between programmed (planned) and unplanned inspections.

Your company can be deleted off the list if you have been inspected within the past 5 fiscal years, were inspected for combustible dust hazards and no citations were issued, or if you were inspected for combustible dust hazards, was cited but a follow-up inspection verified you did abate the hazards. Also, if you are a VPP or SHARP company, you can be deleted off the list.

If you’re not on the list for programmed inspections, you can still be inspected if there has been a complaint or if you have had a fatality or catastrophic incident related to combustible dust.

**What Will Inspectors Be Looking for in a Combustible Dust Inspection?**

This is the list of items that OSHA will be evaluating and the potential documentation they will be looking for:

1. **History of Fires and Explosions**

Inspectors will be determining if your plant has a history of fires, flash fires, deflagrations of process vessels and inside buildings, and explosions of vessels. They’ll be conducting employee interviews, looking at OSHA logs, looking at insurance claims, accessing local fire department records, and conducting onsite visual inspections to look at the condition of your equipment. They’ll be placing special attention to discoloration, bulging, repairs and missing/damaged pieces or appendages of your equipment.

1. **Safety Data Sheets (SDSs)**

Inspectors will go through your SDSs, looking for combustible dusts.

1. **Electrical Area Classification Drawings/Documents**

Inspectors will be looking at your classification documents to find areas marked Class II, Division 1 or 2 to ensure electrical equipment is approved for that hazardous location.

You are required to have these drawings per [29 CFR 1910.307](https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.307), which is the Hazardous (Classified) Locations Standard.

1. **Dust Hazard Analysis**

Inspectors have been instructed to do a dust hazard analysis toward the end of the inspection to help them in determining your citation, rather than at the beginning of the inspection to determine the scope. This analysis includes observations of all areas of the facility for accumulation issues to determine overall potential for fire, flash fire or explosion.

They’ll be looking at:

* Horizontal structures
* Conduits and pipe racks
* Cable trays
* Floors
* Above suspended ceilings
* On or around equipment, especially on elevated horizontal surfaces

They will be taking measurements of depth, determining physical area sizes, and may be bringing cameras and video cameras on poles to help take photos of high places.

1. **Control and Suppression Systems**

Inspectors will be looking to ensure:

* Dust collectors and dust handling equipment has explosion prevention/suppression systems and deflagration propagation prevention devices;
* Dust systems that return clean air to buildings have proper protections;
* There are no hazardous levels of combustible dust accumulations outside of equipment;
* Number and sizes of horizontal surfaces are minimized and designed to prevent dust accumulation;
* Equipment that produces, transports, stores or handles dust (mixers, silos, mills, ducts, dust collectors, etc.) are designed and maintained to prevent dust leakage/escape/clouds;
* Material transport systems (conveyors, elevators) are designed to prevent dust leakage/escape/clouds;
* The method of cleaning and the tools you use to clean are proper. Are you using specialized vacuums to clean up combustible dusts, what are you doing to clean up dust, and if you use compressed air is it under 30 psi with the right chip guards and PPE?
* Electrical equipment and lights are proper for use in those areas;
* Powered industrial trucks are approved for use in those locations;
* Hot work, welding, cutting and grinding is not performed in those areas;
* Ductwork from dust generation, handling and collecting systems is conductive, bonded and properly grounded to dissipate static accumulation;
* Maintenance of mechanical equipment is conducted to prevent generation of heat and sparks;
* Process systems have magnetic separators and/or tramp metal separators installed;
* Your ductwork has proper transport velocity to prevent accumulation in the ducts and that ducts have inspection and cleanout ports/hatches;
* Housekeeping procedures are in place; and,
* You have ignition control programs for:
  + Hot work and hot surfaces
  + Bearings
  + Self-heating materials
  + Open flames
  + Fuel-fired equipment
  + Heated process equipment
  + Heated air
  + Frictional sparks
  + Impact sparks
  + Electrical equipment
  + Electrostatics or other similar sources in dust handling equipment.

1. **Sampling Results**

Inspectors will be collecting dust samples from each area they believe has a potential for a combustible dust hazard. This could be from elevated surfaces, horizontal surfaces as high overhead as possible, floors and equipment surfaces, dust collection equipment and within process equipment. They are not allowed to enter into your confined spaces, but they can use a non-spark producing scope or scoop on an extension pole to collect their sample.

Samples will be sent to the OSHA Salt Lake Technical Center which has specialized knowledge and experience with combustible dust hazards.

A good practice with all OSHA inspections is to make sure you conduct your own side-by-side sampling, that is, you sample what they sample and get your own independent results. Be advised, combustible dust samples are going to be considerably more expensive samples to have analyzed by a laboratory than other types of materials.

1. **Other Documentation**

Inspectors will be gathering all kinds of other information including:

* How your equipment is connected and how the process flows;
* Piping and process diagrams;
* They’ll take photographs, videos and make diagrams or sketches documenting extent and depth of dust and condition of equipment;
* Room dimensions;
* Engineering controls used;
* Design information, make, model, serial numbers of dust collectors;
* Date of installation and operator manuals for dust collection system;
* Dirty and clean size/volumes for dust collection system;
* Warning signs and alerts on equipment regarding combustible dust;
* External ignition sources; and,
* Internal ignition sources.

**What are Some Potential Standards You Could be Cited Under?**

OSHA does not have its own dedicated combustible dust standard, but it can use a wide variety of other standards to cite you for these hazards. These include:

**Housekeeping Standard (Non-Storage Areas) – 29 CFR 1910.22**

A little dust here and there wouldn’t be enough. You can be cited under this standard if you have a visible volume of combustible dust in the workplace. This is where that dust hazard analysis comes in. They will use their measurements and observations for extent, depth and calculations of area. If you have dust everywhere and it’s pretty significant, expect a violation of this standard.

**Housekeeping Standard (Storage Areas) – 29 CFR 1910.176(c)**

This is from the Handling Materials – General standard which says that storage areas need to be free from accumulation of materials that constitute hazards including explosion and fire.

**General Duty Clause – Section 5(a)(1)**

As with a lot of other cases, usually there’s always something within the tried-and-true General Duty Clause that could be included. In this case it will be related to the dust collection system or your dryers, mixers, material storage, bucket elevators and mills. In addition to reviewing your safety and maintenance manuals, inspectors may do some research into your industry to find potentials for combustible dust hazards and also use NFPA 65 or other NFPA standards to find issues.

Some ideas for citations under the General Duty Clause listed for inspectors in their inspection guidance include:

* Problems with dust collectors;
* Ductwork-related problems;
* Improperly designed deflagration venting;
* Unprotected processing and material handling equipment (no deflagration suppression); and,
* Improperly designed or maintained blowers, collection systems and exhaust systems used at sawmills.

**Ventilation – 29 CFR 1910.94**

Paragraph (a) of this standard deals with abrasive blasting including fire and explosion hazards. If your ventilation equipment is not constructed in accordance to NFPA 91 and 68, then you can be cited here.

**PPE – 29 CFR 1910.132(a)**

If employees are not wearing FR (flame-resistant) clothing around combustible dust areas where they could receive burn injuries from flash fires, you can be cited under the PPE standard.

**Hazardous (Classified Locations) – 29 CFR 1910.307**

This is in the Electrical Subpart S area of the standards. If sample results show you have combustible dust in a Class II area and it’s not safe for it to be there, you would be cited under this one. They can also cite Class I and III electrical-related issues here too if they find them along the way.

**Powered Industrial Trucks – 29 CFR 1910.178**

If you have a forklift that’s not rated an EX (explosion proof) in the area where there’s combustible dust, you can be cited here. Also be aware that many jurisdictions still have Powered Industrial Truck emphasis programs so they can conduct an additional separate inspection regarding your trucks while they are there for combustible dusts.

**Welding, Cutting and Brazing – 29 CFR 1910.252**

Under the general requirements, if you are conducting cutting and welding in explosive atmospheres, you can be cited here.

**Warning Signs – 29 CFR 1910.145**

This comes from the standard for Specifications for Accident Prevention Signs and Tags under Subpart J, General Environmental Controls. If you have safety instruction signs missing from equipment or missing from entrances where there are explosive atmospheres, expect a citation here.

**Hazard Communication – 29 CFR 1910.1200**

Did you know that combustible dust is considered a hazardous chemical? This needs to be incorporated into your hazcom program. All equipment containing combustible dusts, including drums and containers used to collect dusts from dust collectors and cyclones must be properly labeled just like any other hazcom container.

You should also document notifying and training employees on its hazards.

SDSs are now supposed to include combustible dust as a not otherwise classified hazard with the signal word “warning” and the hazard statement “may form combustible dust concentrations in the air.”

**Others and Specialty Standards**

* Means of Egress – 29 CFR Subpart E
* Portable Fire Extinguishers – 29 CFR 1910.157 (no emergency action plan or fire prevention plan)
* Fire Brigades – 29 CFR 1910.156
* Spray Finishing – 29 CFR 1910.107
* Bakery Equipment – 29 CFR 1910.263
* Sawmills – 29 CFR 1910.265
* Pulp and Paper Mills – 29 CFR 1910.261

Do you need help with combustible dust? iSi can help with programs, audits and hazard assessments, sampling, PPE determinations, training and more. [Contact us today!](https://isienvironmental.com/pricing/)