

Combustible Dust Safety

Conversion Technology, Inc. (CTI) is experienced in identifying and reducing hazards from combustible dust at industrial facilities. Our licensed Professional Engineers are knowledgeable of NFPA and OSHA standards and are available to assist you.

Services:

Combustible Dust Hazard Analysis

Dust Sampling and Analysis

Explosion Protection Design and Selection

Hazardous (Classified) Location Determination

NFPA and OSHA Compliance Review

Combustible Dust Hazard Analysis

A Combustible Dust Hazard Analysis is used to systematically identify when and where dust explosion and flash fire hazards can exist, and to evaluate the potential consequences, in order to assess the level of risk in a facility and determine the adequacy of the current safeguards. CTI's engineers have the specialized knowledge of combustible dust hazards needed to analyze the hazards in your facility. We can:

- Evaluate combustible dust handling and generating processes at a facility
- Identify potential failure modes and ignition sources
- Document the locations and severities of dust explosion and flash fire hazards
- Provide recommendations designed to reduce risk

Dust Sampling and Analysis

The first step in addressing combustible dusts hazards is to identify what material present in your facility meets the definition of "combustible dust". We are available to assist you in developing and implementing a site-specific dust sampling strategy to identify which materials are combustible dust, evaluate the explosive properties of your particular material, and interpret the results of the testing. We have experience in many industries, and the safety training to obtain samples from diverse surfaces at any height. After analysis of the samples, we are able to create a visual model of your facility, showing the locations and extents of dust hazards.

Tests we often utilize include:

- Go / No-Go Explosion Screening
- Maximum explosion pressure (Pmax)
- Normalized Maximum Rate of Pressure Rise (Kst)
- Minimum Ignition Energy (MIE)
- Minimum Ignition Temperature (MIT)
- Minimum Explosible Concentration (MEC)
- Moisture content
- Particle size distribution

Explosion Protection Design and Selection

Process equipment that generate and handle combustible dust and hybrid mixtures often require

explosion protection, such as deflagration venting, explosion suppression, isolation, and inerting. Our engineers are available to provide independent review and recommendations for explosion protection equipment, including the sourcing of new systems and evaluation of the adequacy of existing systems. We work with multiple vendors to acquire and compare competitive quotes, providing recommendations to our clients based on the effectiveness of the equipment, as well as short and long term costs.

Hazardous (Classified) Location Determination

We are available to evaluate building and process areas to determine the location of Hazardous (Classified) Locations in accordance with the National Electric Code (NEC) and OSHA Subpart S. In addition, we can prepare hazardous location diagrams of your facility based on the North American Class / Division rating, or the European Zone rating system. We are able to assist with the following types of locations:

- Class I, Div. 1 and 2 – Flammable Gasses, Vapors or Liquids
- Class II, Div. 1 and 2 – Combustible Dusts
- Class III, Div. 1 and 2 – Ignitable Fibers / Flyings
- Zone 0, 1, 2 – Flammable Gasses, Vapors or Liquids
- Zone 20, 21, 22 – Combustible Dusts or Ignitable Fibers / Flyings

NFPA and OSHA Compliance Review

There are numerous Nation Fire Protection Association (NFPA) standards associated with combustible dust, and evaluating your facility's compliance with the standards can be complicated. OSHA often uses NFPA standards as a basis for compliance, as the Agency detailed in its Combustible Dust National Emphasis Program. Our engineers are available to:

Audit existing processes and facilities to determine compliance with the OSHA NEP and NFPA standards

Review plans and designs of new buildings and processes for NFPA Code compliance.

[For even more information, visit our Combustible Dust Resources page >>](#)