Global Risk Consultants®

# Dust Hazard Analysis (DHA)

Dedication in providing services to address today's challenges

A Dust Hazard Analysis (DHA) is a required assessment by NFPA 652 Standard on the Fundamentals of Combustible Dust and its related NFPA 654 Standard for the Prevention of Fire and Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids. ATEX directives 99/92/EC and Directive 94/9/EC also require dust hazards to be evaluate at facilities throughout Europe.

Fire and explosion risks are present in most industries that manufacture, generate or handle combustible particulate solids and there are many materials that can be explosive in dust form. Some of these include:

- Grain
- Food items (sugar, starch, flour, etc.)
- Plastics
- Wood
- Pulp & paper
- Pharmaceuticals
- Coal
- Metals

Where these hazards are present, a DHA is required to identify, assess and mitigate the dangers of fires, deflagration, and explosions from combustible particulate solids. A DHA typically includes:

- Dust testing to determine the relative hazards of dusts that are present
- A systematic review to identify and evaluate the potential fire, flash fire, and explosion hazards associated with the presence of one or more combustible particulate solids in a process or facility
- Identifying the hazard for each process, facility, and components, as well as pinpointing safe operating ranges and proper safeguards
- Data collection for system and performance requirements including dust hazard testing
- Providing advice for combustible particulate solids management and documentation of all results in the DHA

## Why perform a DHA?

The U.S. Chemical Safety Board concluded that between 1980 and 2005 there were 281 combustible dust incidents (not including grain-related dust explosions). These incidents killed 119 and injured 718 workers, as well as severely damaged the facilities in which they occurred. OSHA's Grain Handling Study reported that in the last 35 years there were over 500 explosions linked to grain handling dusts alone, resulting in 180 deaths and 675 injuries.

The hazards of dust-related explosions are high; as little as 1/32 of an inch of dust accumulation can be ignited and lead to a fire or explosion. This danger is further exacerbated in cases of secondary dust explosions caused by suspended and fugitive dusts. A DHA, which is required by NFPA, can prevent and mitigate these risks.

## How can TÜV SÜD GRC's PS Services help?

TÜV SÜD Global Risk Consultants (GRC) experts are licensed and experienced Process Safety professionals whose knowledge is specifically related to providing the most up-to-date and thorough assessments of your facility. With TÜV SÜD GRC you can be assured that you are not just responding to regulatory needs; you are also providing and practicing the most effective and efficient process safety systems within your facilities.

## About TÜV SÜD

TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in assessment, testing, inspection, auditing, certification, training and knowledge services. Represented in over 1,000 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Africa and Asia. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

## Related services

- Fire Protection Engineering
- Boiler & Machinery Engineering
- Infrared Thermographic Surveys
- Natural Hazards Analysis
- Jurisdictional Boiler & Pressure Vessel Inspections
- Customized Training Services
- Property Valuation
- Arc Flash Assessments
- Business Continuity Planning
- Process Safety
- Code & Project Services

**Sources:**
CSB. "Investigation Report: Combustible Dust Hazard Study." United States Chemical Safety Board. Nov. 2006. https://www.csb.gov/combustible-dust-hazard-investigation/
OSHA. "Health and Safety Topics: Grain Handling." United States Occupational Health and Safety Administration. https://www.osha.gov/SLTC/grainhandling/index.html

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