



FAQ - FREQUENTLY ASKED QUESTIONS

NFPA 652

We are uniquely positioned to help our clients be in complete, effective, and sustainable compliance with all the requirements of NFPA 652. We have collected some frequently asked questions and answers about NFPA 652 and its requirements.

1. What Is the Intent of the New Standard NFPA 652?

Its intent is to provide general requirements for the management of **combustible dust** fire and explosion hazards and to direct the user to appropriate NFPA industry or commodity-specific standards. Additionally, it establishes relationships and hierarchies with industry or commodity-specific standards to ensure that fundamental requirements are addressed consistently across industries, processes, and dust types.

2. Which Tests Are Typically Performed During the Laboratory Testing Phase?

If the dust is found to be combustible/explosible in the Go/No Go Screening then depending on the situation some of the following tests will need to be considered:

- > Maximum Explosion Pressure (Pmax) and Deflagration Index (Kst)
- > Minimum Explosible Concentration
- > Limiting Oxygen Concentration
- > Minimum Ignition Energy
- > Minimum Ignition Temperature (Dust Cloud & Dust Layer)
- > Self-Heating
- > Burning Behavior (BZ)
- > Powder Chargeability
- > Volume Resistivity and Charge Relaxation Time

We will be happy to prepare a test plan that is based on your type of powder, operations, and process equipment.

3. What Is the First Step Towards Completing a Dust Hazard Analysis?

To verify if the powders/dusts handled are indeed combustible or if materials are only handled in closed containers in storage or

warehousing activities (such “benign” processing is exempted from NFPA 652 application).

4. What Is the Second Step in the Process?

The next step towards **compliance with NFPA 652** requirements is to complete the Dust Hazard Analysis (DHA) and **identify areas** of the process where materials could form ignitable dust suspensions or dust layers and access ignition sources. The DHA should answer the following key questions for all areas where powders and dusts are handled and processed:

1. Can combustible particulate solids exist in a sufficient quantity that would allow flame propagation?
2. Is there a mechanism to initiate dust suspension?
3. Could the dust suspension concentration exceed the Minimum Explosible Concentration?
4. Could effective ignition sources exist during 1-3 above?

5. What Timeline Is in Effect for Completing a DHA?

For existing processes, the owner or operator must schedule the DHA to be completed within three years of the issue date of

NFPA 652, September 7, 2015. For new construction or modifications in excess of 25% of original cost, DHA shall be completed as part of the project.

6. What Are Some Important Aspects of Dust Hazard Management?

We take into account building design, equipment design, housekeeping, ignition source(s) control, personal protective equipment, dust control, **explosion prevention/protection/isolation** and fire protection.

7. What Is an Alternative to the Prescriptive-Based Design for the Control of Combustible-Particulate Hazards?

Our qualified specialists can undertake a performance-based design which requires a consideration of practical methods and best industry practices that are provided to meet the life safety requirements, including combustible dust fire, deflagration, and explosion scenarios as well as the company’s mission continuity.

Would you like to get more information?

Contact Us

DEKRA Process Safety

The breadth and depth of expertise in process safety makes us globally recognized specialists and trusted advisors. We help our clients to understand and evaluate their risks, and work together to develop pragmatic solutions. Our value-adding and practical approach integrates specialist process safety management, engineering and testing. We seek to educate and grow client competence to provide sustainable performance improvement. Partnering with our clients we combine technical expertise with a passion for life preservation, harm reduction and asset protection. As a part of the world's leading expert organization DEKRA, we are the global partner for a safe world.

Process Safety Management (PSM) Programs

- > Design and creation of relevant PSM programs
- > Support the implementation, monitoring, and sustainability of PSM programs
- > Audit existing PSM programs, comparing with best practices around the world
- > Correct and improve deficient programs

Process Safety Information/Data (Laboratory Testing)

- > Flammability/combustibility properties of dusts, gases, vapors, mists, and hybrid atmospheres
- > Chemical reaction hazards and chemical process optimization (reaction and adiabatic calorimetry RC1, ARC, VSP, Dewar)
- > Thermal instability (DSC, DTA, and powder specific tests)
- > Energetic materials, explosives, propellants, pyrotechnics to DOT, UN, etc. protocols
- > Regulatory testing: REACH, UN, CLP, ADR, OSHA, DOT
- > Electrostatic testing for powders, liquids, process equipment, liners, shoes, FIBCs

Specialist Consulting (Technical/Engineering)

- > Dust, gas, and vapor flash fire and explosion hazards
- > Electrostatic hazards, problems, and applications
- > Reactive chemical, self-heating, and thermal instability hazards
- > Hazardous area classification
- > Mechanical equipment ignition risk assessment
- > Transport & classification of dangerous goods

We have offices throughout North America, Europe, and Asia.

For more information, visit www.dekra-process-safety.com

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