



Fact Sheet

NFPA 652: Completion of Dust Hazard Analysis (DHA) by September 7, 2018

On September 7, 2015, the NFPA 652 Standard on the Fundamentals of Combustible Dust 2016 Edition became effective. This standard was created to promote and define hazard analysis, awareness, management, and mitigation. The standard also issued a new term, Dust Hazard Analysis, or DHA, to differentiate this analysis from the more complex forms of process hazard analysis methods currently found in industry. If you have processes that create dust or use powders, then you have a responsibility to determine if you have a combustible dust hazard. Contained within NFPA 652 are many new requirements that place more responsibility on both the owner/operator of a facility and the Authority Having Jurisdiction (AHJ). Particularly, the owner/operator is now responsible for determining whether the materials being processed or generated in its facility are combustible or explosible.

The requirement for conducting a DHA applies not only to new processes or facility upgrades; but also applies retroactively to existing processes as well. Specifically, NFPA 652 7.1.2.2. states that “the owner/operator shall schedule and complete DHAs of existing processes and facility compartments within a 3-year period from the effective date of the standard.”

NFPA 652 Standard requires all existing facilities that process or handle combustible dust must complete a DHA by September 7, 2018, or may be at risk for enforcement action by the AHJ.

What is a DHA?

The central component of NFPA 652 is a Dust Hazard Analysis (DHA), which is required if materials handled and processed have been identified as combustible and/or explosible. A DHA consists of an assessment of materials and processes, an analysis of the hazards posed by these materials and processes, and a hazard management plan.

Types of Techniques used for Dust Hazard Analyses (DHAs)

There are multiple DHA techniques that can be used. The Center for Chemical Process Safety publishes “*Guidelines for Hazard Evaluation Procedures*,” which covers simple and complex systems and techniques with examples if you require further detail on this subject. The techniques covered in the guideline include:

- Preliminary hazard analysis
- Safety review
- Relative ranking
- Checklist analysis
- What-if analysis
- What-if checklist analysis
- Hazard and operability study
- Failure modes and effects analysis
- Fault tree analysis
- Event tree analysis
- Cause-consequence anal

Typically, a WHAT-IF analysis is sufficient for a DHA; however, you will have to decide if your process complexity warrants using a more structured technique. Things to consider are your material’s composition and toxicity, proximity to public spaces, worker exposure, and risks to other processes. In many cases, the company’s safety manager may be familiar with one or more of these analysis types and that will drive the choice of which method to use.

Who should facilitate the DHA

The complexity of the system will typically determine who and how many should participate in the DHA. The “*Guidelines for Hazard Evaluation Procedures*,” mentioned in the previous section, provides guidance on this aspect of the analysis. In many cases a single person familiar with the process can prepare a DHA. In other cases, this person may require assistance to expand the knowledge base available for the analysis.

Whoever conducts the **DHA** should be experienced and competent in the type of technique chosen and in the process being analyzed. Sometimes equipment operators should be pulled onto the team; the people operating and maintaining equipment often have valuable insights not only into the system’s hazards but also into potential simple fixes for recurring malfunctions that might create a hazardous condition.



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IES Combustible Dust Experience

Our senior process safety specialists are uniquely qualified to assess the hazards, evaluate the adequacy of existing controls, and to propose practical measures for ensuring safety of people, facility, and the community. This includes the identification of possible fire and explosion scenarios and the evaluation of existing or proposed hazard-mitigation systems and equipment. Our staff is experienced in all DHA techniques listed above and utilize industry software including Dyadem for PHA-Pro® and PrimaTech PHA Works to facilitate a DHA, providing a detailed, concise report.

Need more information?

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