

NFPA 652 AND WHAT IT MEANS FOR YOU – CLEARING THE FUD AROUND DHA'S

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By now, most of us have heard that NFPA 652 has been released, so what does that mean? The highlights are that you will be required to evaluate combustible dust hazards that may exist at your facilities by conducting a Dust Hazard Analysis or DHA within 3 years of NFPA 652's release date of October 2015. That means that NFPA 652 asks operators of facilities to identify combustion hazards involving dusts and powders and then implement needed protective measures and safeguards by October 2018. Please note that dusts, powders, flock, flyings and fibers are categorized into one general group as "dust." According to Susan Bershaw, the NFPA staff liaison for the combustible dust technical committee, there are the following 3 fundamental principles in the standard: containing the fuel, controlling the ignition sources and limiting the spread of any combustion event. Those elements can be found by conducting a DHA, which will need to be revalidated at least every 5 years.

In NFPA 652, the term "Dust Hazard Analysis" or DHA is introduced. This is designed to differentiate from the more complex Process Hazard Analysis or PHA required by the OSHA Process Safety Management (PSM) program for the chemical process industry. Many print and electronic publications are spreading Fear, Uncertainty and Doubt (FUD) by mixing up the requirements for an OSHA PSM PHA with the less arduous DHA approach mentioned in NFPA 652. Industrial and academic experts in the area of combustible dust, fire and explosion safety guided the formation of NFPA 652. Its purpose is to give personnel a single source for information on the fundamentals of safe handling combustible dust and powders in an industrial setting. The standard also directs users to commodity specific standards such as the following which offer material and production specific guidance:

- NFPA 61 – Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities
- NFPA 484 – Standard Combustible Metals
- NFPA 654 – Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids
- NFPA 664 – Wood Processing and Woodworking Facilities



The reason for an implementation deadline for the DHA is to encourage that proactive actions are taken in completing the assessment. According to Guy Colonna, NFPA division manager of industrial and chemical engineering, "The concern is if there's no timetable, it would never get done." Colonna went on to say, "The committee is not proposing a shutdown and redesign of every industrial facility where solids are handling and dust could be present. They're starting with saying: 'Do the DHA. See what it tells you.'"

Chemical Safety Board (CSB) Chairman, Vanessa Sutherland said, "Their internal practices are focused on minimizing the amount of accumulated dust, making sure it's less of a hazard, and also workers are kept up to date on new practices and consensus standards through NFPA." According to Sutherland, employers can take three actions to protect against combustible dust hazards:

- Review CSB Materials, including a safety video and investigation reports
- Review and adopt NFPA standards
- Pay greater attention to worker training and facility housekeeping

OSHA offers other combustible dust and ignition source control recommendations, as well as guidance on injury and damage control methods. The following are some key recommendations, presented in no particular order:

- Enforce a program that includes dust inspections, testing, housekeeping and control
- Use appropriate dust collection systems and filters
- Limit escape of dust from equipment or ventilation systems
- Use surfaces that limit dust accumulation and ease cleaning
- Regularly check for dust residue in all areas, including hidden locations
- Clean without creating dust clouds around ignition sources
- Operate vacuum cleaners certified for dust collection
- Use appropriate electrical equipment
- Keep heated surfaces and systems away from dust
- Create an emergency plan

The recently published OSHA fact sheet is provided on pages 9 and 10 for your reference.

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Once you have seen the various lists that are designed to assist you in starting the DHA process, you can get a good idea of what mitigation steps need to be implemented. However, you may still be in need of additional guidance that is specific to your process. A good place to start is developing a team of people that has a working knowledge in each individual phase of the process. Have them seek to answer six fundamental questions:

- What does "normal" look like for the process?
- What can go wrong with the process (and how)?
- How bad, and how likely, can that "event" be?
- What protections currently exist to avoid the "event"?
- What is the risk of continuing to operate the process as it stands now?
- Is additional protection warranted (if so, what)?

Ideally, you want to have one team member that is assigned the role of team lead and meeting facilitator who has experience conducting a hazard analysis. Once the review is completed you want to document the information obtained in the analysis. The goal is to move forward and continually walk through your process to ensure safety measures recommended are still in place or if any adjustment may be necessary. Another key component is to pass on the information gathered to your team, so that they know the hazard to be aware of and to ensure the safety measures are continually implemented after changes in personnel. In short, this is not a linear activity but a cyclical one that is repeated continually for the life of the process.

Taking on a DHA for your facility can be a daunting task, but it is one that is necessary to recognize any potential hazards. However, if you take it one process and one step at a time, you can make your way towards having a safer operation. Fauske & Associates, LLC (FAI) and our On-Site Safety Team is available to assist you in navigating the DHA process. The bottom line is that you need to have a DHA completed by October of 2018, if you are handling material that is either combustible or explosible. The DHA should develop a plan of action to maintain good housekeeping, safety training to your employees and properly protected equipment and electrical components. Your employees are a great resource to utilize where safety measures may need to be explored. Take the proactive steps towards a safer operation in your facility today. And, it does not have to be complicated to be effective in reducing the combustible dust hazard risk in your process.

REFERENCES

- "NFPA GUIDE TO COMBUSTIBLE DUSTS," AUTHORS WALTER L. FRANK AND SAMUEL A. RODGERS
- "COMBUSTIBLE DUST: SMALL PARTICLES, BIG HAZARD," SAFETY & HEALTH JANUARY 24, 2016
- "NFPA INTRODUCES NFPA 652 COMBUSTIBLE DUST STANDARD," POWDER & BULK SOLIDS, JULY 27, 2015



Mark Yukich works with the FAI Sales team to support our combustible dust testing customers

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See also:

The **OSHA Fact Sheet – Protecting Workers from Combustible Dust** Found at:

<https://www.osha.gov/Publications/OSHA3878.pdf>



Explosion Protected Housekeeping Vacuums by Ruwac



Dust Collector Systems equipped with explosion mitigation / protection and fire suppression by Donaldson-Torit

