

Integrating safety culture into management of dust hazards

Process safety culture and combustible dust hazard management are two seemingly different topics. In reality, one can benefit from the other. Dust hazards have been a real threat to human life and property since as early as 1795. Mitigation remains a necessity. What can we learn if we manage dust hazards from a safety culture perspective?

These 12 essential features of a sound process safety culture were defined in "Guidelines for Risk Based Process Safety" (CCPS of the AIChE, 2007).

- Establish process safety as a core value. Is process safety integrally woven into the fabric of the company and its operations? Removing the process safety thread will cause the fabric to unravel and fail. Ensure that all employees and contractors appreciate dust hazards. All need to act to prevent the hazard from an inherent sense of what is right or wrong, and not from a sense of duty or obligation.

- Provide strong leadership. Plant leaders set the standard and send a consistent process safety message. A no tolerance policy for poor housekeeping is important,

as well as fixing problems quickly.

- Establish and enforce high standards of performance. Include managing dust hazards in performance reviews. This might include participation in routine audits and inspections as well as a reduction in incidents related to dust.

- Document the process safety culture. The management system that drives the plant's process safety program includes elements regarding dust hazards. Dust hazard management is integrated into existing process safety systems.

- Maintain a sense of vulnerability. Is dust a problem at your facility because it is a dirty annoyance, or because it can lead to personal tragedy? Training and awareness programs, including routine safety meetings, should emphasize the hazards of dust and the safeguards used to manage them.

- Empower individuals to successfully fulfill their safety responsibilities. Provide the resources necessary for employees to resolve dust hazard issues and then expect them to succeed.

- Defer to expertise. Train employees so they understand the hazards of the process,

including dust. Describe how hazards are controlled. Use experts to train and to resolve dust-related problems.

- Ensure open and effective communications. Allow concerns regarding dust hazards to flow freely up and down the organization and horizontally from peer to peer. If employees do not have sufficient time to maintain housekeeping that needs to be communicated upward. If a problem is identified on one shift, it may need to be communicated to all shifts.

- Establish a questioning and learning environment. Material Safety Data Sheets (MSDS) are often vague in describing dust hazards so they are often not appreciated. Many facilities that handle combustible dust are not covered under OSHA process safety management (PSM) and have not completed a process hazard analysis (PHA). Knowing which dusts are combustible and how to manage the hazards are the first steps to a sound dust hazard management program.

- Foster mutual trust. Management trusts employees to do their job, including keeping equipment clean and well maintained.

Employees trust management to set the standard. Work groups trust each other to do the right thing for the benefit of all.

- Provide timely response. Action items and recommendations are completed in a timely fashion. When safety issues are identified, they are fixed.

- Provide continuous monitoring of performance. Performance measures are set, published and include dust-related metrics. Performance against those measures is communicated to all affected employees. The employees understand how they can contribute to those goals.

In the wake of an explosion, people wonder how a company could have been oblivious to dust problems. Only through understanding process safety and nurturing a proper culture can a difference be realized. By using these 12 essential features of a sound process safety culture as a yardstick, we can avoid or correct fundamental gaps in culture that otherwise might result in a significant dust explosion.

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