Comdust Safety Standard Stumbles

LUKE SIMPSON, Associate Editor

National Fire Protection Act (NFPA) 654, the standard for the prevention of fire and dust explosions from combustible particulate solids, is facing a number of hurdles. Originally slated for release in 2010, the revised standard was recently rejected by the NFPA membership and rescheduled for release in 2012. However, the NFPA is working to implement a set of emergency interim amendments to address specific issues with the code.

A tentative interim amendment (TIA), containing more in-depth guidance for the application of the 1/32-inch dust thickness criterion and consideration for area limitations, was submitted at the NFPA 654 committee meeting in November. The TIA was subsequently withdrawn, forcing the committee back to the drawing board.

Chem.Info spoke with a NFPA representative, a consultant working on the changes and a dust collection expert about changes to, and the issues surrounding, NFPA 654.

What issues are being addressed by the “emergency” interim amendments to NFPA 654?

Guy R. Colonna, Division Manager, NFPA

“The primary focus for the TIA and some of the work thus far towards the 2012 revision are directed to Chapter 6 and the determination of specific conditions that can serve as criteria for determining when a dust hazard condition exists, whether for flash fires or explosions. Once the criteria can be determined, it can be used to determine specifications for the selection of appropriate isolation or explosion protection measures, and for the development of housekeeping schedule.”

Why was the original TIA rejected? How is the new TIA progressing?

John M. Cholin, J.M. Cholin Consultants Inc.

“It was discovered late in the process that the language in the TIA would have produced some unintended consequences—so it was withdrawn. The technical committee is reprocessing its actions on the public proposals that were received regarding the 2006 edition and is developing committee proposals to address the issues identified as needing revision.

“The first of two proposal meetings has been held—the second is scheduled for early 2011. During the first proposal meeting, the TIA was also revised to fix language. This TIA is progressing through the normal document processing system at NFPA and will become public soon.”

Is dust explosion equipment struggling to keep up with increasingly stringent safety standards?

Dr. Ashok Dastidar, Fauske & Associates

“Not really. I think that technology is well advanced. The problem is that technology is expensive to shoehorn into an existing process. If the process is engineered and designed at the blueprint level to include a lot of these protection mechanisms—how to design the system to be more dust tight so there are no clogs, and the system doesn’t have to be opened up as much, and there is less dust escaping out of ports, and protection equipment is designed right away to deal with combustible dusts—then everything works.

“The problem is that engineers and architects are not really well aware of the dust explosion hazard, so they tend to ignore it. It is usually after the plant is built that people then realize they need to consider dust explosions. When there is a dust explosion issue, the only recourse is for housekeeping to clean up and for explosion protection equipment to be shoehorned in (explosion vents, etc.), and that becomes expensive. And some times there is an engineering limit: ‘Well it would be great if I could add this protection equipment, but it would mean I have to do X-Y-Z to my chamber or my dust collector or my cyclone, and I can’t physically do that now,’ so it can’t be shoehorned in and you have to buy a new piece of equipment.

“I think the problem is people are unaware of the dust explosion hazard when they are designing a plant. But they are usually aware of flammable vapors and combustible liquid hazards, so they are factored in—they are easier to implement because they are more prescriptive. If you go to OSHA and NFPA standards and you have a tank farm, it says ‘Thou must do this … ,’ so people know what to do. With dust explosions, because it’s so varied and wide, it’s more of a performance-based standard approach as opposed to a prescriptive approach, and as a result, you’re left to interpretation where you have to design the appropriate solution.”

For more information, please visit www.nfpa.org [1], www.fauske.com [2] or www.jmcholinconsultants.com [3].

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[1] http://www.nfpa.org/
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