A Bittersweet Lesson

CARRIE ELLIS, Editor

Source: CSB

The Chemical Safety Board (CSB) reports that the sugar industry, in particular, has had a long love affair with both combustible dust and lackadaisical housekeeping methods. In fact, this trend dates as far back as 1925. In a 2006 study, the CSB identified 281 combustible dust fires and explosions between 1980 and 2005 that claimed 119 workers' lives and injured 718. One of the most recent tragedies fell on February 7, 2008 at the Imperial Sugar plant of Port Wentworth, GA.

According to the CSB report on the Imperial Sugar accident, the first explosion—known as a primary event—likely occurred inside a sugar conveyor located beneath two large sugar storage silos. The conveyor had recently been enclosed with steel panels creating a confined, unventilated space where sugar dust could accumulate to an explosive concentration.

The CSB also found that sugar dust inside the enclosed conveyor was likely ignited by an overheated bearing, causing an explosion that traveled into the adjacent packing buildings, dislodging sugar dust accumulations and spilled sugar located on equipment, floors and other horizontal surfaces.

The result was a powerful series of secondary dust explosions that fatally wounded

14 workers and injured 36 others, many with life-threatening burns. Not much was salvageable after the explosions and ensuing fire.

Source: CSB

Don’t Sweep Safety Under the Rug

An Occupational Safety and Health Administration Fact Sheet offers specific dust control recommendations to help protect your facility from a similar fate:

- Implement a hazardous dust inspection, testing, housekeeping and control program.
- Use proper dust collection systems and filters.
- Minimize the escape of dust from process equipment or ventilation systems.
- Use surfaces that minimize dust accumulation and facilitate cleaning.
- Provide access to all hidden areas to permit inspection.
- Inspect for dust residues at regular intervals.
- If ignition sources are present, use cleaning methods that do not generate dust clouds, such as industrial vacuums, which are designed to contain dust.
- Use only vacuum cleaners approved for dust collection.
- Locate relief valves away from dust deposits.

Meanwhile, the CSB recommends strict adherence to the National Fire Protection Agency’s following standards:

- NFPA 61: Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities.
- NFPA 499: Recommended Practice for the Classification of Combustible Dusts and Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas.
- NFPA 654: Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids.
- NFPA 70, Article 500: Hazardous (Classified Locations).

Source URL (retrieved on *03/10/2014 - 3:04pm*):
http://www.chem.info/articles/2010/06/bittersweet-lesson?qt-recent_content=0