Chilworth Technology Publishes Strategic Guide on Handling Dusts and Powders Safely to Help Companies That Are a Target of the OSHA Combustible Dust NEP

Plainsboro, NJ, September 30, 2008 --(PR.com)-- In light of the newly released OSHA's Combustible Dust National Emphasis program (CPL 03-00-006) Chilworth Technology has published strategic Guide for the safe handling of combustible dusts. This document, “Chilworth Technology Strategic Guide - Handling Dusts & Powders Safely” helps companies understand the issues, hazard characterization and hazard management methods available.

The Chilworth Strategic Guide begins with a review of fire and explosion phenomena and proceeds to discuss a valid Basis of Safety for operations. Such management methods are based on the management of the fuel, oxidizer, or ignition sources. However, the strategy begins with an assessment of the fire and explosion properties of a material:

- How easily does the dust ignite under operating conditions? Testing determines a dust's susceptibility to ignition by various ignition sources such as mechanical impact and frictional sparks, electrostatic discharges, hot surfaces, and thermal decomposition. Ignition of the dust is likely if the ignition source exceeds that required to ignite the dust.

- Testing will also determine the conditions under which a dust cloud is ignitable such as the Minimum Explosible Concentration, MEC, parallel to the Lower Flammable Limit reported for flammable liquids. Materials with low MEC values are more likely to form ignitable dust clouds within processes and at spill discharges.

- If ignited what is the likely outcome? Testing determines the maximum explosion pressure rise and also the rate of pressure rise in confined volumes. This information is needed to design protection safeguards such as explosion containment, explosion relief venting, or explosion suppression.

- Finally, can the dust ignite spontaneously in the storage or processing operation? Testing needs to include thermal stability hazards associated with heating powders in dryers or storing large inventories in closed containers. What is the onset temperature for thermal instability hazards? This temperature is often significantly below ignition temperatures reported in MSDSs.

OSHA's Combustible Dust National Emphasis Program

The Occupational Safety and Health Administration, OSHA, has issued a directive (CPL 03-00-006) effective 10/18/07 initiating a Combustible Dust National Emphasis Program (NEP). This program will require OSHA offices to begin inspections of sites that handle combustible dusts specifically targeting dust explosion hazards.

Previously the US Chemical Safety and Hazard Investigation Board (CSB) had found that “...combustible dust explosions are a serious hazard in American industry, and ... existing efforts inadequately address

this hazard" (ref: "Investigation Report Combustible Dust Hazard study" U.S. Chemical Safety and Hazard Investigation Board, Report N0. 2006-H-1, November 2006) The CSB study examined the record and literature to assess the magnitude of the dust explosion hazard and found that 281 combustible dust incidents were reported in the 25 year period ending in 2005. These incidents were responsible for 119 fatalities, 718 injuries and millions of dollars in lost facilities and productivity.

Companies are a target of the OSHA National Emphasis Program (NEP) if:

- They are covered by OSHA,
- They handle/process combustible dusts and powders including (but not limited to):

- Metal dust such as aluminum and magnesium,
- Wood dust,
- Coal and other carbon dust,
- Plastic dust and additives,
- Biosolids,
- Other organic dusts such as sugar, paper, soap and dried blood,
- Certain textile materials

OSHA is creating an all inclusive listing of facilities that handle combustible dusts from its facility classification lists including specific Standard Industrial Classification (SIC), and North American Industry Classification System (NAICS) codes. These applicable classification codes are provided in a Table included in the OSHA NEP document; a download is available on the Chilworth Technology Inc. website, www.chilworth.com.

Many types of industrial activities will be listed including: chemicals, pharmaceuticals, textiles, agriculture, forest and furniture products, metal processing, tire and rubber manufacturing, coal dust and recycling operations.

When inspecting a site as part of the NEP, OSHA inspectors will focus on using specific guideline documents from the National Fire Protection Association, NFPA (NFPA 68, 69, 85, 484, 499, 654, and 664) and FM Global safety data pamphlet FM 7-76. These NFPA codes and standards were discussed in a previous Chilworth Technology Inc. Focus article available on their website, www.chilworth.com in the article archives section.

OSHA Combustible Dusts NEP Inspection Procedures Include:

- Assessment of the combustible dust threat to employees

- Are the dust and management practices hazardous?
- What is the site history of fires involving dust?
- Does the MSDS indicate a dust explosion hazard?
- Are accumulations hazardous?

- Collection of samples of combustible dusts for laboratory analysis
- From high places
- From floors and equipment surfaces
- From within ductwork
- Audit of dust management practices and equipment including dust collectors, ductwork, and other dust containers.
- Audit of room safeguards
- Audit of ignition source management

For a free copy of Chilworth Technology's Strategic Guide - Handling Dusts and Powders Safely, please email Victoria R. Jones at safety@chilworth.com.

How can Chilworth Technology, Inc. help companies managing their dust fire and explosion hazards?

Chilworth Technology has state-of-the-art ISO 17025 certified laboratories for conducting all the tests specified by OSHA Combustible Dust NEP and also NFPA 654. Chilworth technology also has a team highly qualified Process Safety Specialists, who can help companies with all aspects of fire and explosion hazard evaluation. For further information regarding this topic or any other process safety concern, please contact Chilworth Technology at (609) 799-4449 or email them at safety@chilworth.com.

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Contact Information:
Chilworth Technology, Inc.
Victoria Jones
609-799-4449
safety@chilworth.com
www.chilworth.com

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