**Combustible Dust Testing**

**The Sample**
- **Quantity:** 1 - 2 lbs; 500 g to 1 Kg
- **Sampling Locations:**
  - dust collector filter
  - floor
  - ceiling
  - equipment

**Documentation**
- **MSDS/SDS:** what material is and how to handle it safely
- **Sample Test Options Form:** what tests to complete
- **Payment Info:** purchase order, credit card authorization form

**Screening Tests**
- **Explosibility Screening Tests, aka Go/No-Go:** could this material present a combustible dust hazard
- **Combustibility Screening Test:** could this material present a fire hazard

**Additional Testing**
- **Explosion Severity Test:**
  - how energetic a dust explosion could be (used for explosion protection strategies)
- **Minimum Explosible Concentration:**
  - minimum concentration of dust capable of propagating a deflagration through a uniform mixture of the dust in air
- **Minimum Ignition Energy:**
  - minimum energy needed to ignite a combustible dust cloud
- **Minimum Autoignition Temperature:**
  - lowest temperature of a hot surface that will cause a dust cloud to ignite and propagate a flame
- **Layer Ignition Test:**
  - the lowest temperature at which a layer of dust (~5 mm) ignites on a heated surface
- **UN/DOT:** used to classify materials for transport
- **1m³ Chamber:** verification of uncertainty if $K_{st} < 50$

**Common Terms**
- **Deflagration:** An explosion in which the reaction front moves at a speed less than the speed of sound through the unreacted medium
- **Detonation:** An explosion in which the reaction front moves at a speed greater than the speed of sound in the unreacted medium
- **Explosion:** Rapid expansion of gases resulting in a rapidly moving pressure or shock wave
- **Flame Propagation:** The spread of a flame in a combustible environment outward from the point of ignitions
- **Overpressure:** The pressure on an object as a result of an impacting shock wave

**Acronyms**
- **DHA:** Dust Hazards Analysis
- **ISO:** International Organization for Standardization
- **LIT:** Layer Ignition Temperature
- **LOC:** Limiting Oxygen Concentration
- **MEC:** Minimum Explosible Concentration
- **MIE:** Minimum Ignition Energy
- **MIT:** Minimum Autoignition Temperature of a Dust Cloud in Air
- **NEP:** National Emphasis Program
- **NFPA:** National Fire Protection Association
- **OSHA:** Occupational Safety and Health Administration
- **REACH:** Registration, Evaluation, Authorization and Restriction of Chemicals (European Union Regulation)
- **SDS:** Safety Data Sheets
- **UN DOT:** United Nations/ US Department of Transportation
- **US CSB:** US Chemical Safety Board

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