COMBUSTIBLE DUST ROADMAP

This Roadmap is a high-level summary of steps for a process owner to consider if combustible dust may be produced or handled in their facility. The process owner’s final selection of dust collectors and risk mitigation strategies should be based on the outcome of a Dust Hazard/Process Hazard Analysis performed by the facility owner. Although early engagement of a dust collection supplier provides helpful insights on the availability and features of various products, facility owners should consult with a combustible dust expert and/or a process safety expert before making actual product and mitigation strategy selections.

Dust Hazard Analysis (DHA): A Dust Hazard Analysis allows a process owner to determine potential combustion risks for dusts produced or handled in their facility.

Dust and Process Hazard Analysis (DHA & PHA): A Dust and Process Hazard Analysis allows the process owner to review combustion risks in their processes, and assists the process owner in determining if additional testing and/or mitigation activities are needed to reduce their combustion risks.

Dust & Process Hazard Analysis [DHA & PHA]: Completed and Maintained by the Process Owner

EXEMPLARY MITIGATION SELECTIONS

The results below reflect common situations; however, mitigation strategies are influenced by variables not included in this simplified chart. Process owners should use the outcome of their DHA/PHA and discussions with mitigation strategy experts before making actual strategy selections.

Prevention:

- Ignition Source Mitigation Strategy Considerations
  - Dust Reaction
    - No - However, sparks and embers may represent potential ignition sources.
  - Embrys Slow to Extinguish
    - The DHA/PHA may indicate use of Active Mitigation or later DHA/PHA Considerations
  - Sparks Quick to Extinguish
    - The DHA/PHA may indicate use of Passive Fire Protection

Fire Protection:

- Extinguisher and Airflow Considerations
  - Face Protection
    - Yes
  - Water or CO2 Extinguishing System
    - Yes
  - Water or CO2 Extinguishing System
    - No
  - Exhaust Outside to a Safe Location
    - Yes
  - Exhaust Outside to a Safe Location
    - No
  - Damper is not needed
    - Yes
  - Damper is not needed
    - No
  - Duct & Flame Safe to Return
    - Yes

EXAMPLES OF EXPLOSION MITIGATION

- Explosion Venting
  - Yes
  - Explosion Vents
    - Yes
  - Explosion Vents
    - No

Dust Mitigation

- Spark Mitigation
  - Passive (Spark Cooler®) or Active (Detect & Extinguish)
- Collector Location – place collector auditing
  - Inside Plasma Auditing
  - No

Testing:

- Additional Testing
  - Yes
  - No

Additional Information:

- Additional Information: Water or CO2 extinguishing strategies may not be suitable for all combustible materials. A recognized expert on fire mitigation can assist in selecting suitable extinguishing strategies (e.g. combustible metals may require Argon systems).

- Additional Information: An actual Dust and Process Hazard Analysis should address all the risks identified in a process and will likely provide mitigation considerations that are not shown in this simplified roadmap.