

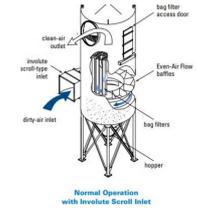
# Dust Essentials- Considerations for Choosing the Right Collector

## 01 Know Your Dust

- **Size:** what size are the particles (<.1µm to 1,000µm)?
- **Shape:** Is the dust spherical, fibrous, or flaking? Is the dust uniform or varied?
- **Abrasiveness:** Is there potential for deteriorating filter media or collector components?
- **Hygroscopicity:** Does the dust readily absorb and retain moisture?
- **Agglomerativeness:** Will the dust naturally gather into a ball or cluster?

## 02 Know Your Options

- **Cartridge**
  - Introduced by Donaldson in 1975
  - High air to media ratio: small footprints with fewer filters
  - Ideal for low to medium dust loads
    - Also ideal for fine, uniform and dry dust types
  - Common in fabricated metals, food, pharma and plastics
- **Baghouse**
  - Proven technology invented in the '50s
  - Uses felt for pleated bags; quantity per collector of 6 - 9,000
  - Ideal for higher dust loads and/or challenging dust types
  - Common in woodworking, mining and grain industries
- **Powercore**
  - New technology developed from the need for better filtration of submicron particulate
  - Common in welding, laser & plasma cutting and thermal spray industries
  - More efficient filter pack technology repurposed from automotive industry
- **Mist Collection**
  - Designed mainly for machining processes
  - Ideal for low-micron mist droplet capture
  - Common in CNC, grinding and cold heading industries



## 03 Manage Combustibility

- Involve the Authority Having Jurisdiction (AHJ): per NFPA, "an organization, office, or individual responsible for enforcing the requirements of code or standard, or for approving equipment, materials, an installation, or a procedure."
  - Likely entities: Insurance Underwriter, Fire Marshall, OSHA, or Building Inspector
- Have the Dust Screened by a 3rd Party Lab
  - Consider the following tests: Explosively Severity (Kst and Pmax), Minimum Explosible Concentration (MEC), Minimum Ignition Energy (MIE), and Minimum Autoignition Temperature (MIT).
- Consider Fire/Explosion Prevention
  - Spark Mitigation
  - Collector Choice
  - Dust Additives
- Consider Collector Fire Protection
  - Sprinklers
  - Inert Gas Fire Suppression
- Consider Explosion Protection
  - Active Explosion Suppression System
  - Explosion Venting
  - Explosion Isolation