

Collecting Your Dust Sample

In accordance with NFPA 652 Chapter 5.5



1. Identification of Sample

- Come up with a sample collection plan to identify the types of materials that may pose a fire or explosion hazard within the process and systems.
- Label each sample with location, date and known or expected material composition & characteristics.
- The dust samples should correlate with the potential hazards identified in your DHA.



2. Dust Sample Location

- Samples should be collected without the introduction of an ignition source, without dispersing the dust into the air, and without creating a hazard.
- Elevated surface samples identify the explosibility of accumulated dust.
- Raw material & final product samples provide a baseline for material unloading & packaging needs.



3. Collection of Sample

- Do not create a hazard while collecting the sample.
- Samples should be collected without the introduction of an ignition source.
- Use non-sparking equipment such as a natural bristle brush, plastic antistatic shovels, scoops or pans without dispersing the sample into the air.
- Place samples in a sealed plastic bag or other sealed, non-conductive container, as seen in the image.
- Sample size requirements vary; contact the lab for detailed instructions.



4. Preserve Sample Integrity

- Consult the DOT Hazardous Materials regulations prior to shipping dust samples.
- Add warning labels and take all required shipping precautions; an SDS may be required.
- Ensure dust samples do not cross-contaminate during shipping.
- Discuss shipping and handling requirements with your lab.



5. Communicate with the Lab About Requirements

- Check for specific documents required by the certified lab before sending the dust sample.
- Discuss preserving sample integrity with your lab. Package in properly sealed containers.

Common Problems with Combustible Dust Sampling

- Not submitting an adequate sample size or quantity, as different explosibility tests require different amounts of material.
- Submitting an incomplete test request form.
- Samples not collected from proper locations. Samples contain excess moisture.
- Many labs have options for grinding, sifting and drying of samples.

RoboVent will ensure that your collected dust samples meet the testing requirements.

Testing Your Dust Sample

Samples should be sent to an ISO17025 Accredited Lab or Calibration Round Robin (CaRo) Lab.

Tests and samples required for system design and equipment sizings.



Go/No Go
Explosibility
Screening Test



Explosion
Severity Test
Kst /pMAX test



Minimum Ignition
Temperature – Dust
Cloud (MIT-cloud) Test



Minimum Ignition
Energy – Dust Cloud
(MIT-cloud) Test

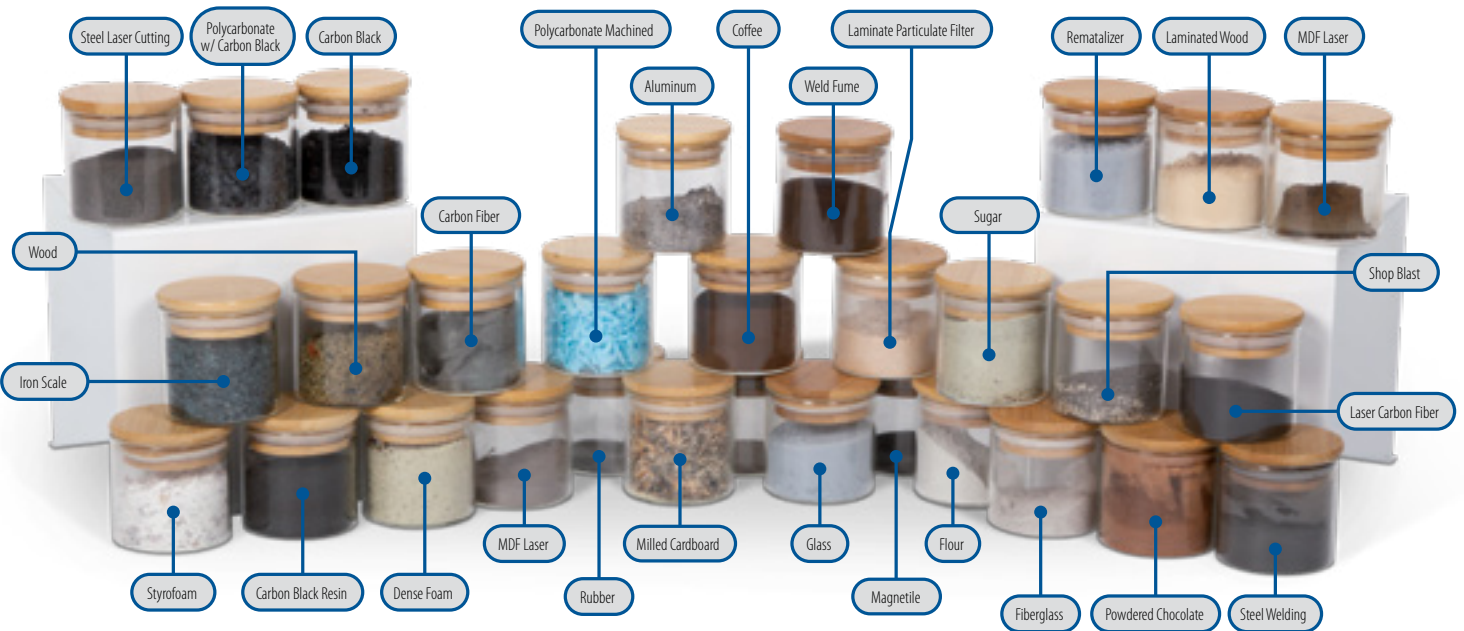


Minimum Ignition
Temperature – Dust
Layer (MIT-layer) Test



Minimum Explosible
Concentration
(MEC) Test

"Dust Collection" taken from the desk of RoboVent's Director of Engineering, Alysha Yinger.



Labs in North America (Source: DustSafetyProfessionals.com)



- **Fauske & Associates, LLC**
Chicago, Illinois
- **Stonehouse Process Safety, Inc.**
Princeton, New Jersey
- **Jensen Hughes**
Halifax, Nova Scotia
- **Fike Corporation**
Blue Springs, Missouri
- **Combustion Research Center, IEP Technologies**
Spencer, Massachusetts