

# Combustible Dust Hazard Evaluation Studies

## Compliance Assessment

Provide consulting advice on explosion prevention/mitigation and selection/design of explosion protection systems (e.g., relief venting, containment, suppression, inerting, isolation, etc.) to meet intent of commodity specific dust hazard standards (e.g., NFPA 654, 61, 664, 484, 655).

## Risk Assessments

Performance-based (risk) hazard assessments. Assess risks associated with process hazards to help owner/operators prioritize capital investments and maximize risk reduction.

## Dust Testing

Recommend and facilitate testing of combustible dusts ( $P_{MAX}$ ,  $K_{ST}$ , LOC, MIE, MIT). Provide guidance on interpretation of test results and what they mean to the user.

## Background

- Combustible dusts are fine particles that present flash fire and explosion hazards when suspended in air at a sufficiently high concentration and subjected to a competent ignition source.
- A dust explosion can be catastrophic and cause employee deaths, injuries, and serious building damage.
- Between 1980 and 2005, there were 281 documented U.S. combustible dust incidents that killed 119 workers, injured 718, and extensively damaged industrial facilities.
- In 2007, OSHA embarked on a National Emphasis Program (NEP) to inspect facilities that generate or handle combustible dusts and issue citations referencing NFPA standards where unsafe practices are observed.
- A dust hazard analysis (DHA) is required by the relevant combustible dust standards, NFPA 652 (2019).
- BakerRisk assists clients with identifying combustible dust explosion hazards, developing preventative and mitigation options, and evaluating options for compliance with the relevant NFPA standards.

## BakerRisk Credentials

- Numerous consultants reside on relevant committees (e.g., NFPA 652 & 654, ASTM E 27)
- Co-authored CCPS Book "Guidelines for Combustible Dust Analysis" 2015

## Related Services

- Hazardous Area Classification – HAC Studies are a requirement of the relevant combustible dust NFPA standards (e.g., NFPA 652)
- Structural Integrity Evaluations – when explosion protection is required for equipment or process enclosures, the strength of the enclosure needs to be known. Typically this information is not available and therefore provides an opportunity for structural evaluation.

### Hazardous Dust Accumulations



### Imperial Sugar (2008)

