

Dust Explosion Consulting

Dust explosions are a major concern in the process industry. The GexCon team has performed research and consulting in the field of dust explosions for decades. After establishing a dust explosion laboratory in 1970s, we have performed numerous large-scale dust explosion tests and developed the CFD-model DESC (based on FLACS gas explosion model).

GexCon offers a range of services from dedicated dust explosion training courses, dust characterization testing, large-scale tests, risk assessments of powder handling facilities, and detailed CFD-modeling for a more accurate assessment of consequences. Some of the services offered are:

Explosion testing

- Dust explosion properties: K_{st} , P_{max} , ignition energy, ignition temperature, lower explosion limit, limiting oxygen concentration
- Dust layer ignition and potential for bulk storage self heating
- Equipment for use in hazardous areas and for protective systems
- Possibility to combine testing with advanced CFD-modeling

Dust explosion training courses

- Dust explosions, accidents, dust properties, ignition sources
- ATEX directives, NFPA guidelines and risk assessments

Risk assessments in powder handling facilities

- Systematic risk assessment to evaluate hazards and minimize risk
- Hazardous area classification, ignition sources, explosion venting, explosion suppression, explosion containment

CFD modeling of detailed layout and venting

- Conditions beyond the scope of NFPA-68 (scale, L/D, multivessel, congestion, duct)
- Evaluate realistic process conditions, instead of simple cases assuming the whole volume is unrealistically filled with dust

Accident Investigation

- We can help determine cause and origin
- FLACS & DESC models powerful in reconstruction of incidents
- Evaluate and help prevent future accidents

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20m³ roller mill test 2009



Explosion vent modeling



Combustible dust testing



Testing of protective systems

 **FLACS**

is a leading CFD software
for consequence modeling
developed by GexCon