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# Chemical Reactivity and Combustible Dust Characterization and Management Services

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# ioKinetic offers a complete solution for characterization and management of chemical reactivity

- Test plans
  - Cost-effective and intelligent test planning
- Equipment and Accreditation
  - State-of-the-art testing facilities
  - Fully accredited for ISO 17025
- Interpretation
  - Decades of experience for effective application of your measured data
- Scale up
  - Process optimization, reactive pressure relief and effluent handling systems design, and training

# ioKinetic can help you understand the complicated management of combustible dust hazards

## ➤ Defining relevant tests

- Cost-effective test plans based on your specific operations

## ➤ Conducting tests

- Fully accredited for ISO 17025
- ASTM compliant test equipment

## ➤ Interpreting results

- Applying your results to your operations to lower risk

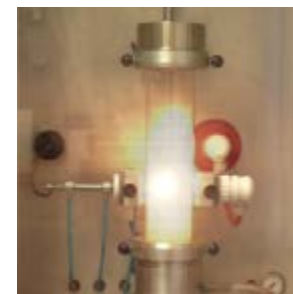
## ➤ Completing detailed analyses

- On-site assessments, process hazard analyses, dust hazard assessments
- Deflagration vent sizing for NFPA 68 prescriptive and performance-based approaches

t = 0.000 s



t = 0.033 s



t = 0.067 s





**ioKinetic is accredited by ILAC internationally and ANAB in the US and has multiple certifications and qualifications**



**Safety Experts / Experimental Design Experts**

# Our fully accredited laboratory offers state of the art equipment and data management including:

- Chemical Reactivity
  - APTAC 264™ (x2)
  - ARC 254® (x2)
  - DSC 200
  - TG 209
- Physical & Transport Properties
  - Density
  - Speed of Sound
  - Heat Capacity
- Combustible Dust Testing
  - 20-L Sphere (x2)
  - MIKE3
  - BAM Oven
  - Burn Rate Apparatus (UN)
  - HSIT Apparatus
- Support Equipment
  - Cilas 990 Particle Size Analyzer
  - Mettler Toledo HR83 Moisture Analyzer

# We can help with challenging chemistries

- ▶ Extremely toxic
  - ▶ Cyanides
  - ▶ Ammonia
  - ▶ Halogens
- ▶ Flammable or explosive
  - ▶ Ethylene oxide
  - ▶ Azides
  - ▶ Flammable gas
- ▶ Flammable Gas
  - ▶ Propylene oxide
  - ▶ Butylene oxide
  - ▶ Light hydrocarbons
- ▶ Moisture sensitive
  - ▶ Halides

# We work side by side with our clients to add value and safeguard their operations

- **The Client:** Large Performance Chemicals Manufacturer
- **The Challenge:** Update an existing kinetic model to extended process conditions to allow pressure relief system design using the SuperChems™ component of ioMosaic's Process Safety Office®. The highly reactive materials were also extremely hazardous. They could not be purchased from a commercial supplier.
- **The ioKinetic Approach:** We worked with the client to develop an innovative approach to transporting and receiving the highly hazardous materials. Our in-house safety experts developed a safe handling procedure for the extremely hazardous materials. Our modeling experts were able to update the previous model to extend the range of application. We continue to support the process simulation efforts of the client, including sizing pressure relief devices and conducting process optimization.
- **The Result:** The client has a kinetic model that can be applied to extended process conditions to size pressure relief systems and conduct process optimization.

# Contact us to learn more about how we can help

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# About ioKinetic, LLC

ioKinetic is a worldwide, ISO accredited, ultramodern testing facility. Our testing services include the complete safety solution. We provide an array of testing services (chemical reactivity, combustible dust testing, and battery testing) to a broad range of industries, such as; chemical, oil and gas, pharmaceutical, agricultural, biotechnical, explosives, food and beverage, lumber and sawmill facilities, etc. Our services also include training, and consulting for all your process safety management needs. Our exclusive partnership with ioMosaic Corporation allows us to expand our service and product offerings to encompass expert testimony services, as well as access to industry gold standard software.

Our experts not only provide you with timely, reliable and reproducible data, but we will also only recommend the services that are 'right' for your company's safety efforts. Time and again our clients have acknowledged that we 'go the extra mile' with regard to our service. We provide more than laboratory testing services, we provide peace of mind.

For more information, visit [www.ioKinetic.com](http://www.ioKinetic.com)

