FAUSKE & ASSOCIATES, LLC

New Format

Process Safety News

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IN THIS ISSUE

Reactive Systems Vent Sizing: the Easy Approach

Following the AIChE DIERS methodology, three types of reactive systems are usually distinguished for venting character including vapor, gassy and hybrid.

By Hans K. Fauske, D.Sc., Regent Advisor

The venting character and corresponding relief area requirement are easily determined using the DIERS calorimetry methodology including the Vent Sizing Package 2 (VSP2™) and Advanced Reactive System Screening Tool (ARSST™) commercialized by Fauske & Associates, LLC, and in case necessary physical properties are lacking under the conditions of the emergency scenario (more often the case than not), the following simple Fauske Generalized Vent Sizing Equation requiring no physical properties can be used that is consistent with all relevant experimental data (Fauske, 2006)

$$A/V = \frac{3.5 \cdot 10^{-3}}{\left[1 + \frac{1.98 \cdot 10^{3}}{P^{1.75}}\right]^{0.286}} (\dot{T} + \dot{P}) \qquad (1)$$

which is applicable to vapor systems $(\dot{P} = 0)$, gassy systems $(\dot{T} = 0)$ and hybrid systems $(\dot{T} + \dot{P})$ as illustrated below (Fauske, 2006).

An experiment with a contaminated 200 kg 50% H_2O_2 solution is used here to compare the result with Eq. (1). The runaway reaction tempered and vented safely with a value of A/V = $2.6 \cdot 10^{-2}$ m^{-1} where A (m^2) is the vent area and V (m^3) is the volume of the reactant, and a resulting relief pressure P of about 1 psig. The self-heat rate $\dot{T}$ at tempering equaled 55°C min^{-1} and the corresponding rate of pressure rise $\dot{P}$ was 14 psi min^{-1} (from a 10 g sample in the ARSST), and results in

$$A/V = \frac{3.5 \cdot 10^{-3}}{1\left[1 + \frac{1.98 \cdot 10^{3}}{1^{1.75}}\right]^{0.286}} (55 + 14) = \underline{2.75 \cdot 10^{-2}\ m^{-1}}$$

which compares to the experimental value of $2.6 \cdot 10^{-2}$ m^{-1}.

Similar good comparisons with experimental data using the easy approach for vapor and gassy systems are demonstrated in the following paper [1]. It is of interest to note that for gassy systems, a simple single ARSST test (~ 10 g) can serve as an alternative method to a full scale test vessel or the multiple UN 10 L tests.

Left to Right: The ARSST™ & VSP2™

References

[1] "Hans K. Fauske, 2006, "Revisiting DIERS Two-Phase Methodology for Reactive Systems Twenty Years Later," Process Safety Progress, Vol 25, No. 3 (September, 2006).

Dr. Hans K. Fauske is an original founding partner of Fauske & Associates, LLC and currently serves as Regent Advisor

Letter From The President

Safety first.

If you are a regular recipient of this publication, you know that this is our company mantra. We are in the safety business and as much importance as we place on safe practices when working with our customers, we apply the same importance to our own in-house practices - "practice what we preach."

We are proud to report that with the end of our fiscal year on March 31, 2018, we were incident free.

The work we do on a daily basis, makes this even more impressive "We blow things up so you don't have to." I attribute it to the ceaseless commitment to safety made by every member of our team here at FAI from the top tier management all the way through the organization.

I am very proud of our staff and we are pleased to offer the same expectations of safe and service-minded detail we demand internally, to you, our valued customers. Thank you for putting your trust in us to make your people and facilities a safer place to work and visit.

Stay safe,

Deb Kuvakos from our combustible dust team demonstrating how to properly collect dust

Fauske & Associates, LLC's Mark Yukich, FAI Customer Service Lead for our combustible dust team representing at the Michigan Safety Conference

Follow us on social media for industry and company updates

FAQS OF HAZARDOUS DUST TESTING

By Rachelle Andreason

Because combustible dust exists in most manufacturing facilities, a state of the art dust testing lab will frequently receive a number of questions from a variety of industries.

Many plant managers and facility safety experts are not sure where to start when it comes to possible hazardous dusts.

Here are a few questions we frequently answer :

Q: Where is the best place to collect material for testing?

A: Typically, the finest and driest material present within the facility presents the greatest hazard. With this being said, it is recommended that the material be collected from the dust collector filter, elevated surfaces within the facility, or the dust collector bin. If finer material cannot be collected, and you know that finer material may be generated in the process, it is recommended that you request particle size reduction prior to testing.

Q: Can I use historical data to design my dust collector?

A: No, it is not recommended to use historical/literature values to design a dust collector or to size explosion protection. Historical values are a good reference to identify if your material

Continued on page 5

FAI Dust Collection Kit and Common Sampling Questions

A common question that comes into our dust testing lab is, "How should I ship my sample?"

By Mark Yukich

As a result, we felt it would be helpful to create a dust collection kit. It is not a requirement to use the Fauske Dust Collection Kit, but it is available for $25, if you will find it helpful to collect your sample. The kit includes 4 half-gallon plastic jars with screw top lids, 4 labels and an FAI Pen to fill out the labels. If you would like to order a kit and/or get a quote for testing, contact us at dust@fauske.com. Pictures of the Dust Collection Kit are shown below:

Items needed to move forward with sample characterization are the safety data sheet (SDS), completed sample test options form, payment information and signed terms & conditions. Please fill out all forms completely to let us know who is sending in the sample and the tests you want completed. There are many times where we have a "mystery sample" because a customer sends us the material, but no other paperwork to know who sent us the sample. This is sure to delay the turnaround on your final results.

Some items of note needed for testing are listed below:

Safety Data Sheet (SDS) – There are some customers that don't have an SDS available to send us, but we still need an explanation as to the material's compositional properties. This information is needed for our lab personnel to know how to handle the material and what personal protective equipment to wear when running tests in our lab. In addition, it is best to send the SDS or explanation of the material with the sample in the event that the package opens during shipment.

Sample Test Options Form – The test options form will need to be filled out for each sample submitted for testing. The test options form will serve as a guide for our lab to complete the appropriate testing you want to have run on your sample. The sample name that you provide on the form will be the name that is listed in the final report. Helpful hint: When naming your sample, make it a name that will make sense to you and anyone from your company looking at this report in the future. This extra step will allow your team to review the report at any time and know that the sample was collected from, "Dust collector in mixing room #1." The bottom line is that you want the sample name to be a useful guide for your team to know where the sample was originally collected.

Payment information – We will need a purchase order or credit card information in order to put your sample in our queue. We will not invoice for the testing until the test and report are completed. If your account set up team needs any vendor documents completed, or if you will need our credit card authorization form, let us know at dust@fauske.com. We will take care of any of your testing related questions.

One final note, any paperwork that you include with the shipment can go into the box. However, please don't put the forms in with the actual sample. We want to ensure that the paperwork is kept clean and the sample remains as representative as the day you pulled the material from your facility. The two items that are needed to be included in a sample shipment are the SDS and Sample Test Options Form. Payment information can be sent to us directly at dust@fauske.com or call 630-323-8750 to provide your credit card information to our accounting office. We want to be sure your sample arrives to us in good condition with the appropriate paperwork to get your sample started right away.

Mark Yukich is Customer Service Lead for the Combustible Dust Team at Fauske & Associates, LLC

Electrical Safety and Combustible Dust

A February 2018 article in *Plant Services* highlighted the results of a survey regarding electrical safety in plants.

By: Jeffery Griffin

"Electrical Safety Survey Results: Is Your Plant a Safe Plant? " is a study of 200 readers of the magazine. Nearly a third (29%) of those surveyed were either plant managers or maintenance managers. The survey asked questions about Personal Protective Equipment (PPE), incidents, safety technologies, and other safety issues.

Interestingly, two of the questions in the survey directly related to combustible dust – namely, whether there was an effective dust mitigation plan and if there was sufficient grounding and bonding. Almost 27.1% saw dust mitigation as a medium to high risk, and 22.2% of respondents saw ineffective grounding as a medium to high risk.

"Faulty electrical, or electrical equipment not rated for the production environment, and static electricity are major ignition sources for dust cloud deflagrations and explosions," states Dr. Ashok Dastidar, PhD, MBA and Vice President of Dust & Flammability Testing and Consulting Services - Fauske & Associates, LLC (FAI). "Avoiding or mitigating these ignition sources will go a long way in reducing the risk of a catastrophic explosion. Our FAI On-Site Services team can identify these issues at your current (or proposed) facility and then help you strategize remedial administrative and engineered controls."

Fauske and Associates, LLC's On-Site Services team has performed 100's of on-site assessments to address issues related to bonding, grounding and dust mitigation by performing Dust Hazard Assessments (DHAs) as well as Process Hazards Assessments (PHAs) - key tools in any Process Safety Management (PSM) plan. We also train professionals around the US through our two-day combustible dust training course, which helps professionals of all levels identify process risks and develop solutions.

More than 63% of respondents said they outsource testing. Basic tests for understanding whether your dusts are combustible are very low-cost and can rule out concerns related to explosion hazards. The key to managing potential risks is a *regularly scheduled* program of review and testing, regardless of your choice to handle your facility's safety needs internally or externally. NFPA 652 requires that any facility with a combustible dust perform a Dust Hazard Assessment (or DHA) at regular intervals to address potential risks arising from process or material changes. Ignoring possible risks or failing to implement a plant safety plan leads to long term problems and potentially hazardous operating conditions.

We encourage you to read the full survey. If you have questions about combustible dust or electrical hazards, DHAs, PHAs or PSMs, please don't hesitate to contact us at info@fauske.com, 630-323-8750, www.fauske.com.

Jeffery Griffin is Director, Global Business Development & Strategy at Fauske & Associates, LLC

Product Spotlight: Seteram C80 Calorimeter

The C80 is a reaction, thermal and scanning calorimeter that operates like a larger version of a DSC. It accommodates larger sample sizes and bigger test cells - 10 ml test cells, as opposed to 20-50 µl test cells. This is helpful when dealing with heterogeneous or multi-component samples that are not or cannot be uniformly mixed (think different colored candy) as it allows a more representative sample to be tested. It can be used with a wide range of vessels and accomodates glass lined cells which is useful when working with peroxides and chemicals that are highly sensitive/reactive to metals. Additionally, with a high level of sensitivity to thermal events and ability to design cells and vessels to simulate almost any potential condition.

The C80 is nicely complements other instruments in our lab and enhances the ability of our team to offer practical and customized solutions to unique process safety issues related to thermal hazards and thermal stability.

Continued from Page 3

has a trend of being explosible and/or combustible, but there are so many other factors that play a role in ensuring your specific facility has data that truly represents the material within your process. It is important to consider the characteristics such as particle size distribution, particle morphology, and moisture content.

Combustible dust characterization is an important part of facility safety planning

Q: How much material do I need to submit for the Explosion Severity test?

A: Typically we recommend that at minimum of 500 g (1 lb) is submitted for the Kst test; however, depending on the density of your material more material may be needed. It is also recommended that additional material be sent if particle size reduction is requested.

Q: How long does it take to get results?

A: Explosion Severity (Kst) testing is one of the most labor intensive dust testing services we offer. Depending on how the sample behaves during testing, a typical Kst test can take anywhere from 4 to 6 hours. However, depending on the nature of the material and the clean-up involved, testing may take longer.

Combustible dust characterization is an important step in plant management and facility safety. There are no dumb questions. Whether meeting new OSHA, NFPA or NEP standards or just taking precautionary steps, get your dust tested.

www.fauske.com

Rachelle Andreason is Dust Projects Manager at Fauske & Associates, LLC

Flammability Hazard Assessments

One of the major hazards in chemical industries is a fire. Fire in the process industries is the most reported hazard and causes a significant amount of deaths, injuries, and damage.

By Rick Kwasny,

Fires could also lead into or be a result of other major hazards (e.g. explosions or toxic release). Therefore, it is important we understand the flammability characteristics of flammable materials to avoid unwanted fires and explosions. One strategy that can be employed to analyze the hazards is a flammability hazard assessment.

A flammability hazard assessment can involve the following scenarios but is not limited to:

1. In part, due to an OSHA PSM audit
2. Management of change involving flammable materials
3. Review previous incident(s) involving fire or explosion to ensure causative and preventative actions are identified and implemented
4. Review of preliminary or detailed engineering design
5. When considering the use of an oxidizer, e.g., oxygen, in a batch reaction involving a flammable liquid, safeguards must be developed to allow working safely with an oxygen-enriched headspace
6. Objectively assess the flammability safety status of a legacy facility
7. To better understand issues related to an OSHA citation

Depending upon the scope and complexity of the issues, the following methodologies can be used:

1. On-site hazard assessment: A comprehensive review to identify potential hazards and recommend practical safeguards
2. On-site walkthrough: A focused review to provide an overview of current safeguards used in flammable service
3. Desktop review: There is no on-site component. The engineer would review process information drawings, operating procedures, and other documentation to assess the adequacy of the current facility operations with respect to the safe processing of flammables
4. Flammability testing: There are many test results available in the open literature. However, if the temperature, pressure, or impurity profile falls outside the usual range, it can be necessary to recommend testing of specific plant samples at specified conditions.

It is best to work with one of our consulting engineers to determine the type of assessment to be used and the advantages of each.

In order to allow the client and our engineer to be on the same page the following information needs to be reviewed prior to the assessment:

1. Determine if a Non-Disclosure Agreement (NDA) will be needed to allow for the free exchange of the issues involved
2. A document summarizing the unit operations involved in the process(s)
3. A basic Process Flow Diagram to illustrate the process flow logic of the unit operations from the beginning to the final product including all waste streams
4. The names and quantities of the materials of the process including their flammability hazards
5. State the expectations or outcomes anticipated at the end of the project
6. Identify any future plans that could impact on this project

The engineer will develop an agenda based on discussions with the client to ensure that all facilities, processes, equipment, and waste handling streams will be assessed.

Other items that need to be reviewed are:

1. Bonding and grounding to safely dissipate static charges and avoid unwanted static accumulation, which can be an ignition source

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How To Collect a (Potentially) Combustible Dust Sample

Wondering if your facility may have combustible dust? In some cases, less than 1/4 inch layer of dust can explode or ignite. Here's a demonstration of how to collect and ship a sample to a lab for testing. Every plant, in industries including food, pharmaceutical, wood, agricultural, cosmetic, petrochem, plastics, manufacturing and more can be at risk. Testing is inexpensive and can help to determine which collection units are best suited to your plant. Check out our informative video: *How to Collect a (Potentially) Combustible Dust Sample* or contact us with questions at dust@fauske.com or 630-323-8750 to learn more.

CHECK OUT THE INFORMATION RESOURCES AVAILABLE ON WWW.FAUSKE.COM

Educating our customers is a key mission for Fauske & Associates, LLC. We have a wealth of information on our website addressing a variety of topics on nuclear, industrial, plant and chemical process safety engineering and testing.

Research is creating new knowledge
-Neil Armstrong-

With more than 38 years of industry expertise, we have developed numerous content pieces, from white papers to videos, to help answer your safety related questions.

Check out our Process Safety Resource Center to learn more.

www.Fauske.com

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Announcing FAI Partnership with P2SAC

Purdue University formed the Purdue Process Safety and Assurance Center (P2SAC) in 2015

By: Gabe Wood

Since then, under the direction of Professor Osman Basaran, Academic Director and Dr. Ray Mentzer, Executive Director, P2SAC has established itself as a key resource for accessing pioneering theoretical research and providing process safety training and industry expertise to address and mitigate severe accidents in industry related to fire, explosions and gas releases across a wide range of manufacturing and consumer products industries. The P2SAC mission is to play a key role in educating students on process safety, and equipping them for success when entering the industry.

Fauske & Associates, LLC (FAI) is pleased to be a member and partner of P2SAC. Our own Dr. Ashok Dastidar will be presenting Minimum Ignition Energy (MIE) of Dust Clouds at the Spring 2018 P2SAC Conference being held on May 10, 2018 in West Lafayette, IN. The Center's conference, held each semester, provides a platform for industrial and academic experts to present and share updates on a variety of process safety topics.

"FAI is very excited to partner with Purdue in these hands-on, practical and important learning projects for students," says FAI President Kris Fauske. "At the core of our business we believe it is vital to teach, train and educate. Engineers must always be questioning, while testing and applying sound fundamentals to new processes. Purdue has taken a very effective step with P2SAC to provide much needed skills and experiences. We are providing equipment and expertise wherever possible."

Anyone interested in learning more about the purpose of P2SAC, how to become involved as a member or attending the upcoming conference can visit their website at: https://engineering.purdue.edu/P2SAC, or contact Professor Basaran (obasaran@purdue.edu) or Dr. Mentzer (rmentzer@purdue.edu) for assistance.

Gabe Wood is Manager Thermal Hazards Testing & Consulting at Fauske & Associates, LLC

Is Your Testing Laboratory ISO/IEC 1705 Accredited?

This should be one of the first questions you ask when considering a testing laboratory.

By: H. Kristian Fauske

ISO/IEC 17025 accreditation is the single most important standard for testing laboratories around the world. ISO 17025 accredited laboratories have demonstrated that they are technically proficient and able to produce precise and accurate test data. This is a voluntary, third party-reviewed process that ensures a laboratory's quality management system is thoroughly evaluated on a regular basis to guarantee continued technical competence and compliance with ISO 17025.

ISO/IEC 17025 accreditation helps you minimize risk by ensuring that you are choosing a technically competent lab that has a sound quality system in place.

Laboratory accredited bodies use the ISO 17025 standard specifically to assess factors relevant to a laboratory's ability to produce precise and accurate test data including:

- Quality of testing environment
- Appropriate handling, storage and transportation of test items
- Validity and appropriateness of test methods
- Maintenance of test equipment
- Technical competence of staff
- Traceability of measurements and equipment to national and manufacturer standards

To ensure continued compliance, accredited laboratories are regularly self-evaluated and reassessed to check that they are maintaining their standard for technical expertise. These laboratories are also required to participate in regular proficiency testing programs as an ongoing demonstration of their competence.

How does this benefit you – the customer? ISO/IEC 17025 accreditation helps you minimize risk by ensuring that you are choosing a technically competent lab that has a sound quality system in place. This also allows you to avoid expensive retesting. Using an accredited laboratory should enhance your confidence in your results knowing the lab has been thoroughly evaluated by an independent, competent testing laboratory that has been assessed by a third party.


ANAB

CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

Fauske & Associates, LLC
16w070 83rd Street
Burr Ridge, IL 60527

ISO/IEC 17025:2005

TESTING

ANAB

Fauske & Associates, LLC is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and operation of a laboratory quality management system.

For more information regarding our ISO 17025 program, please contact Ms. Brenda Lorenz at Lorenz@fauske.com.

H. Kristian Fauske is President of Fauske & Associates, LLC

Did You Know Fauske & Associates, LLC offers DSC & TGA Testing?

FAI offers quick and cost effective screening tests using the Differential Scanning Calorimeter (DSC) and Thermogravimetric Analysis (TGA).

The DSC measures the heat flow to or from a sample, and TCA measures the change in mass of a sample under controlled heating conditions. For DSC tests a small amount of sample (1-10 mg) is contained within a closed crucible and placed into a temperature controlled furnace. TGA testing makes use of open crucibles. In each test, a second crucible is used as a reference. The sample is then heated. The most commonly used method of temperature control is dynamic (or scanning) mode which utilizes a constant heating rate. Another mode of operation is isothermal mode, which is used to maintain a constant temperature. In both of these modes, DSC, the heat flow to or from the sample, and TGA, the mass loss (or gain) of the sample, are measured as a function of time and temperature. Both DSC and TGA are commonly used for testing to specific American Society for Testing and Materials (ASTM) standards, and data from this testing can be used to assess the thermal hazard potential as well as the materal properties of a given sample. Contact thermalhazardsgroup@fauske.com to learn more.

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Fauske & Associates, LLC
16W070 83rd Street
Burr Ridge, IL 60527
+001 889 5687
info@fauske.com
EXECUTIVE DIRECTOR:
H. Kristian Fauske
ART DIRECTOR:
Sara Peters
CONTRIBUTORS.
Rachelle Andreason
AnnMarie Fauske
Dr. Hans K. Fauske
Kris Fauske
Jeffery Griffin
Rick Kwasny
Sara Peters
Carol Raines
Gabe Wood
Mark Yukich

Statement of Purpose:

FAI's "Process Safety News" is intended to be a forum on recent advances in chemical process safety and FAI's current and related offerings in this area. It will address subscriber's concerns regarding issues and practices for relief system design as well as laboratory testing and techniques for process safety management.

Inquiries:

FAI's "Process Safety News" is published by Fauske & Associates, LLC
16W070 83rd Street, Burr Ridge, IL 60527
Toll Free: 877 FAUSKE1, +1-630-323-8750
Fax: +1-630-986-5481
info@fauske.com www.fauske.com

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2. Control of ignition sources
3. Inerting procedures and verification of adequacy
4. Equipment inspection and preventative maintenance to proactively avoid unwanted breakdowns
5. The order of protective systems should be engineering controls, administrative controls, and personal protective equipment. Flammability and oxygen sensors with alarms and equipment interlocks should be used first, followed by manual controls to adjust the process, and adequate PPE to protect affected personnel
6. Firefighting measures, such as sprinklers, fire extinguishers, chemical foam systems, etc. Firefighting response (in-house brigade and mutual aid), which should be part of the Emergency Response Plan
7. Hot Work Permit systems to ensure potential ignition points are controlled during maintenance procedures
8. LockOut/TagOut program to ensure de-energization of affected equipment during Hot Work or maintenance operations
9. Flammability training packages for affected employees. This is an important issue since Operators are often involved in making decisions on how to respond to a flammability issue, and the first efforts can often result in significant situations.

Safety Reviews:

There are a number of in-house reviews that can be conducted involving flammable materials:

1. Preliminary engineering design
2. Detailed engineering design
3. Pre-startup safety review
4. Process Hazard Analysis

If management has determined, there is a need for a flammability subject matter expert, Fauske & Associates, LLC has often been involved with the client's team.

Next Steps:

If you have or believe you have a flammability issue issue, do not hesitate to contact us regarding your concerns at oss@fauske.com. We will then work with you to develop an appropriate response based on your needs.

References

1. NFPA 30, "Flammable and Combustible Liquids Code,"
2. NFPA 33 Codes 7.11, "Paint Booth Technologies,"
3. NFPA 68, " Standard on Explosion Protection by Deflagration Venting,"
4. NFPA 69, "Standard on Explosion Prevention Systems,"
5. NFPA 70, "National Electric Code",
6. NFPA 72, "National Alarm and Signaling Code,"
7. NFPA 77, "Recommended Practice on Static Electricity,"
8. NFPA 497, "Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapor and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas,"
9. Britton G., Laurence, "Avoiding Static Ignition Hazards in Chemical Operations," American Institute of Chemical Engineers, CCPS Concept Book, 1999,
10. Brodurtha, F. T., "Industrial Explosion Prevention and Protection,"
11. 1OSHA 29 CFR 1910.120 "Hazard Communication Standard,"
12. OSHA 29 CFR 1910.106; Flammable and Combustible Liquids,
13. Lees, P. F., "Loss Prevention in the Process Industries," Volume 1.

Rick Kwasny, Ph.D. is a Senior Consulting Engineer in the Onsite Services Department at Fauske & Associates, LLC

NFPA 652

– An Introduction to Dust Hazard Analysis

2018 Dates and Locations:

May 15-16, 2018	Houston Airport Marriott at George Bush Intercontinental
July 17-18, 2018	Fauske & Associates, LLC, Burr Ridge, IL

Course Description

Day 1 *(Prerequisite for Day 2)* ***Time: 8 am - 4:30 pm*** ***CEU's: 0.7***

This course will ensure all participants are aware of important issues associated with NFPA 652 and describe how this standard interacts with other relevant NFPA codes and guidelines. A special emphasis will be placed on explaining the requirements for a Dust Hazard Analysis (DHA) and an overview of the methodologies that can be employed to perform a DHA. The course will also include a logical approach to characterizing a powder's hazardous dust properties, as well as a description of various techniques used to control and/or avoid dust explosions in a safe and compliant manner.

Scheduled Agenda

- Introduction
- Overview of NFPA 652
- Fundamentals of Dust Explosions
- Introduction to DHA methodology
- Mock DHA on a Small Blending Operation

Outcomes

- Protection Options
- Daily Learning Assessment
- Questions and Answers
- Course Evaluation Instruction

Day 2 ***Time: 8 am - 4:30 pm*** ***CEU's: 0.7***

Advanced DHA Workshop

The Advanced DHA Workshop will focus on how to organize, lead, and implement the DHA study. This will include how to utilize appropriate test methods to determine potential dust hazards; as well as how to apply appropriate mitigation techniques to prevent or control combustible dust hazards. During the workshop, participants will have the opportunity to apply DHA methodologies to realistic combustible dust scenarios.

Pricing

Two Day Course: $895
Day 1 only: $495
Day 2 only: $495

ACCREDITED IACET PROVIDER

For hotel information or to register, please contact: FAIUniversity@fauske.com

Please direct instructor or course related questions to Ashok G. Dastidar - dastidar@fauske.com

www.fauske.com **(630) 323-8750**

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REGISTRATION FORM

NFPA 652 - An Introduction to Dust Hazard Analysis

Time: 8:00 am - 4:30 pm each day

CEU's: 0.7 per day

Pricing: ◯ Day1 only - $495 ◯ Day 2 - $495 ◯ Both Days - $895

- ☐ March 20-21 Courtyard Phoenix Airport
- ☐ May 15-16 Houston Airport Marriott at George Bush Intercontinental
- ☐ July 17-18 Fauske & Associates, LLC, Burr Ridge, IL

First Name: _____ Last Name: _____

Company Name: _____ Position: _____

Address: *(address must match the address of credit card used)* _____

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Email: _____

Payment Method: ☐ Visa ☐ Mastercard ☐ AmEx ☐ Purchase Order ☐ Company Check

Name on Account: _____

Account Number: _____ Expiration Date: _____ Security Code: _____

Signature authorizing Fauske & Associates, LLC, to charge credit card: _____

- **Fees must be received prior to course commencement**
- **Hotel accommodations and travel expenses are the responsibility of the participant**
- **Fees include course notes, continental breakfast and lunch**

Technological/ Education Requirements:
There are no technological requirements for this introductory course. Grade 12 or higher education and 2-3 years professional experience are required.

CEU Credit Eligibility: FAI is an IACET (International Association for Continuing Education & Training) Authorized Provider. In order to be eligible for CEU credit (0.7 per course), attendees must be present for the duration of the course, score 85% or higher on the course assessment and complete the course evaluation.

Privacy: Fauske & Associates, LLC has a written policy to ensure privacy and confidentiality of participant training records and information. Training records will only be released with the expressed written permission of the participant. The participant record will be released to the participant or designated third party within 14 business days of the request.

Cancellation Policy: Cancellations will be accepted up to one month prior to course date.

To register, please email: FAIUniversity@fauske.com, Fax: (630) 986-5481
(Please direct instructor or course related questions to: Ashok Dastidar, dastidar@fauske.com)