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Welcome From Chair

Dan Lambert, VLS Chair

virtual.iche.org

Agenda

- 9:00 pm Welcome/VLS Highlights
- 9:05 pm Process Safety
- 9:10 pm Chief Information Officer Update
- 9:15 pm Speaker Introduction
- 9:16 pm Keynote Speaker
- 9:45 pm Questions and Answers
- 9:55 pm Closing Comments from Chair

Happy Engineers Week

- Feb 19-25





**ENGINEERS
WEEK® 2012**
February 19-25



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VLS Leadership Team

Chair

Dan Lambert
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Newsletter Editor

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Young Professional Chair

Noah Meeks
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Safety Chair

Kathy Harris
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Social Networking Chair

Gwen Barnhardt



Important Links

- Website: <http://virtual.aidie.org>
- Facebook Group: virtuAIChE
- LinkedIn: [AIChE Virtual](#)
- Join VLS (<http://virtual.aidie.org/content/join>)
- Email: virtualchair@aidie.org
- Live Meetings: <http://virtual.aidie.org/events>
- Archived Meetings
 - <http://virtual.aidie.org/content/resourceslinks>
 - <http://apps.aidie.org/chemeondemand>



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Process Safety

Kathy Harris
Chair, VLS Process Safety



This month Process Safety Topic – Dust Explosions

- Dust explosion is one of many explosion hazards that can be associated with industrial processes
 - Mining, power - Coal dust
 - Chemical intermediates and polymers – conveying of raw materials and finished product (fines)
 - Paper - paper dust
 - Food and pharmaceutical – finished product handling.
- Powder handling and dust explosion hazards are linked at the conceptual level.
- Well known incidents – Imperial Sugar Plant in Savannah Georgia February, 2008 – killed 14, injuring 38.



Dust Explosion – What is it?

Has the following 4 elements

- A combustible dust – any substance that can be oxidized so carbon based or metallic materials
- Dust dispersion in air exceeding the minimum exposable concentration (MEC) in air
- An ignition source
- Confinement

These are the same basic elements required for a Vapor Cloud Explosion (VCE) – just the material, dispersion and ignition energies are different

Types of Combustible Dust

Carbonaceous or metallic – coal, paper, fines of organic based intermediates or products

- Materials that will not explode – mineral particulates (kaolin, gravel/limestone dust, salt etc.)
- Average particle size of < 420 micron (appx $\frac{1}{2}$ millimeter) – considered potentially hazardous
- Dust defined as $< 420 \mu\text{m}$ to $> 1 \mu\text{m}$
- The list of dusts and powders that will explode under the right (wrong) conditions is longer than the list of dusts that will not.
- Database of Combustion and Explosion characteristics of dusts BGIA GESTIS-DUST-EX



Record of Incidents Dust Explosions

- In order from greatest to least over the past 30 years

Material involved:

- 1 - Paper/wood
- 2 - Food and Grain
- 3 - Metals
- 4 - Plastics
- 5 - Coal

Equipment Involved:

- 1 - Dust Collectors
- 2 - Grinders
- 3 - Silos/Hoppers
- 4 - Conveying
- 5 - Dryers/ovens

Hazard Evaluation of Combustible Dust

Evaluate the following for a particular material within the specified system:

- P_{\max} – Maximum Explosion Pressure at optimum concentration (higher = higher risk)
- K_{st} – normalized rate of pressure rise (higher = higher risk)
- MIE – Minimum Ignition Energy (lower = higher risk)
- PSD - Particle Size Distribution, - higher % in explosive range = higher risk
- Minimum Exposable Concentration (typically lower = higher risk)

Dust Explosion Rules of Thumb (ROT)

- How much dust is too much
 - Dust layer covers an area on all surfaces $> 5\%$ of the floor area of a room
 - You can not tell the color of the equipment/floor due to the dust layer
 - Can write your name in the dust layer and it leaves ridges
 - Can not see past 4 to 5 feet from your face

Chemical Engineer's Role - How To Prevent Dust Explosions

- Awareness of Hazard
- Good Housekeeping to prevent buildup of layers that can become dispersed.
- Inerting (just be careful as creating a new asphyxiant hazard)
- Explosion Venting - sizing based on P_{max} and K_{st} per NFPA 68
- Design for Explosion Pressure Containment (NFPA 69)
- Dilution or denaturing with non flammable material (NFPA 69)
- Dust Explosion Flame Arrestor
- Proper Electrical Classification and Grounding

References

- CSB
<http://www.csb.gov/investigations/detail>
- NFPA 68 and 69
- Database of Combustible Dust –
<http://www.hvbg.de/e/bia/gestis/expl/index.html>
- Process Safety Beacon Dust Explosion
<http://sache.org/beacon/products.asp>



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Chief Information Officer Update

Noah Meeks, VLS YP Chair

UPCOMING CONFERENCES

<http://www.aiche.org/Conferences/Calendar/2012.aspx>

- Spring Meeting and 8th Global Congress on Process Safety
 - Houston Hilton and George Brown Convention Center, Houston, TX
 - April 1-5, 2012
- 3rd International Conference in Stem Cell Engineering
 - Sheraton Seattle, Seattle, WA
 - April 29 - May 2, 2012
- 2012 AIChE Process Development Symposium
 - HYATT house, King of Prussia, PA
 - June 5-7, 2012
- 6th International Conference on Bioengineering & Nanotechnology
 - University of California, Berkeley Campus, Berkeley, CA
 - June 24-27, 2012
- 4th Latin American Conference on Process Safety
 - Hotel Sofitel Rio de Janeiro Copacabana, Rio de Janeiro, Brasil
 - July 3-5, 2012



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UPCOMING WEBINARS

<http://apps.aiche.org/chemeondemand/LiveWebinars.aspx>

- Explosion Protection with In-Line Flame Arresters
 - Presented by Dr. Michael Davies
 - Wednesday, February 29, 2012
- Carbon Nanomaterials for Energy-Related Applications
 - Presented by Dr. Yury Gogotsi
 - Wednesday, March 7, 2012
- Pressure Relief Valve Sizing Equations' Basis
 - Presented by Aubry Shackelford
 - March 14, 2012
- AIChE Webinar: Effective Delegation
 - Presented by Henry T. Kohlbrand
 - Wednesday, March 21, 2012

Local Section Leadership Workshop

- Designed for AIChE Local Section Leaders
 - March 31-April 1, 2012
 - University of Houston, Houston, TX
 - Cost: \$50 (includes meals)
 - <http://www.aiche.org/leadershipconference.aspx>

New in VLS

4th Thursday 9:00 pm EDT

- Lessons Learned from Fukushima Daiichi Disaster
 - Professor Akira Tokuhiro, University of Idaho
 - Thursday, March 22, 2012
- Student Poster Contest
 - Winners of VLS Student Poster Contest will present
 - Thursday, April 26, 2012
- Improvements in Distillation Column Design
 - Thursday, May 24, 2012
 - Dan Summers, Chair, Fractionation Research Design Practices Committee
- Troubleshooting Distillation Columns
 - Henry Kister, Fluor, Director of Fractionation Technology
 - Thursday, September 27, 2012

Help Wanted

- Judges for Poster Contest
 - Thursday, April 12 8:00 pm
- Contact Dan Lambert
virtualchair@aiiche.org or Amanda Robben, virtualvicechair@aiiche.org
- or <http://virtual.aiiche.org/webform/virtual-local-section-volunteer-form>

Questions and Answers

- Ask your question at any time
- “Raise your hand” if you want to ask a question
 - If we unmute you, we will call your name so you can ask your question
 - Please let us know where you are from and where you work
- Send a text message to Noah Meeks or Dan Lambert if you have a question
 - We will read the question for you
- Our speaker will answer the question



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Raise Hand

Cisco WebEx Meeting Center - WebEx Test

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Quick Start

Meeting Info

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New Whiteboard

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Notes

PPT N...

12: Welcome From t



Welcome From Chair

Dan Lambert, chair

Thursday, January 27, 2011



Dan Lambert

Dan Lambert (me)

Dan Lambert (Host)

Make Presenter

Raise Hand

Audio

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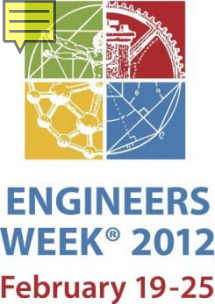
Speaker Introduction

Dan Lambert, VLS Chair

virtual.icheme.org

Disclaimer

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VLS Keynote Speaker

Camille Belcuore




virtuAIChE

- Manager of Professional Support Benefits for AIChE
 - AIChE Job Board
 - Career Engineer
 - Online Career Fair
 - job search-focused webinars
 - web training
- camib@aiche.org

AIChE Professional Support

Career Services



**AIChE is the ChEs' lifetime
center for professional &
personal growth, and
security.**

Grow Yourself with AIChE

You have all you need to get a job, continue your education and training, network with colleagues and industry leaders, hone your management and project leadership skills, and develop “you” as a strong business professional through your membership in AIChE

Before you look for that job....



Who do you know (or who knows you) and can give you some tips on landing the job? How do you make these connections work for you?



Have you done a self-assessment to define your interests, strengths, solid experience and professional direction ?



What training and ongoing technical support do you need to support you as a professional, and to strengthen your resume?

Prepare with AIChE Career and Technical Training



Networking Skills may not come naturally, but you will learn how to optimize your relationships and skills through AIChE's networking seminars and web coaching series, onsite and on-demand



You can learn how to distinguish yourself as a strong job candidate by learning from your colleagues and the experts via webinars, CEP Magazine, and tips from the job board, too



You know it: ongoing training, professional competency, keeping topically current all assure ***your professional relevancy***: AIChE webinars, seminars, web forums and conferences deliver it all to you

From **AICHe ChemE on Demand** webinar series

AICHe Webinar: Creative Networking:

How to Light Up the Nodes of Your Network

Explore ways to not only expand your network but also get the network to start generating resources and referrals for you. Zero in on creative ways to connect with people you already know; leverage existing relationships to create value for them and for you! Watch the nodes of your network light up as they get a better picture of who you are and how they can help you!

In this webinar, we cover how you can:

- . Identify "natural" ways to connect with others;**
- . Leverage existing channels of communication**
- . Describe who you are so people say "I want YOU on my team"**



AIChE's **CEP Magazine** offers career advice from industry and hiring experts in its **Career Catalyst articles**, such as this:

Contemplating a New Phase of Your Career

Looking for a new job, making a change to a new industry... or even looking for a second career ... it is important for you to ... ***ask yourself:***

- What will a new employer really want... and do I have skills to succeed?
- Will I be able to transfer my professional network to a new industry?
- Do I have the stamina to build and sustain a consultancy ?

Expand and retain your Professional Relevancy with AIChE

AIChE offers in-house training, conference proceedings, live webinars and a vast library of video content from our meetings and webinars. Most of this content can be ***accessed on-demand to fit your schedule***

- **eLearning** - a variety of on-demand classes to choose from...from learning more about Process Safety or to enhance your Excel Skills ...
- **Web Forums** - featuring panels of leading experts on a topic, allowing you to participate in a discussion and take your questions live via toll-free 800 numbers and electronic chat

Expand and retain your Professional Relevancy with AIChE

- **Intensive Courses** – find a wide variety of classroom style courses available to further your CheE knowledge, including Chemical Engineering Essentials, Managing Projects, Separations and more.
- **ChemE on Demand** - a multi-media digital library containing hundreds of live and archived webinars, recorded conference sessions and papers, as well as useful how-to articles

Now, let's look for your job
on the AIChE job board

CareerEngineer

<http://CareerEngineer.aidhe.org>

<http://internships.aidhe.org>



The **AICHe job board, CareerEngineer** serves the broad sector CheE profession with jobs specifically focused on industry, advertised by leading CheE employers, in all CheE sectors including

- Process Safety
- Biosciences
- Energy

and many more

With an **average 400 jobs posted monthly** on CareerEngineer per month, candidates can locate positions from internships through senior management, as well as consultant positions offered by both large and smaller employers.



AIChE's Targeted Job Board for Chemical Professionals

Keywords:

Position Type:

Hold CTRL and click to select
more than one

- CGF
- Chemical Intern
- Construction/Engineering Design
- Consulting, General - in consulting firm
- Consulting, General - in private practice
- Education, Doing Consulting

Industry:

Hold CTRL and click to select
more than one

- Academia
- Aerospace
- Agrochemicals
- Automotive
- Bioenergy
- Bioengineering

Region or State:

Hold CTRL and click to select
more than one

- Other / Non-US
- Alabama
- Alaska
- Alberta
- Arizona
- Arkansas

Country:

Hold CTRL and click to select
more than one

- Afghanistan
- Albania
- Algeria
- American Samoa
- Andorra
- Angola

**Use simple keyword search to find
jobs**



AICHE's Targeted Job Board
for Chemical Professionals

It's Easy to Set up Your Profile and Job Seeker Account

[My Account](#)

[Job Search](#)

[Resumes/Letters](#)

[Job Alerts](#)

[Resources](#)

[Help](#)

Jobseeker Login / Create Account

- Open your job seeker account on CareerEngineer and let AICHE's job board begin working for you.
- Upload your resume, set up job alerts, search posted jobs and respond to opportunities focused on the ChemE professional and undergrad in a broad range of industries.
- ***AICHE members' resumes are viewed first in your field***



AICHE's Targeted Job Board for Chemical Professionals

- **You control your profile and account:**
- **Employers will find you through a keyword search of your industry, position and geographic interests in your profile**
- **You set up job alerts which are emailed to you**
- **Want to stay anonymous? No problem! Employers can find you but you chose if and when you want to respond**
- **AICHE Members' resumes are found first in their fields**

Online Career Fairs

AIChE 's Online Career Fairs have become the professional standard for CheE professional and industry employers

- Job candidates' profiles and resumes are viewed by industry and academic leaders seeking to connect with job candidates from entry-level through PhD.
- It's simple to register for the Online Career Fair
- When an employer finds your resume a match for jobs, you will be contacted
- You save money and time with the AIChE Online Career Fair
- **The next scheduled Online Career Fair is March 20-21 2012**
- Register for the Online Career Fair at <http://CareerEngineer.aiche.org>

AIChE Mentor Center

So many chemical innovations are developed in collaboration, and many of the finest CheEs are developed with the support of colleagues.

Now: ***The AIChE Mentor Center is open for business!***

- Get professional support---and professional rewards---as you make career connections through the AIChE Mentor Center.
- It's easy to sign up to find a dedicated professional who will support your success.
- Members can open an account as both mentor and mentee.

Many AIChE members tell us that mentoring, itself, is its own reward. It's easy and quick to set up your profile so both mentors and mentees can select the right match.

<http://www.aiche.org/mentorCenterRestricted.aspx>

Total Professional Support from AIChE

In addition to jobs, job search skills, networking, technical training and ongoing education, AIChE also provides members with **discounted benefits to support you personally and professionally.**

- **AIChE Professional Liability Insurance:** offered to full and part-time ChE professionals, at competitive rates and with custom underwriting. *Essential risk management for all practicing consultant and self-employed ChEs*
- **Group Insurance Plans:** Life, Health and Property plans discounted for AIChE members. Supplement your employer plans, create your own portfolio and protect your assets with these discounted plans. Great options for self-employed and consultants, too

Learn more at www.aicheinsurance.com

AIChE is your Lifetime Center

Find out more at the AIChE Member Center www.aidhe.org/MemberCenter

Thank you for joining us tonight. We hope we answered your questions, but if not, let's take some time now for any questions you may have.



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Closing Comments from Chair

Dan Lambert, chair

virtual.aisce.org

Thank you Camille

- Thank you for speaking tonight
- As our way of saying thanks, we will be shipping you a VLS coffee cup

Thank everyone for attending

- Thank you!!
- Please come again next month
 - Lessons Learned from Fukushima Nuclear Disaster
 - Professor Akira Tokuhiko, University of Idaho
 - Thursday, March 22, 2012 9:00 pm EDT

Any General Questions?

- I will stay to answer any questions you have
- I will unmute everyone