Dow-University Safety Partnership

Why

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The Dow Chemical Company

How

Results
Dow & University Connections

- Sponsored Research
- Campus Recruiting
- Professional Societies
- Conferences
- Advisory Committees
- Technical Committees
- Alumni
New Employee Observations

“The striking difference [between University and Dow safety] was in the training & awareness”

“The culture of actively writing procedures BEFORE experiments is something I’ve never seen before Dow”

“It was very common to see people in labs wearing sandals, even while working with strong organic solvents and acids”

“Dow makes safety a priority and a worker will not be penalized for a delay caused by being safe”
New Employee Observations

“In Graduate School, pretty much every reaction was run wearing only safety glasses, thin nitrile gloves and maybe a lab coat. Having access to the appropriate PPE has been a major change.”

“I was not aware of importance of safety showers, eye stations until I started working in a company”

“I have never come across a safety drill in the University”

With the Dow “MOC [Management of Change] Trigger Grid, we can assess the safety issues of a project in about 30 seconds”

There is opportunity for improvement!
Recent University Safety Incidents

December 2008: Sheri Sangji lost her life due to burns sustained while working with t-butyl lithium. Her PI has been indicted.

January 2010: Two graduate students sustained injuries due to an explosion in a chemistry laboratory at Texas Tech University.

April 2011: Michele Dufault lost her life when her hair got caught in a lathe at a chemistry lab machine shop at Yale.

Root Cause: Lack of training, PPE, safe operating procedure and oversight

Root Cause: Lack of PPE, safety procedures, pre-task analysis and oversight

Root Cause: Lack of safeguards on lathe and no safe operating procedure
Key Attributes of Dow Safety Culture

- Pre-task planning
- Hazard awareness
- Well defined protocols
- Emergency planning
- Leadership engagement
- Accountability
- Ownership
- Communication

Collaborate Across Disciplines  Develop Safety Measures  Focus on Accident Prevention
Dow-University Safety Partnership

What’s in it for universities and Dow?

• Creates a competitive advantage for university programs
• Safety education is congruent with the education mission of universities
• Promotes a safety mindset in the future workforce of the chemical community
• Enhances reputation of academia and industry
Dow – University Safety Partnership Action Plan

• Secure Commitment and Resources
  - Dow volunteers (EH&S and R&D employees)
  - University volunteers

• Safety Assessment of Participating University Departments
  - Gap Analysis
  - Prioritization
  - Plan to close high priority gaps

• Implementation & Measurement of Plan

• Promotional plan
Dow-University Lab Safety Pilots

Summer 2012 - Launched 3 pilots w/ Minnesota, Penn State & UC Santa Barbara

**Dow**
- Shared EH&S best practices for lab research
- Hosted university delegations for 2-day onsite workshops
- Funded travel to Dow
- Employee visits to universities

**University**
- Established interdepartmental teams (ChE, Chem, MSE)
- Delegations* (12-22 people) visited Dow to observe, train and learn
- Adapted and implemented best practices across departments

*Includes students, faculty, post docs & EHS officers

Working jointly to develop an online platform of safety resources and learning
Lab Safety Workshops at Dow

Over 50 students, post-docs, faculty and safety officers attended the three workshops

Topics covered:

- Reactive chemicals handling
- Hazard evaluation
- Glassware handling under vacuum or pressure
- Personal protective equipment
- Chemical labeling
- Nanoparticle safety
- Working with pressure reactors
- Blast shielding
Key Learnings from Pilots: Challenges

Organizational Design:
- Decentralized chain of command
  - Departmental structure variations
  - Independent Research Groups vs. Institution-Wide Implementation
- High Turn Over Rate ≈ 20% per year
- Inexperienced Researchers
- Safety perceived as separate vs. integral part of every activity
- Compliance vs. Commitment

Lab Operations:
- Housekeeping
- Personal Protective Equipment access, storage, selection
- Chemical Labeling
- Waste handling and disposal
- Hazard Awareness and Risk Mitigation
- Risk Tolerance
Key Learnings from Pilots: Successful Approaches

Commitment, Collaboration & Engagement:
• Steering Teams
  – Administration, Faculty, Department Safety Officer, Students, EHS Staff
  – Developed shared vision and shared goals
• Enhanced Collaboration
  – Proactive engagement of expertise

Communication:
• Near miss reporting
• Informational flyers
• ‘Safety moments’ at meetings and seminars

Training:
• Enhanced formal training of researchers
• Training of Lab Safety Officers and Inspectors
Leading and Inspiring Others

Dow Lab Safety Academy

Welcome to the Dow Lab Safety Academy!

At Dow, our safety culture is part of everything we do and every decision we make. The Dow safety mindset is based on driving behavior toward incident prevention, sustained by renewed employee engagement and the responsibility to provide a safe work environment for our employees.

Our goal with the Dow Lab Safety Academy is to enhance awareness of safety practices in academic research laboratories and to promote a safety mindset in the future workforce of the chemical community.

Since 2013 Launch...

- 25,000+ enrolled viewers
- >250,000 views
- >60 universities
- >40 Government Agencies & National Labs
- >100 companies
- 10 countries
- 1 external award
- More than a dozen media stories

http://safety.dow.com
## Dow Lab Safety Academy – Modules

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Sustaining the Momentum…

- Dow Lab Safety Academy Website Launch
- Safety expectations for Dow Principal Investigators leading sponsored university research programs
- Safety engagement included as part of new-hire recruiting

Strategic partnerships across industry, academia, professional societies, etc.