

SACHE News



Safety and Chemical Engineering Education - Fall 2006

Safety and Chemical Engineering Education (SACHE) for CCPS and Companies

Joseph F. Louvar
CCPS Staff Consultant

General: SACHE has recently invited companies to join SACHE to acquire access to the products on our web site. See SACHE.org for details. Although the SACHE products are developed primarily for undergraduate programs, it is clearly recognized that these SACHE products can and should be used within companies, especially for young engineers.

SACHE Products: SACHE develops materials to facilitate this safety education. Companies should recognize that this "education" proposed by CCPS is focused on fundamental technical subjects that should be integrated into the basic education of engineers. The proposed educational topics include calculating the size of relief valves, computing sources from ruptured vessels or pipelines, calculating downwind compositions of chemicals, understanding the flammable and explosive characteristics of chemicals and dusts, risk analysis, technical safety reviews, inherent safety, hazards of chemical reactivity, etc.

Company Trainers: Each year, members can acquire access (via SACHE.org) to a new package of educational materials with a value significantly greater than the annual membership fee. New members signing up can also acquire access to any of the previous years' products by paying the additional membership fee for that specific year or years.

After becoming a member, a company acquires access (password) to that year's products via the SACHE.org

Chem-E-Car Update

Ron Willey
Northeastern University

Members SACHE and the Student Chapters Committee have been taking an active role in making the Chem-E-Car competitions a safer experience for chemical engineering undergraduates. Specifically, Randy Freeman, national known safety consultant, will deliver a safety and hazardous analysis workshop to many Chem-E-Car teams at the Annual Meeting in San Francisco on Saturday, November 11, 2006. Each team is required send a team representative and their faculty advisor to the workshop. In addition, the 2006 Chem-E-Car teams have submitted Job Safety Analysis (JSA) forms. An industrial, university, or departmental safety expert has reviewed these forms. Ultimately, a SACHE-CCPS product will be developed to help Chem-E-Car teams prepare in the area of safety analysis with safety training provided at their home institution using web casting. For further information, or to offer suggestions, please contact Ron Willey, Northeastern University, email r.willey@neu.edu or call 617-373-3962.

site. The company trainers can download the products, and use them as is, or modify them to fit the trainer's teaching style.

Notice that a company member can download the specific year's products as often as desired, and the company's plants can download the products internationally.

Membership: AIChE and CCPS encourage all companies (internationally) and schools (internationally) to become members of SACHE and to use the SACHE products in training sessions or classrooms. Go to <http://www.sache.org> for the membership application form.

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SACHE, or Safety and Chemical Engineering Education, is a project under the auspices of AIChE's Center for Chemical Process Safety (CCPS). SACHE's charter is to enhance the presentation of process safety in undergraduate education.

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The opinions expressed in the articles contained in *SACHE News* are not necessarily the opinions of the Center for Chemical Process Safety or the American Institute of Chemical Engineers.

Articles related to any aspects of safety in the academic community are solicited from both the academic and industrial communities for publication in *SACHE News*. Material should be sent directly to the editor for consideration.

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AIChE Design Problem Awards for the Application of Process Safety and Inherent Safety

Awards will be presented at the Student Awards Brunch on Sunday, November 12 at the Annual Student Conference in San Francisco.

Safety & Health Division Awards for Inherent Safety

The Safety & Health Divisions Awards are granted to the teams or individuals who apply one or more of the following concepts of inherent safety in their designs: (a) design the plant for easier and effective maintainability, (b) design the plant with less waste, (c) design the plant with special features that demonstrate inherent safety, or (d) include design concepts regarding the entire life cycle.

T. Ventrone and Ephraim Scheirer Awards - \$600

University of New Hampshire - \$600

Ali M. Ali

Eric Beauregard

John Kaye

Advisor: P.T. Vasudevan

South Dakota School of Mines and Technology - \$600

Brandon Coyle

Daniel Hammarsten

Jeremiah Shumway

Advisor: David Dixon

SACHE Awards

The SACHE Awards are presented to team and individuals for designs that apply appropriate principles of chemical process safety.

Jack Wehman Award for a Team Solution - \$300

Lamar University

Thomas Cobb

Achala Naphad

Brandi Ray

Advisor: Carl Yaws

Walt Howard Award for an Individual Solution - \$200

Virginia Polytechnic Institute and State University

Adel Ghaderi

Advisor: Y. A. Lui

New Rules for Chem-E-Car Competition Focus on Safety

Because of recent safety incidents related to the AIChE Chem-E-Car competitions, AIChE's Board of Directors made decisions that affect student chapters that want to participate in future regional and national competitions. The rules of the competition have changed to require teams and their advisors to demonstrate a commitment to safety awareness, safety planning, and safe practices.

Safety Documentation. Safety planning documentation must demonstrate that an advisor approved safety, construction, and operation plan is in effect that addresses safety consideration for the car design (i.e. chemical reactivity, pressure vessel design and calculations, chemical storage and transport, and management of change). Procedures and forms are evolving, but those in place for the 2006 National Chem-E-Car Competition are available at <http://www.aiche.org/Students/Conferences/carsafety.aspx>.

Safety Training. Safety training is required for student leaders of each team and their faculty advisor. Currently, the only training session scheduled for 2007 competitions is from 1:00 p.m. to 5:00 p.m. on Saturday, November 11, at the National Student Conference in San Francisco.

Process Safety and Risk Management of Chemical Parks

This report by the European Process Safety Center in conjunction with the Center for Chemical Process Safety presents the existing knowledge about process safety and risk management issues of chemical parks.

The primary focus of the report is on process safety and risk management, other health, safety, and environmental issues are addressed. The report is based on experience, especially in Germany, where the discussion of these issues has the longest tradition.

Several key issues are identified to deal with the major

SACHE Products for 2006

The following 2005 SACHE educational resources are available to member universities through the SACHE website (<http://www.sache.org>):

Design for Overpressure and Underpressure Protection
Dust Explosion Prevention and Control
Inherently Safer Design
Safety in the Chemical Process Industries
Student AIChE Design Problem Solution (2002)

Descriptions of these products are available in the Spring 2006 Edition of SACHE News and on the SACHE website. SACHE representatives have their institution's userid and password required to download these resources.

AIChE Safety and Health Division Newsletter

The AIChE Safety and Health Division Newsletter is now available in electronic format only. The Fall 2006 issue of Safety & Health News has been posted on the Division web site. To access this Newsletter, enter the web site at: www.shdiv.aiche.org – click on *Newsletters* in left column, then select appropriate issue for downloading or reading.

economic, environmental and political challenges facing the chemical industry. These include the need to minimize land use, the need to protect the environment and conserve resources by networking the use of energy and materials, and the importance of allowing companies to make optimum use of infrastructures. The report discusses several concerns raised by the development of chemical parks, including legal issues, waste management, transportation of hazardous materials, emissions, security, and external relations and neighbors.

The 22-page report can be downloaded from <http://www.aiche.org/uploadedFiles/CCPS/Home/Spotlight/Chemical%20Parks.pdf>.