



# PROCESS DEVELOPMENT DIVISION

## February 2002 Newsletter

Edited by: Bob Duggal, Ethyl Corporation

### NEW ORLEANS ACTIVITIES - AT A GLANCE

**Monday March 11 10:30 AM – 2:00 PM**



**10:30 AM – 2:00 PM** WEBCAST: Improving Manufacturing Processes :  
A Guide for Plant Personnel  
*Peter Marron, Ka Ng, Alan Leviton*

**2:00 PM – 3:30 PM** Process Improvements in Existing Processes I (Grand Salon C)  
*Yinlun Huang, Robert Gallogly*

**7:00 PM – 9:30 PM** Process Development Division Dinner  
*Palace Café 605 Canal Street (5 blocks from the Hilton)*

**Tuesday March 12 8:00 AM – 10:45 AM**



**8:00 AM – 10:45 AM** Process Improvements in Existing Processes II (Grand Salon C)  
*Sanjay Joshi, Muthanna Al-Dahhan*

**3:00 PM – 5:30 PM** Polymerization Pilot Plants (Grand Salon B)  
*Bob Duggal, Dave Edwards*

**5:30 PM – 6:00 PM** Process Research and Innovation Area 12a Meeting (Melrose)

**6:00 PM – 6:30 PM** Pilot Plants Area 12b Meeting (Melrose)

**6:30 PM – 7:00 PM** Technology Transfer Area 12c Meeting (Melrose)

**7:00 PM – 7:30 PM** Manufacturing Area 12d Meeting (Melrose)

**Wednesday March 13**

**8:00 AM – 11:30 AM**

Implementing Innovation in the  
Manufacturing Setting (Grand Salon C)  
*Aaron Sarafinas, Emmanuel Dada*

**11:30 AM – 1:00 PM**

Process Development Division  
Meeting and Luncheon (Prince of  
Wales)

**1:30 PM – 5:00 PM**

Case Histories and Lesson Learned  
(Grand Ballroom A)  
*Michael Griffin, Susan Cyganiak*

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# Message From the Chair

**John Corn**

*Ashland Specialty Chemical Company*

*Jcorn@ashland.com*

It gives me great pleasure to welcome all members of our new Division. As a group, we promote programming and presentations of process development topics. Process development includes process research and innovation; scale-up; design, construction and operation of pilot plant or laboratory units; technology transfer; and optimization of manufacturing processes. AIChE accepted the petition by the Process Development Programming Group to become a Division in November 2000. The Division sprung from a strong Programming Group that had been providing processing development technical programming activities for more than 12 years, first as the Pilot Plants Group then as the Process Development Group.

The Division has four exciting and developing programming areas:

- 12a. Process Innovation
- 12b. Pilot Plants
- 12c. Technology Transfer
- 12d. Manufacturing

Each area has specific goals and objectives (see the web-site <http://www.pd-aiiche.com>). If any of these general Area titles piques your interest, find out more by attending the Area meetings on Tuesday, March 12 @ 5:30 PM during the AIChE Spring Meeting in New Orleans (Melrose Room).

Also, feel free to join us at the New Orleans General Division Meeting on March 13 @ 11:30 AM (Prince of Wales Room, buffet deli bar provided).

The Process Development Award Dinner is on Monday, March 11. This is an AIChE ticketed event and registration is limited. Sign-up for the Dinner when registering for the meeting or obtain a ticket from the general on-site registration booth anytime before Monday (March 11) at noon. We will make every attempt to accommodate all that wish to attend the Dinner.

For my 2-year term, I will focus on membership growth, delivering value to you for your dues dollar **and** time invested in the Division, energizing the Division sub-Groups, like awards, by-laws, activities, newsletter, and interaction with other Divisions. I will also lay some groundwork for International cooperation.

This is a volunteer group effort by and for all Process Development professionals. The Division leadership is hard at work to provide peer-to-peer interaction for the membership and to build bridges between industrial and educational institutions.

Feel free to contact me directly or any other member of your Division leadership Team about the Programming Plan, future goals, and any ideas that you wish to pursue to support our mission.

# Improving the Manufacturing Process: A Practical Guide for Plant Personnel - A Webcast

**Peter A. Marron**

*Consultant*

**Ka M. Ng**

*Professor, Hong Kong University*

**Alan E. Leviton**

*Technical Fellow, Rohm & Haas*

The Process Development Division will participate in the first webcast project of the Institute, in which live, interactive instructions will be broadcast through the Internet to plant sites and research centers across the country. The four-hour course entitled "Improving the Manufacturing Process: A Practical Guide for Plant Personnel," scheduled to begin at 10:00 a.m. CST on Monday, March 11, 2002, will discuss the strategy, information, and tools needed to improve plant manufacturing process and bottom line. The participants will learn to:

- Identify, evaluate, and prioritize opportunities for improvement
- Maximize resources and coordinate with other site/corporate programs and functions
- Schedule, select team members, and report findings
- Utilize conceptual design and computer simulations
- Apply lab work, pilot plant evaluations and demonstration runs

The live Webcast will feature streaming video, displays of all supporting materials, and interactive Q&A. Site licenses for multiple users are available for as little as at \$99 per person. A brief course outline is given below. For further information, please contact Jeff Wood at AIChE at 212-591-7450 or email [jeffw@aiiche.org](mailto:jeffw@aiiche.org).

1. Introduction
  - 1.1. Improving product recovery in an adipic acid plant
  - 1.2. Monomer recovery
  - 1.3. Finding the Real Problem
2. Classification of Plant Improvement Projects
  - 2.1. Classification of improvement projects
  - 2.2. Goal deliberation
  - 2.3. The interrelationship of project size, complexity, and approach
3. Approaches to Improvement Projects
  - 3.1. Beginning improvement projects
  - 3.2. Organizational aspects
    - 3.2.1. Defining project objective
    - 3.2.2. Assembling the technical team
    - 3.2.3. Monitoring the improvement project – change control policy
  - 3.3. Financial aspects
    - 3.3.1. The use of financial metrics
    - 3.3.2. Capital budgeting
- 3.4. Engineering aspects
  - 3.4.1. Understanding existing plant data
  - 3.4.2. Statistical analysis of plant data
  - 3.4.3. Design of R&D tasks
4. Plant-level Issues
  - 4.1. Increasing the throughput in an adipic acid plant
  - 4.2. One bad step is one too many
5. Equipment-level Issues
  - 5.1. Heat removal from a reactor
6. Scaleup and Concept Validation
  - 6.1. Approach to scaleup
  - 6.2. Scaleup of an agitated reactor
  - 6.3. Reactor heat removal scaleup
  - 6.4. Scaleup of a continuous slurry reactor
7. Plant Tests

## Call for Nominations: Process Development Awards

The Process Development Division is proud to announce two new awards to be presented at the AIChE 2002 Fall Annual Meeting in Indianapolis. The Excellence in Process Development Research Award recognizes individuals who have made significant technical contributions to the advancement of process development within research, teaching, or regulatory activities. Accomplishments must be disseminated by means of well-documented materials. The recipient will receive an engraved plaque, a monetary award of \$1000, and also be invited to deliver an address at the Process Development Division dinner at the AIChE Annual Meeting. Pharmacia Corporation has graciously sponsored this award.

The Process Development Division Student Paper Award will be presented to a full-time graduate or undergraduate student who prepares the best original paper. The paper must describe the results of process development related research within chemical engineering. The papers will be judged primarily on technical merit and the student must demonstrate depth and breadth of knowledge within the field. The award is provided by Eli Lilly and Co. and consists of an engraved plaque and a check for \$200, plus a scholarship to help cover expenses associated with attending the Annual AIChE meeting (amount to be determined at a later time). The award will be presented at the Process Development Division dinner during the AIChE Annual Meeting.

Support for the awards program by the Process Development Division has been outstanding. Because of this support we are also able to present a third award at the AIChE 2003 Spring National Meeting. This award will recognize individuals with outstanding contributions in the practice or application of chemical engineering to process development. The Process Development Practice Award hopes to focus on applicants from industrial settings where documentation of contributions is not as readily provided. Zeton Inc. has provided the financial support to make this award possible and will provide the winner with an engraved plaque and \$1000. In addition to these awards we are also looking toward creating a fourth award to be presented at the AIChE Spring National meeting.

**Deadline:** The AIChE Award Nomination form should be completed and sent in no later than June 15, 2002 to be considered for this year's Excellence in Process Development Research Award. To be considered for the Process Development Division Student Paper Award, nominations may be submitted by the student chapter advisor, the local section chair, or a member of AIChE who is not a student member no later than July 15, 2002. Deadlines for other awards will be announced at a later date. Check the AIChE website for more details of these awards in the future.

Process Development Division Awards Committee  
Glen Wheeler  
*Eli Lilly and Company*  
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# PROCESS DEVELOPMENT SYMPOSIUM

## *Accelerating Process Development for Growth*

The Process Development Division is organizing the first Process Development Symposium in Poconos, PA from 22 to 25 June 2003. Our goal is to bring the process development community together from industry (such as food, pharmaceuticals, chemicals, petroleum, and fine chemicals industries), academic institutions, government labs, and equipment suppliers. The overall symposium theme will be Accelerating Process Development for Growth. Domestic and international participants are invited to gather in a less formal setting that will foster learning and open information exchange.

Our current plans are to start the Symposium on Sunday evening with a reception and end on Wednesday noon. Monday and Tuesday sessions will cover one sub-theme each day. Tentatively, these sub-themes are planned around accelerating batch and continuous process development for growth. On Monday and Tuesday mornings, we intend to hold four talks on various topics related to these sub-themes. In the afternoons, free time will be provided for sight seeing and leisure activities where informal networking can go on. Then, we will meet again for panel discussion on the sub-themes in the evenings. On Wednesday morning, we will have commercial vendors of pilot plants, process modeling software, contract services, and other relevant equipment such as calorimeters and on-line instrumentation display their products in "Table Top Displays" and "Overview Seminars".

The symposium attendees should be able to share experiences of colleagues from different industries and learn about work practices that can be utilized after the symposium in their jobs.

For obtaining further information, submitting ideas on program, or chairing Monday/Tuesday sessions, please contact:

Cawas A. Cooper, Symposium Organizer  
*Air Products and Chemicals Inc.*

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**PLEASE JOIN US IN MAKING THIS ONE OF A KIND EVENT A GREAT SUCCESS!!!**

TOPICAL CONFERENCE  
**"Pilot Plants In Process Development"**  
**FALL MEETING - SAN FRANCISCO, NOVEMBER 16-21, 2003**

As the Chair for the scheduled Topical Conference titled "Pilot Plants in Process Development" to be held in San Francisco at the Fall 2003 meeting, I feel honored to be leading the first topical conference for Area 12b, Pilot Plants, which falls under the umbrella of Process Development Division (Group 12). I invite you to play a part in our Division's growth and success by volunteering to present a paper at one of the following six technical sessions:

**Sessions:**

1. The Role of Pilot Plants in Process Development (George Liebermann, David Willcox)
2. Pilot Plants: The Uniqueness of Small Scale (Richard Palluzi, Cawas Cooper)
3. Traditional and Novel Pilot Plant Reactors (Kamlesh Bhatia, Concetta LaMarca)
4. Key Factors in Successful Pilot Plant Design and Operation (John Corn, Helen Lou)
5. Pharmaceutical Pilot Plants (Michael VonDeak, Ka Ng, Ron Mack)
6. Pilot Plants : Data Analysis and Process Optimization (Yinlun Huang, Helen Lou)

Session #3 is co-sponsored by the Catalysis and Reaction Engineering Division (Group 20). Session #5 is co-sponsored by the Food, Pharmaceutical & Bioengineering Division (Group 15b).

This topical conference will reveal the important role that pilot plants play in process development, and will provide an excellent opportunity to become acquainted with the latest "pilot plants" thinking, and to meet people who regularly work in the pilot plants and process development fields. A new innovation in session delivery will be "piloted" in San Francisco; an open forum discussion is planned at the end of each session to stimulate further discussion on each of the session topics. Please support our first Topical Conference, and help make it a success by presenting a paper, and attending as many sessions as possible.

David Edwards  
*Zeton Inc.*  
Topical Chair  
[dedwards@zeton.com](mailto:dedwards@zeton.com)

TOPICAL CONFERENCE  
**"Innovation In Process Development"**  
**FALL MEETING - SAN FRANCISCO, NOVEMBER 16-21, 2003**

Area 12a (Process Research and Innovation) will carry on their topical tradition with " Innovation in Process Development", a topical conference planned for the 2003 Annual Meeting (November 16 - 21, 2003, San Francisco, CA). The topical will feature the following seven sessions:

1. Innovation in Pharmaceutical Process Development (cosponsor with 15b)
2. The Role of Innovation in Extending the Life of Mature Products
3. Innovation in "Green Chemistry" (Sustainable) Process Development
4. "Selling" Process Innovation in the Traditional CPI
5. Process Innovation as a Route to Shorter Time to Market
6. Process Innovation in High-Value Add Product Development
7. Unconventional Alliances in Implementing Process Innovation

We're looking for more than a few good chairs and co-chairs and want to have the slate identified during the upcoming Spring meeting. Please take a look at the programs for the [1998 Process Innovation Topical](#) and the [2000 Process Innovation and Technology Mini-Topical](#) to sample the scope and breadth of our programming. Then, if you would like to participate in organizing one of the sessions, contact us. We would love to have you on-board!

For Area 12a,  
Cheryl Teich  
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*Rohm and Haas Company*  
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