

*Champions for Sustainability
Member Workshop Summary Series*

Vol. 3 No. 3
July 2010

Green Chemistry Roundtable Series

**Workshop Dates:
January 13, 2010
March 18, 2010
July 29, 2010**

Champions for Sustainability (C4S)
A Program of Sustainable Pittsburgh
425 Sixth Avenue, Suite 1335
Pittsburgh, PA 15219
Phone (412) 258-6642
Fax (412) 258-6645
www.sustainablepittsburgh.org

This document is available from www.C4SPgh.org as a service to its members of Champions for Sustainability, a program of Sustainable Pittsburgh.

Copyright © 2010 All Rights Reserved

Steering Committee

Phyllis Barber (Steering Committee Co-Chair) Sustainability Coordinator Environmental Management Highmark	Mike Kane Executive Director Community Foundation for the Alleghenies
Dr. Eric Beckman Co-Director Science & Technology Mascaro Sustainability Initiative	Deborah Lange, Ph.D. Executive Director Steinbrenner Institute for Environmental Education and Research Carnegie Mellon
Beth Edwards General Manager The Mall at Robinson The Mall at Robinson Management Office	Dr. Irene E. McGee Vice President Health, Safety, Environment and Quality Bayer Material Science LLC
Bill Flanagan Executive Vice President, Corporate Relations Allegheny Conference on Community Development	Allison Robinson, Ph.D. Director, Environmental Initiatives UPMC
Benson Gabler Manager of Corporate Sustainability PNC Financial Services Group	Jerry Swart (Steering Committee Co-Chair) Managing Director Environmental Services Department FedEx Ground
Scott Golla Principal Corporate Environmental Engineer Westinghouse Electric Company LLC	
Lee Hipps Director of Nonprofit Technology Practice Ceeva, Inc.	
Drew Johnston Global Facilities Director Medrad, Inc	
David Kahley President & CEO Progress Fund	

Executive Summary

How can green chemistry propel southwestern Pennsylvania's manufacturing business to become economically more sustainable? This region is well positioned to help its manufacturers command the growing field of products based on green chemistry solutions - products that meet the quality functional needs that other business or retail consumers want, while using materials that eliminate or reduce the impacts of those products that are otherwise externalized on society as a whole. With its substantial manufacturing capacities as well as its expertise in advanced chemistry and materials, product design and innovative talent, our region can grow and sustain its manufacturing base by bringing them together strategically.

Session 1: Preventing Pollution by Design

The first roundtable event focused on green chemistry solutions - products that meet the quality functional needs that other business or retail consumers want, while using materials that eliminate or reduce the impacts of those products that are otherwise externalized on society as a whole. John R. Ehrenfeld, author of *Sustainability By Design* presented on how to prevent pollution beyond the life cycle analysis.

Session 2: Policy Issues and the Reform of the Toxic Substances Control Act

This event brought top representatives from the American Chemistry Council, Environmental Working Group and Bayer Corporation, to discuss why TSCA is so important to business, health and the environment - and the future of green chemistry. Considering the upcoming reform of TSCA - originally passed in 1976 - the discussion of these issues gave participants a clear understanding of the past, present, and potential future of safety and public health in regards to chemicals policy in the United States

Session 3: Showcasing the Achievable to Inspire the Possible

This workshop provided information about successful green chemistry and alternative energy companies. Attendees had the opportunity to hear about the latest sustainability efforts from business leaders in the region. After hearing from professionals working with green chemistry and alternative energy solutions, participants were invited to ask questions and discuss relevant issues.

C4S Workshop Series

Champions for Sustainability engages its members by convening a series of events and workshops for its membership approximately six times per year. Each workshop event explores a strategic topic of interest for the membership. Events make accessible current trends and challenges, provide access to tools, knowledge, and examples, and engage the membership in assessments and reflections to help craft the regional practice of sustainability. This publication series summarizes and makes accessible the most important outcomes from these workshop events.

About C4S

Champions for Sustainability brings together companies large and small, from many different industries, entrepreneurs, community leaders, university researchers, educators, and other social ventures to put sustainability into practice. C4S aspires to be the most effective region-based collaboration of leaders accelerating the practice and policy of sustainability in business and civic circles. Champions for Sustainability provides value to firms and organizations that seek sustainable solutions to operational practices through convening, networking, and direct consulting.

Memberships and Information:

- Champions for Sustainability www.C4SPgh.org
- Sustainable Pittsburgh www.sustainablepittsburgh.org

Contents

1. Event Summary	
1.1 Session 1	5
1.2 Session 2	5
1.3 Session 3	6
2 Workshop Report Results—Participant Information	
2.1 Event Attendees	11
2.2 Business Needs survey	12

1 Event Summaries

Session 1

Title: *Green Chemistry Roundtable Series: Preventing Pollution by Design*

Location: Alcoa Corporate Center

Date: January 13, 2010

Agenda

7:30 AM to 8:00 AM- Registration and Continental Breakfast

8:00 AM to 8:10 AM Welcome and Introductions – Patricia DeMarco Rachel Carson Homestead

8:10 to 8:45 AM John Eherenfeld- Sustainability by Design

8:45 AM to 9:15 AM Responder Panel: Moderator: Matt Mehalik - Sustainable Pittsburgh

Terry Collins - Carnegie Mellon University

Bill O'Rourke - Alcoa

Ned Eldridge - E-Loop Corporation

9:15 to 9:45 AM Audience Q/A and Roundtable Discussion

9:45 to 10:00 AM Rachel Carson Legacy Challenge and closing- Patricia DeMarco

Speakers

John R. Ehrenfeld

Dr. Ehrenfeld currently serves as Executive Director of the International Society for Industrial Ecology. He retired in 2000 as the Director of the MIT Program on Technology, Business, and Environment, an interdisciplinary educational, research, and policy program. He holds a post as Senior Research Scholar at the Yale School of Forestry and Environmental Studies. He continues to teach, do research, and write.

His current projects focus on sustainability and industrial ecology. In October 1999, the World Resources Institute honored him with a lifetime achievement award for his academic accomplishments in the field of business and environment. He received the Founders Award for Distinguished Service from the Academy of Management's Organization and Natural Environment Division in August 2000.

Session 2

Title: *Green Chemistry Roundtable Series: Debate: Reforming the Toxic Substances Control Act (TSCA)*

Location: New Hazlett Theater

Date: March 18, 2010

Agenda

6:15 to 6:25 - Jason Rano, Environmental Working Group

6:25 to 6:35 - Mike Walls, American Chemistry Council

6:35 to 6:45 – Maryann Donovan, Ph.D., MPH- University of Pittsburgh Cancer Institute, Center for Environmental Oncology

6:45 to 6:55 – Jan Mostowy, Regulatory Affairs, Bayer Material Science

Panel of Questioners: 7:00 to 7:30

1. Michael Wright of United Steel Workers
2. Terry Collins – Thomas Lord Professor of Green Chemistry, CMU
3. Alcoa – Bill O'Rourke

7:30 to 7:35- Summation of major issues revealed in discussion – WPDU Student

7:35 to 7:55 WPDU Student Presentations of Audience Questions (may be directed to the debaters or to the panel)

7:55 to 8:00

Closing- P. DeMarco RCHA

Speakers

Michael P. Walls, Vice President of Regulatory and Technical Affairs, American Chemistry Council

As Vice President of Regulatory and Technical Affairs, Mr. Walls has a role in policy development as he oversees the issue, regulatory process and agency experts whose work provides a foundation for ACC's advocacy efforts.

Mr. Walls has been with the ACC for 22 years and has experience in a wide range of U.S. domestic chemical regulatory issues, including the Toxic Substances Control Act (TSCA), the Emergency Planning and Community Right to Know Act (EPCRA) and the Resource Conservation and Recovery Act (RCRA), among others. His experience also includes work on international chemical regulatory issues, including the European Commission's proposed regulation for Registration, Evaluation and Authorization of Chemicals (REACH) and the Chemical Weapons Convention. He has represented the industry in several international chemical negotiations, and in support of U.S. ratification and implementation of those agreements.

Jason Rano, Legislative Analyst, Environmental Working Group

Jason is a Legislative Analyst for the Environmental Working Group. He holds an undergraduate degree from American University and a Masters in Public Policy from Johns Hopkins University. Jason's testimony helped prompt Maryland's legislators to restrict the use of BPA in plastic food containers.

Panel of Questioners:

Terry Collins, Ph.D., *Thomas Lord Professor of Chemistry,
Carnegie Mellon University*

Maryann Donovan, Ph.D., MPH, *Director,
University of Pittsburgh Cancer Institute Center for Environmental Oncology*

Dr. Janet M. Mostowy, *Product Safety and Regulatory Affairs,
Bayer Material Science*

Michael Wright, *Director of Health, Safety and Environment,
United Steelworkers*

Session 3

Title: *Green Chemistry Roundtable Series: Showcasing the Achievable to Inspire the Impossible*

Location: Regional Enterprise Tower, 31st Floor

Date: July 29, 2010

Agenda

7:30 - 8:00 Registration and Continental Breakfast

8:00 Roundtable Discussion #1: How did you make it happen? (30 minutes each panel)

8:50 Brief Q&A/Discussion

9:10 Roundtable Discussion #2: Envisioning future opportunities (30 minutes each panel)

10:00 Brief Q&A/Discussion

10:30 Adjourn

Speakers

Lalit Chordia, Ph.D., *President and Founder,
Thar Technologies*
lalit.chordia@tharprocess.com

Dr. Lalit Chordia was born in India and attended the Indian Institute of Technology, where he received his bachelor's degree in chemical engineering in 1980. In 1985 he earned a doctorate in chemical engineering from Carnegie Mellon University (Pittsburgh, PA). For the last 25 years, Dr. Chordia has pioneered R&D in and commercial applications of supercritical fluid technology, a green materials processing technology. While earning his doctorate in 1982,

Through his technological and commercial leadership, Dr. Chordia has taken Thar from one employee to a global leader in its field. This transformation has led to the creation of several spin offs, including: 1) Thar Instruments, which in 2009 was sold to the Waters Corporation, a publicly-traded world leader in scientific instrumentation; 2) Thar Pharmaceuticals, a drug development company; 3) Thar Process, a designer and marketer of process scale supercritical fluid technology; 4) Thar Energy, a developer of alternative, green energy technology such as advanced biofuels; and 5) Thar Geothermal, a developer of high-efficiency, green heating and cooling technologies. Some examples of Thar's involvement in supercritical fluid process and equipment technologies over the years are natural pharmaceutical and spice extraction, drug purification and design, coatings, electronics cleaning, cooling, advanced biofuels and a host of other applications and equipment technologies. In 2010, Dr. Chordia was honored with the Distinguished Alumnus Award of IIT Madras and the Carnegie Science Entrepreneur Award.

Thomas A. Domitrovich, P.E., *Application Engineer*
Eaton Corporation
ThomasADomitrovich@eaton.com

Thomas A. Domitrovich is a National Application Engineer within Eaton Corporation's electrical group with more than 19 years of experience in engineering, sales & marketing, business development and product management. Domitrovich is actively involved with various electrical industry organizations and most recently has focused on the continued growth of electrical safety. Domitrovich is currently an author with a wide range of trade magazine articles including columns in two industry trade magazines focused on electrical safety. He sits on an NFPA panel as an alternate for the continued development of NFPA 73 and chairs various committees for electrical industry organizations. Domitrovich is a LEED® Accredited Professional, a licensed Professional Engineer and holds a Bachelor of Electrical Engineering from Gannon University.

Janice Webb Donatelli, *Owner*,
Artemis Environmental
janice@artemisenvironmental.com

ARTEMIS is a woman-owned business founded by Janice Donatelli and Linda Metropulos. It is part of the Lawrenceville Corporation's 16:62 Design Zone Initiative. ARTEMIS Environmental Building Materials displays and sells high-quality, environmentally responsible, "green" building products. Opened in Pittsburgh in the spring of 2005, ARTEMIS is designed to expand the availability and use of green building products in the tri-state region. The products that you'll find at ARTEMIS were selected because they are better for the environment, perform well, and contribute to healthier living. You'll be able to see, touch, smell and purchase materials you may have read about but were not previously accessible. You'll find new options for improving your home or business environment. A sampling of the ARTEMIS selection includes wood and boards

from sustainable resources such as bamboo, cork, wheat, sunflower seeds, and sorghum; finishes that are made from natural ingredients and are free of toxic ingredients; cotton insulation; carpet tiles; recycled-content tiles; Japanese plaster; re-cycled aluminum sinks, tiles and lights, and much more.

Valerie Patrick, Ph.D., *Sustainability Coordinator,*
Bayer Corporation
valerie.patrick@bayerbms.com

Dr. Patrick works with Bayer North America executives to establish and embed sustainability strategy into Bayer's North America operations and businesses, and to develop and execute tactics to achieve the strategy. Most recently, Dr. Patrick lead the Creative Center in the Future Business group for Bayer MaterialScience LLC (BMS). The Creative Center used proven tools and a systematic approach to manage the "fuzzy front end" of innovation, tracking social, economic, and technology trends and identifying potential growth areas ripe for BMS material innovations. Dr. Patrick received her B.S. in Chemical Engineering from Bucknell University and her M.S./Ph.D. in Chemical Engineering from California Institute of Technology. She serves on the Board for the Association for Climate Change Officers.

Michelle Proehl, *Director of Sales & Business Planning*
Serious Materials
mproehl@seriousmaterials.com

Michelle is Director of Sales and Planning for Serious Materials. She is passionate about driving cost-effective, energy-efficient design. Prior to joining Serious Materials, she was a Vice President in the commercial banking industry. Michelle holds a finance degree from the University of Minnesota and a MBA from Stanford University.

Serious Materials develops and manufactures sustainable advanced building materials that save energy, save money, improve comfort, and help address climate change. Products include super-insulating windows and glass and soundproofing drywall.

Laura Rosato, Ph.D., MBA , *Global Product Stewardship & Occupational Health Risk*
Leader, Specialty Materials, Honeywell
Laura.Rosato@Honeywell.com

Laura M. Rosato is the Global Product Stewardship and Occupational Health Risk Assessment Leader for Honeywell Specialty Materials. She is responsible for providing strategic and tactical direction for the Honeywell Electronic Materials Business globally in the product safety (regulatory, IH, safety, risk assessment) and product stewardship areas from product conception through the stage-gated R&D process to product end-of-life. Laura chairs the American Institute for Chemical Engineers (AIChE) Center for Sustainable Technology Practices (CSTP) and is a member of the AIChE Institute for Sustainability Managing

Board, American Chemistry Council (ACC) Long Range Research Initiative (LRI), American Industrial Hygiene Association (AIHA) Stewardship and Sustainability Committee and the SEMITECH REACH Research Advisory Team.

Richard W. Taylor, Esq., CEO,

Imbutec

rtaylor@imbutec.com

Richard W. Taylor is a native of Baton Rouge, Louisiana. He received his undergraduate business degree, *cum laude*, from Georgetown University, and his Juris Doctorate degree, *cum laude*, from Tulane Law School, with a certificate in environmental law. Currently, he serves as CEO of Pittsburgh-based Imbutec Technology Solutions, Inc. (Imbutec), which provides energy-efficient lighting technology products and services to commercial, industrial, and municipal customers. Mr. Taylor is active in service to the community, and he currently serves on the boards of the Port Authority of Allegheny County, the Pennsylvania Environmental Council, Macedonia Development Corporation, and the University of Pittsburgh's Institute of Politics, for which he co-chairs the Economic Development Committee. Imbutec, headquartered in Pittsburgh, Pennsylvania, is a US Department of Energy "Energy Star Partner," and has been supporting lighting and energy efficiency needs for governmental, commercial, and industrial customers since 2002. Their LED lighting products yield, on average, an 80% reduction in energy consumption, and have an essentially maintenance-free life of more than 20 years. This yields not only tremendous energy savings, but reduced operating and maintenance expenses as well. These cutting-edge LED lighting fixtures are manufactured by Appalachian Lighting Systems, Inc. ("ALSI"), a Pennsylvania-based LED lighting manufacturer utilizing several patent-pending innovations. Not only are these products made in United States, but they are principally comprised of American-made components as well.

Michael A. Vancil, PE, Corporate Quality and Environmental Manager,
LanXESS Corporation

michael.vancil@lanxess.com

Mr. Vancil is responsible for managing environmental risk for LANXESS Corporation in the US. This includes managing remediation sites, providing corporate leadership on environmental issues (regulatory & technical), supporting financial reporting, developing and reporting key performance indicators and metrics, leading the corporate auditing program, addressing environmental liabilities associated with mergers, acquisitions, & divestitures, and being the environmental liaison with LANXESS AG in Leverkusen Germany. As the primary point person for Sustainability in the US for LANXESS, Mr. Vancil is also working closely with his colleagues in Germany and Canada regarding Sustainable Development as it applies to the company. Mr. Vancil has over 20 years experience in the environmental arena. Mr. Vancil holds a M. S. in Chemical Engineering from North Carolina State University and a B. S. in

Chemical Engineering from Oregon State University. He is a registered professional engineer in South Carolina. He completed the York University (Toronto) Sustainable Business Academy in 2007 and has been actively working on Sustainable Development topics since then.

2 Workshop Report Results—Participant Information

2.1 Event Attendees:

The following organizations had representatives attended these workshops:

Air & Waste Management Association	Allegheny County Dept. of Human Services
Artemis Environmental	Biotec Connect
Buchanan Ingersoll & Rooney	Cardinal Resources
Carnegie Science Center, SciTech	CJL Engineering
CNX Gas Corporation	Cohera Medical, Inc.
Community Human Services	Comperio Energy Inc
Concurrent Technologies Corporation	CORE Environmental Services
Daedalus	Dietrich Metal Framing
DL Astorino Horizon Architects	DROPPS
E Loop LLC	Energy & Environmental Solutions
F L A B E G	Fisher Scientific
Fossil Free Fuel	Global Re-Refining, Ltd.
GreenOX Catalysts, Inc	Hayes Large Architects
InsulRight	Jones Day
LanXess Corporation	Loud Mountain Inc
Lyceum Group	Mackin Engineering Company
Macklin Engineering Company	Mascaro Corporation
MBVC	McCormick Taylor
Michael Baker Corporation	Moody and Associates, Inc.
MSE Solutions	NuCoPro
OMNI	Pittsburgh Electric Engines
ProChemTech	R. W. Heiden Associates
Rachel Carson Homestead Association	RAND Corporation
Renaissance Partners, LLC	Skematek
Tetra Tech NUS	Thar Technologies, Inc.
The Labor Institute	The Penn State Center - Pittsburgh
Thermo Fisher	Tobyhanna Army Depot
Westinghouse Electric Company LLC	William J. Green & Associates

2.2 Business Needs Survey Regarding Green Chemistry

1. In your opinion, what are some ways green chemistry can help local manufacturers and designers to become more innovative?
 - Provide cost effective, environmentally friendly, alternatives to current technology
 - Increase efficiency
 - Open new markets
 - Increase awareness of economic benefits
 - Individual household sustainability, such as on-site power

2. In your opinion, what is the region's most pressing priority in terms of getting a green chemistry design and manufacturing sector cluster going in our region? What are your reasons for this view?
 - Need products to be price equivalent – sometimes companies take path of least resistance to generate new products
 - Marcellus Shale and the reopening of historic oil/gas wells – we need much better, smarter & safer practices; greater community education about sustainable alternatives and benefits
 - Recruiting companies to our region
 - Forgetting the past

3. What strategy should the region pursue to foster a green chemistry design and manufacturing sector cluster?
 - Educate students, politicians, and citizens on the benefits of green chemistry and sustainable thinking
 - Teach the next generation to work, buy, and invent green.
 - Provide opportunities for manufacturers to collaborate on issues
 - Create a fund for innovation incentives
 - Continual networking opportunities
 - Think Tanks
 - Tax incentives at federal and state levels
 - Regulations requiring sustainable polices practices and products
 - Increase awareness

4. What are barriers to the adoption of green chemistry solutions within your own organization? What can be done to overcome those barriers?
Barriers:
 - A cultural shift is needed
 - Old top management
 - Past practices
 - Short term thinking
 - Fear of trying anything new

- Cost & access of products
- No significant barriers

Solutions:

- Education
 - A cultural shift is needed
 - Green chemistry is encouraged
5. What are some new breakthroughs in terms of technologies, policies, or information that you think are critical to achieving broader demand for green chemistry solutions?
- Government incentives to reward companies for green chemistry solutions
 - Success stories
 - Reuse of materials
 - Taking into account new technology and resources – i.e.: Marcellus Shale
6. What are some resources that the organizers should work to bring to the region in order to better serve your and the region's interests related to green chemistry, design, and manufacturing?
- More company headquarters
 - More jobs in the area
 - High schools
 - Life cycle analysis
 - Green Building experts

General

7. What motivated you to participate in today's event?
- Interest in the topic ***(3)
 - Invited
 - Networking
8. What expectations did you have for today's event? Were these expectations met?
- Expected to learn what other companies are doing in this area: Yes
 - Expected to learn the status of Green Chemistry and Energy. Expectations met on Green chemistry, but not so much on energy.
 - Information and networking; Yes
 - Cross industry networking: Yes
9. What new information did you learn and/or new connections did you make at this workshop?
- Special innovation at Bayer

- Learned about many corporations and opportunities that are involved in sustainability
- Various factors that impact sustainability
- Small business contacts
- Better understanding of corporate motives
- Good networking with local companies

10. What suggestions do you have for improving events like this one in the future?

- Give more opportunities for participants to speak
- Electronic surveys using emails provided in registration
- Use all C4S members and have each attendee bring an executive
- Better room setup
- Stress the importance of today's sustainability pioneers NOT to become so entrenched in today's methods, they become tomorrow's obstacles to progress.
- None