

# 9th Annual GC3 Innovators Roundtable

St. Paul Minnesota | May 28–30, 2014

## 2013/2014 GC3 Project Group Annual Updates

### Mainstreaming Green Chemistry

The Mainstreaming Green Chemistry Project was formed in 2013. The issue of Mainstreaming Green Chemistry was a key strategic direction that the GC3 Advisory Committee wanted to undertake as a 5 year goal for the GC3. It is a guide for all of the GC3 projects. The group started with the premise that mainstreaming green chemistry would mean that all chemistry becomes green chemistry; that the field of chemistry had transitioned to the point where there would be no distinction between chemistry and green chemistry.

To help guide the project, a Mainstreaming Green Chemistry Advisory Committee was formed, with representation from four sectors:

#### Business

- Robert Israel, Valspar (co-chair)
- Mary Grimm, Timberlad/VF
- Martin Wolf, Seventh Generation
- Kendra Martz, Construction Specialties

#### Academia

- Joel Tickner, UMass Lowell (co-chair)
- Eric Beckman, University of Pittsburgh
- Marty Mulvehill, UC Berkeley,

#### Government

- Ken Zarker, Washington State

#### NGO

- David Constable, ACS
- Tracey Easthope, Michigan Ecology Center,

The group worked with a Lowell Center consultant, Amy Perlmutter. The group had four calls, and a discussion platform, Loomio, was used to get input on several questions:

- 1) How do we know and measure if we are moving in the right direction?
- 2) Making the business case
- 3) What do we want to know from GC3 members

Many articles have been written, and discussions held, on topics related to the mainstreaming of green chemistry. The challenges for the GC3 Mainstreaming project were a) how to add value to this information, b) how to know what is important to GC3 members, and c) how to develop an Agenda for Mainstreaming Green Chemistry that is meaningful to the GC3, while not reinventing the wheel.

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Suggestions and observations from many of these articles and discussions were considered in the development of a 22 question survey, administered on-line to GC3 business members (excluding consultants). The survey questions related to current practices, barriers, drivers, and needs. Twenty nine companies, over half of the targeted GC3 business members, responded. The survey was not meant to be a scientific analysis, but rather a way to understand member business practices and needs, and to frame a broader discussion. Survey results will be presented at the 2014 Roundtable for discussion by members, and development of priority needs and action steps. This will be followed up by interviews with key stakeholders about how we can build the partnerships needed to implement the recommendations. This, along with additional information that supports the business and policy case for green chemistry, will be turned into a *GC3 Agenda for Mainstreaming Green Chemistry* in 2014. The Agenda will identify a small number of priority activities that the GC3 can implement. The Agenda will reflect the perspective of GC3 member company needs and experiences, rather than the universe of actors involved, or who could be involved, in green chemistry.

In addition to the survey, two webinars were held. The first one, *State Perspectives on Promoting Green Chemistry*, focused on green chemistry efforts taken by two states- Oregon and Minnesota. Mark Brady from Business Oregon, and GC3 member Al Innes from Minnesota's Pollution Control Agency were the presenters. Oregon's approach includes a strong emphasis on economic development, while Minnesota's was spearheaded by a concern over chemicals in children's products. Both speakers talked about their programs and approaches, and offered perspectives on what kinds of national efforts might be of help to their states.

Lynn Leger of ALCERECO was the speaker in the second webinar, *Perceptions and Experiences of Practitioners*. This webinar featured research that Ms. Leger had conducted on perceptions of practitioners on green chemistry, in comparison to anecdotes from other companies.

### Retail

In 2013 -14, the GC3 convened a Retailer Leadership Council (RLC) composed of a select group of retail leaders who are pro-actively working to: understand what chemicals are in their products, engage their suppliers in improving chemicals management, find safer alternatives to chemicals of concern, develop and implement sustainable chemical and product policies, and educate their customers.

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The RLC was formed following the GC3 Second National Summit for Retailers held in May 2013. The mission of this group is to promote safer chemicals, materials and products across retail supply chains. Founding members include, CVS, Home Depot, Staples, Target, Walmart, and Wegmans. Members of the RLC have significant decision-making responsibility related to supply chains or product formulation. The RLC meets via conference call on a monthly basis. The RLC will work together to identify at least one project annually to support the Council mission and will reach out to engage and inform other retailers. The RLC has begun a dialogue with a small group of chemical manufacturers to identify key opportunities to advance safer alternatives and encourage green chemistry innovation.

In August 2013, Roger McFadden of Staples and Sally Edwards and Joel Tickner of the Lowell Center for Sustainable Production presented a webinar for the Retail Industry Leaders Association (RILA) entitled “Tools to help Retailers Source and Sell Safer Products.” The webinar provided participants with an understanding of how retailers can engage with their suppliers to improve chemicals management, some of the tools available to help retailers evaluate the chemicals in their products and identify safer alternatives, and the role that RILA and the GC3 can play in fostering collaboration on safer chemicals.

During the fall of 2013, the GC3 worked with a retailer to consider developing a pilot project with the WERCS to use the GreenWERCs software system to evaluate chemical hazards in their products. Although the retailer eventually decided not to move forward with the project, the GC3 remains interested in working with retailers to raise awareness of the tools available to help them source and sell safer products.

In April 2014, the GC3 retailer work group presented a webinar entitled “The Coop Story: How a leading Danish Retailer is working to eliminate endocrine disrupting chemicals from its products.” Coop is Denmark's largest retailer, with about 1,200 supermarkets and 36,000 employees. Coop is owned by its members, who want to see a financial return and want their company to be socially responsible.

Malene Teller Blume, Compliance Manager for non-food products at Coop, discussed how her organization has worked to eliminate endocrine disrupting chemicals from its private label products, beginning with parabens in 2006 and including other chemicals, such as BPA, since 2009. Coop has also executed other actions to reduce harmful chemicals. She also described Coop's policy on chemicals, the impact the decision has made on sales, and the way consumers

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perceive their products. Coop's stance is that consumers should be given the ability to make an informed choice about the products they buy.

For more information about the Retailer Leadership Council, contact Sally Edwards at [sally\\_edwards@uml.edu](mailto:sally_edwards@uml.edu)

### Green Chemistry Education

This past year the GC3 education group has been focused on developing a webinar-based green chemistry and safer alternatives curriculum for GC3 members and other companies. The goal of the training is to increase awareness to allow for enhanced communications in order to advance green chemistry and safer alternatives implementation within a company, and externally along a supply chain.

The group has outlined the training needs of different job categories as well as the components of a training program. Four webinars have been presented in the education series to date.

- The Value of Green Chemistry - Andy Shafer, Executive VP Sales and Market Development at Elevance Renewable Sciences, Inc., Tse-Sung Wu, Environment, Health and Safety Program Manager at Genentech and Helen Holder, and Corporate Material Selection Manager at Hewlett-Packard Co. presented efforts of making the case of the value of green chemistry.
- Toxicology and Why You Should Care - Steven Gilbert, Director at Institute of Neurotoxicology and Neurological Disorders, Cal Bair Anderson, Toxicologist at US EPA, and Rob Roy, Lead Toxicology Specialist in the 3M Medical Department provided an introduction to toxicology, examples of toxic properties, and how one can use this information used to design and evaluate safer products.
- Integrating Toxicity Information into Chemical Design - Marti Mulvihill, Executive Director at the Berkeley Center for Green Chemistry, Jakub Kostal, Chief Scientific Officer and Sustainability A to Z, LLC, and Nigel Green, Associate Research Fellow at Pfizer presented an overview of molecular design and provided examples of methods for incorporating hazard in molecular design.
- The 12 Principles of Green Chemistry: Sustainability at the Molecular Level - John Warner, President and Chief Technology Officer at the Warner Babcock Institute for Green Chemistry, discussed the definition of green chemistry and how chemical policy, toxicology, environmental health science, alternative assessment and green chemistry fit together. He also explained how one can incorporated green chemistry into product design in procedure and practice.

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The webinar-based training curriculum will be available on the GC3 website, including the webinars, corresponding to specific training modules, as well as supplemental information. We are now working on developing a GC3 education web portal that will host a matrix of green chemistry education needs by job classification, our educational webinars, and other supplemental learning materials and will continue developing webinars for this series. At the Roundtable, we will discuss this matrix and additional educational webinars that we need to complete over the coming months.

Position statement on green chemistry in higher education

The GC3 education group continues to support the position statement on green chemistry in higher education to support and advance the adoption of green chemistry and engineering principles in academia. We continue to seek signers for the position statement and will continue to work with Beyond Benign through the Green Chemistry Commitment program to provide support for higher education institutions that are implementing green chemistry in to their programs.

For more information on the project, contact Saskia van Bergen, [SaskiavanBergen@ecy.wa.gov](mailto:SaskiavanBergen@ecy.wa.gov).

## Green Chemistry Innovation

In the 2013 - 2014 project year, the Innovation Group worked on a variety of efforts designed to promote learning about and activity in green chemistry innovation. Our webinar series highlighted a number of successful green chemistry innovation leaders, techniques and programs:

### Successes and Lessons from a Serial Green Chemistry Innovator

Kaichang Li, Professor, Oregon State University

### Accelerating Commercialization of Green Chemistry Technologies at GreenCentre Canada

Rui Resendes, Executive Director, GreenCentre Canada

### InnoCentive: Using Crowdsourcing to Solve Green Chemistry Challenges & Create New Market Opportunities

Alph Bingham, Founder & Board Member, InnoCentive

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### **Advancing Green Chemistry Innovation in the Pharmaceutical Industry: The GCI Pharmaceutical Roundtable's Research Grant Program**

Julie Manley, Guiding Green LLC & Coordinator of the ACS, Green Chemistry Institute's Pharmaceutical Roundtable

Audio archives of these webinars are available on the GC3 website.

In addition, we published two, widely read articles in Greenbiz.com on innovation and mainstreaming of green chemistry, the power of challenge driven innovation/crowdsourcing, and what the GC3 is doing in this space.

We are currently developing the Green Chemistry Portal – an on-line “venue” for individuals and organizations to exchange technical and business-related information on green chemistry and engineering topics to advance technology innovation and adoption. This will be a moderated forum hosted by the GC3, with support and collaboration from other organizations including the ACS Green Chemistry Institute. At the GC3 Roundtable we will give an update on the development of the Portal on Friday afternoon and solicit feedback for future development.

We are planning two innovation sessions at the Roundtable, which are listed on the agenda. One session will be a workshop co-led by Steve Domeck from InnoCentive and Homer Swei from Johnson & Johnson. Catalyzed by the GC3 Innovation Project Group, Steve and Homer have been working together to t-up a challenge competition on preservatives for personal care products. We will break into small groups to discuss the merits of doing collaborative challenges within sectors on common, strategic needs for innovation of safer alternatives and the potential role of the GC3 in facilitating these collaborative challenges.

Also, on the RT agenda is a session on “disruptive innovation.” We will focus on a successful example -- the development and commercialization of Purebond® plywood, which utilizes a formaldehyde-free, soy-based adhesive. Brendan Owens from the US Green Building Council will discuss drivers and Prof. Kaichang Li from Oregon State University and Todd Vogelsinger from Columbia Forest Products will discuss the inspiration, development and successful commercialization of the product. We will have a discussion on lessons learned for advancing other disruptive innovations.

For more information about the GC3 Green Chemistry Innovation Group, contact Monica Becker at [monica@monicabecker.com](mailto:monica@monicabecker.com)

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