

Mainstreaming Green Chemistry, Part I

Panelists

- Tracey Easthope, Director, Environmental Health Program, Michigan Ecology Center
- Patrick Harmon, Industry Manager, Industrial Petrochemicals, BASF Corporation
- Robert Israel, Director, Global Product Stewardship, Valspar Corporation
- Martin J. Mulvihill, Ph.D. Executive Director, Berkeley Center for Green Chemistry
- Amy Perlmutter, Principal, Perlmutter Associates
- Ken Zarker, Pollution Prevention Section Manager, State of Washington

Green chemistry will be considered mainstreamed when all chemistry is green chemistry, and any distinctions are no longer needed. The Mainstreaming Green Chemistry project is using GC3 member and stakeholder input to identify steps that the GC3 can take to move green chemistry into the mainstream. What will it take for all chemistry to be green chemistry? What are the current barriers and drivers, what partnerships will have to be built, policies put in place, educational needs met, and investments made? This session included an overview of the project, a summary of findings from a GC3 business member survey, and a panel discussion about some of the survey results. This was followed by breakout sessions to discuss how the GC3 can help its members promote green chemistry and who else should be engaged in the discussions.

Seventy five percent of GC3 member companies responded to the mainstreaming survey. Among other findings, it found that GC3 members work in many parts of their companies: sustainability, R&D, sourcing, materials, and more. The vast majority of companies have a chemicals policy in place, with green chemistry an explicit priority for the next 3-5 years. Concern for worker health and safety, concern for the environment, and competitive advantage are the top three factors driving green chemistry activities.

Top barriers are mainly in the economic realm: high cost to scale up, lack of economically feasible alternatives, high costs of researching alternatives, and perceived high costs of alternatives. Lack of technically feasible alternatives was also a top barrier. Over half the companies said that government R&D funding and chemical bans are policies that would help their efforts. The top non-policy action that would drive more activity in green chemistry is increased consumer demand, followed by partnerships with researchers. Companies felt that the GC3's top two priorities should be matching company needs with resources, and facilitation of information sharing.

Challenges for Implementation

- High costs of product development are not unique to green chemistry, but redesign can take longer than substitution, and data generation and certifications can add to costs—if you say something is safer, you have to prove it!
- National funding for manufacturing infrastructure and advanced technologies are not focused on green chemistry but should be.
- Business/academic partnerships are challenging — academic labs move slowly and IP gets complicated—but academics can be good long-term partners.

Helpful actions to advance Green Chemistry

- Celebrate continuous improvements rather than criticize them.
- Pitch green chemistry to university entrepreneurship programs.
- Engage consumers by focusing on safety, rather than green chemistry.
- Chemicals in school labs can be hazardous. GC3 members can talk with their alma maters and share their insights about how they evaluate materials use in their labs.

Role for the GC3

- Foster partnerships that focus on 1:many, rather than 1:1. Include all sectors at the table.
- Evaluate which GC3 activities are working best to overcome barriers.
- Examine how to overcome IP issues between universities and businesses.
- Identify the pre competitive activities that would give value to GC3 members while helping to mainstream green chemistry.
- Aggregate product demands by groups of companies.
- Create functional substitution working groups, e.g., adhesives, flame retardants, dyes, fragrances, preservatives, solvents, and emulsifiers.