

GCC3

INNOVATORS ROUNDTABLE

APRIL 28-30, 2015 | BEAVERTON, OR

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Steelcase



GC3: A Ten Year Perspective

Joel A. Tickner, ScD

April 28, 2015



How has the world changed in the past 10 years and how does that affect Green Chemistry?

2005



2015



GC3

What a difference 10 years makes

- Changes in markets
- Changes in policy
- Changes in science
- Changes in chemistry/growth of green chemistry
- Growth of the GC3

Market drivers

C&EN CHEMICAL & ENGINEERING NEWS
Serving The Chemical, Life Sciences & Laboratory Worlds

Home Magazine News Departments Collections Blogs

Home > Volume 52 Issue 7 > Walmart And Target Take Aim At Hazardous Ingredients

Research & Development, Production and Distribution of API worldwide.

Volume 52 Issue 7 | pp. 19-21
Issue Date: February 17, 2014

Walmart And Target Take Aim At Hazardous Ingredients

Big retailers formulate policies to regulate the chemicals that go into the products they sell

By Malody M. Bongardner

Department: Business | Collection: Sustainability, Safety
News Channel: Environmental SCOE
Keywords: sustainability, consumer products, toxic chemicals, green chemistry, soaps and detergents, personal care

Megaretailers Walmart and Target announced last fall that they would reduce or eliminate ingredients in household goods that they deem harmful to human health.

Press & Announcements | Contact Us | Forum | Supplier Directory | Greenhealth Careers | Login

PRACTICE Greenhealth

Home | About | Membership | Topics | Tools & Resources | Greenhealth Academy | Awards | Initiatives

Members: Log In Here | Login

Home > Tools & Resources > Business Member Toolkits > Safer Chemicals and Sustainable Materials

Safer Chemicals and Sustainable Materials

- What are safer chemicals and sustainable materials?
- Why should healthcare suppliers and service providers address safer chemicals and sustainable materials?
- What resources are available to help suppliers and service providers address safer chemicals and sustainable materials?

What are safer chemicals and sustainable materials?

Many Practice Greenhealth member GPOs, hospitals, and health care systems are concerned about the toxic chemicals coming into their facilities via the products they buy, as well as the toxic chemicals released into the environment during the production or disposal of the materials used in the products they buy.

This is reflected in some of the Product- and Service-

Tools & Resources

- Greenhealth Tracker
- Sustainability in Health Care Book
- Hospital Member Toolkits
- Community Health Center Member Toolkit
- Business Member Toolkits
 - Join Practice Greenhealth
 - Safer Chemicals and Sustainable Materials
 - Business Membership Benefits
 - Business Directory Listings
- Sustainability Benchmark Report
- Energy Impact Calculator
- Greenhealth Magazine
- Supplier Directory
- Practice Greenhealth Mentor Program
- Listserv
- Forums

Related Tools & Resources

- Webinar Calendar
- Business Member Benefits

Questions about Business Membership?

Contact Lara Sutherland at 866-598-2210

AN AMBITIOUS PLAN

One that sets a new standard of environmental performance for the global apparel and footwear industry.

RØADMAP TO ZERO DISCHARGE OF HAZARDOUS CHEMICALS

ZDHC Group Releases Key Milestone: Manufacturing Restricted Substances List (MRSL)



ZDHC Guidance Sheets Released for Eleven MRSL-restricted Chemicals

USGBC

Search the site

CREATE LOGIN



Overview

LEED v4

Rating systems

Credits

Levels of certification

Why LEED?

Tools

LEED stands for green building leadership. LEED is transforming the way we think about how buildings and communities are designed, constructed, maintained and operated across the globe.

LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy.

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

LEED v4 is the newest version of the world's premier benchmark for high-performance green buildings.



Policy Drivers

ECHA
EUROPEAN CHEMICALS AGENCY

Search the ECHA Website

Advanced search

About Us | Regulations | Addressing Chemicals of Concern | Information on Chemicals | Chemicals in our Life | Support

ECHA > Regulations > REACH

REACH

REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.

Understanding REACH

Legislation

Substance Identity

Unambiguous substance identification is a pre-requisite to most of the REACH processes. Actors in the supply chain must have sufficient information on the identity of their substance.

Read more

Processes

Companies have the responsibility of collecting information on the properties and uses of substances that they manufacture or import at or above one tonne per year. They also have to make an assessment of the hazards and potential risks presented by the substance.

ECHA and the Member States evaluate the information submitted by companies to examine the quality of the registration dossiers and the testing proposals and to clarify if a given substance constitutes a risk to human health or the environment.

Registration

The authorisation procedure aims to assure that the risks from substances of very high concern are properly controlled and that these substances are progressively replaced by suitable alternatives while ensuring the good functioning of the EU internal market.

Evaluation

Restrictions are a tool to protect human health and the environment from unacceptable risks posed by chemicals. Restrictions may limit or ban the manufacture, placing on the market or use of a substance.

Legal notice | Cookies | Contact | Search | English (en)

GROWTH
European Commission
Internal Market, Industry, Entrepreneurship and SMEs

European Commission > Growth > Single Market and Standards > ... > Harmonised standards > Restriction of hazardous substances

Single Market and Standards | Industry | Entrepreneurship and SMEs | Access to finance for SMEs | Sectors

Restriction of the use of certain hazardous substances (RoHS)

Directive 2011/65/EU

Short name:	Restriction of the use of certain hazardous substances (RoHS)
Date:	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (OJ L 174 of 1 July 2011)
Modification:	[-]

European Parliament and of the Council of 27 January 2003 on the restriction of hazardous substances in electrical and electronic equipment - OJ L

repealed as from 3 January 2013

Article 26 - Repeal
The acts listed in Annex VIII, Part A is repealed with- out prejudice to the obligations of the Member States relating to the national law and application of the Directive set out in

CA
GOV
California Department of Toxic Substances Control

HOME | RESTORING COMMUNITIES | SAFEGUARDING COMMUNITIES | PROTECTING FUTURE GENERATIONS

SAFER CONSUMER PRODUCTS (SCP)

Submit questions/feedback on the SCP Program

Safer Consumer Products

SAFER CONSUMER PRODUCTS REGULATIONS

The Safer Consumer Products program strives to reduce toxic chemicals in products consumers buy and use. It identifies specific products containing potentially harmful chemicals and asks manufacturers to answer two questions: 1) Is this chemical necessary? 2) Is there a safer alternative?

The program requires manufacturers to conduct a thorough analysis of alternatives to make sure they don't pose environmental or health problems. The result is that consumers will confidence that the products they buy are safe for their families and the environment.

Program Overview

PRIORITY PRODUCT WORK PLAN

DTSC is developing a Priority Product Work Plan which identifies product categories from which Priority Products will be selected over the next three years. DTSC invites you to participate in our workshops to discuss the draft Priority Product Work Plan. Workshops will be held on September 25, 2014 at the GIEFA Headquarters in Sacramento, and on September 29, 2014 at DTSC's regional office in Cypress. For workshop details and registration, please see our workshops web page. The draft Work Plan is available for public comment using our California Safer Products Information Management System (CALSAFER) until 5 p.m. (PDT) on October 21, 2014.

PRIORITY PRODUCTS

What is a Priority Product? A Priority Product is a consumer product that contains one or more chemicals – known as Candidate Chemicals – that have a hazard trait that can harm people or the environment. A proposed list of three product-chemical combinations was released on March 13, 2014. This initial Priority Products list is the first set of product-chemical combinations to be named for consideration by DTSC to be regulated under the Safer Consumer Products regulations. Publication of this draft list of products imposes no new regulatory requirements on manufacturers until DTSC finalizes it by adopting regulations. Read more

Quick Links:

- SCP Regulations

Home | WATER | AIR | WASTE | CLEANUP | TOXIC HAZARDS | GREEN

Programs | Services | Publications & Forms | Databases | Laws & Rules | Public Involvement Calendar | Public Records

Children's Safe Products Act

Reducing Toxin Threats > Children's Safe Product Act

Steps Toward Safer Chemical Policy

Overview of the law

Ecology's *Reducing Toxin Threats* Initiative is based on the principle that preventing exposures to toxics is the safest and healthiest way to protect people and the environment. The Children's Safe Product Act (CSPA - [Chapter 70.2](#)) is an important part of this initiative.

The *Children's Safe Product Reporting Rule* requires manufacturers of children's products sold in Washington to report unit product contains a *Chemical of High Concern to Child*.

The CSPA also limits the amount of lead, cadmium, and phthalates allowed in children's products. These limits are implemented by federal law. Ecology works with the *Consumer Product Safety Commission* to ensure compliance with requirements.

Consumers	Manufacturers
Read our FAQs for consumers	Read our guidance for manufacturers
Search the information that manufacturers have reported	Learn how to use the CSPA Reporting Application
Search the information about products Ecology has tested	Report information using the CSPA Reporter

Enforcing the law

Ecology tests products for chemicals to ensure manufacturers are reporting accurate information about their child and to make sure that they are complying with laws regulating other chemicals like Bisphenol A, phthalates, and toxic metals in packaging or copper in vehicle brake pads. These testing projects are summarized in Ecology's

You can also search the information from all of Ecology's testing in the [Product Testing Database](#).

News releases

- Children's products tested for toxic chemicals (April 14, 2014)
- Time changes made to children's product chemical list (October 29, 2013)
- Ecology set to carry out children's product reporting law (July 22, 2011)
- Pilot process will begin field testing state children's product law (January 28, 2010)

More information



Science Drivers

EPA United States Environmental Protection Agency
LEARN THE ISSUES | SCIENCE & TECHNOLOGY | LAWS & REGULATIONS | ABOUT EPA

Design for the Environment An EPA Partnership Program

We're redesigning the DfE label.

Find Products with the DfE Label

- All-Purpose Cleaners
- Window Cleaners
- Toilet/Toilet Cleaners
- Laundry Detergents
- more...

Look for products with the DfE label and protect your family's health and the planet.

ACS Sustainable Chemistry & Engineering

The National Science Foundation's Investment in Sustainable Chemistry, Engineering, and Materials

Abstract: In 2012, the National Science Foundation (NSF) created a new interdisciplinary research center in Chemistry, Engineering, and Materials (ChemEngM) within the Science, Engineering, and Education for Sustainability (SEES) portfolio. SEES/ChemEngM aims to explore the discovery of new science and engineering that will provide benefits to society. This, in turn, will stimulate rapid development of new materials to meet society's global demand. While NSF has historically supported research in this area, the SEES/ChemEngM effort focuses the research to priority problems. NSF will support the discovery of new science and engineering that will (1) improve the efficiency and processing of energy resources, (2) improve production and delivery characteristics of materials for their end uses, (3) reduce the burden of hazardous waste management, (4) reduce energy consumption through "green" materials, (5) discover novel materials, including superconducting, piezoelectric, and smart materials, (6) discover new materials for conversion and storage of renewable energy, and (7) discover new materials for addressing global environmental and societal challenges. The SEES/ChemEngM center will provide the National Science Foundation's view of the SEES/ChemEngM center.

SEES/ChemEngM Center: Chemistry, Engineering, and Materials, National Science Foundation, Arlington, Virginia 22204, United States

OECD
BETTER POLICIES FOR BETTER LIVES

HOME ABOUT RESOURCES GLOSSARY

OECD Substitution and Alternatives Assessment Toolbox

Welcome to the OECD Substitution and Alternatives Assessment Toolbox (SAAT) – a compilation of resources relevant to chemical substitution and alternatives assessments. Visit the four resource areas below to learn more about chemical substitution and alternatives assessments and get practical guidance on conducting them.

Alternatives Assessment Tool Selector

A filterable inventory of chemical hazard assessment tools and data sources to help you identify tools most relevant to your substitution and alternatives assessment goal. A listing of non-hazard assessment tools is also available.

Alternatives Assessment Frameworks

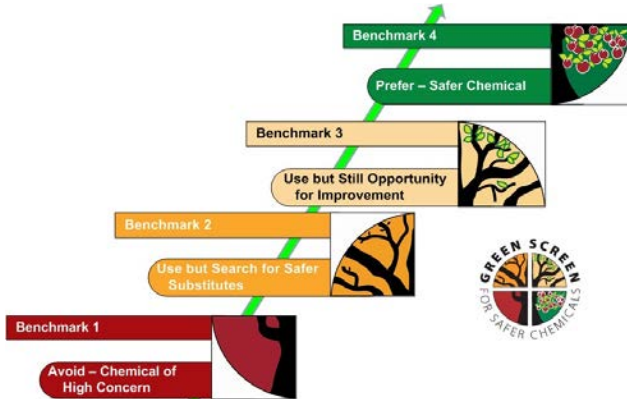
A summary of the current frameworks that can be used to assess alternatives. Guides and other resources for conducting a chemical substitution or alternatives assessment are included.

Case Studies

Other Resources

A Framework to Guide Selection of CHEMICAL ALTERNATIVES

NATIONAL RESEARCH COUNCIL OF ENVIRONMENTAL SCIENCES



CHEMISTRY

DESIGN OF SAFER CHEMICALS AND PRODUCTS

The Nexus of Toxicology and Chemistry

APRIL 23–24, 2015

LOCATION
McMenamins
2126 SW Halsey Street, Troutdale, OR
www.mcmenamins.com

This 2-day course is for professionals who design new chemicals, formulations, and commercial products, as well as those interested in supporting safer products and processes within public, private, and non-profit organizations. Recognized leaders in chemistry, toxicology, ecotoxicology, nanotoxicology, and other disciplines will guide participants in the use of the most prominent tools used in chemical design and predictive toxicology. Participants will have the opportunity to discuss cutting-edge science and practical strategies for the design of safer chemicals and products.

Registration
http://www.oeworkshop.eventbrite.com

W ModRN Molecular Design Research Network
Northwest Green Chemistry

ENVIRONMENTAL & OCCUPATIONAL HEALTH SCIENCES - SCHOOL OF PUBLIC HEALTH - UNIVERSITY OF WASHINGTON



Growth of Green Chemistry Efforts



19TH ANNUAL GREEN CHEMISTRY & ENGINEERING CONFERENCE


Catalyzing Innovation

Smarter Research, Greener Design, Better World

JULY 14-16, 2015
N. BETHESDA, MD



Catalyzing Innovation Smarter Research



Northwest Green Chemistry


Search

Home About Initiatives Events NW Innovators Advisory Council Tools

Green Chemistry Solutions

The goal of the Center is to enhance human and environmental health by fostering pollution prevention through green chemistry innovation while simultaneously promoting economic growth.

UPCOMING EVENTS



re:chem

Renewable Chemicals and Materials Alliance




changing chemistry, changing the world



We transform green chemistry breakthroughs into green products and services that enhance and preserve our quality of life and our environment for future generations.

ABOUT US GREEN CHEMISTRY OUR PORTFOLIO WORKING WITH US NEWS & ARTICLES

FEATURED NEWS LATEST TWEETS!



Beyond Design

Green Chemistry Who's Committed? Participate Resources Contact Faculty Students Companies

The Green Chemistry Commitment empowers colleges and universities to commit to changing the education of tomorrow's scientists. **Commit Now.**

12 Principles of Green Chemistry

ATOM ECONOMY

For Students: One student makes a world of difference.

For Faculty: It often begins with one faculty member.

For Companies: Support the next generation of.

News: Sign up for the next webinar on April 15.



Sign Up Sign In

GCEdNet

Green Chemistry Education Network

"Advancing green chemistry through a global network of educators who develop, implement and disseminate greener educational materials."

HOME PROFILE EVENTS EMPLOYMENT FUNDING NEWS GROUPS FORUM MEMBERS RESOURCES EDUCATION

GCEdNet is a social network.

GREEN CHEMISTRY EDUCATION NETWORK MISSION

The Green Chemistry Education Network (GCEdNet) serves as a catalyst for integrating green chemistry in chemical education at all levels. As a network of educators we support opportunities to research, develop, implement and disseminate green educational materials. The GCEdNet reaches out to all chemistry educators through collaboration and mentoring, facilitating professional growth, and fostering the synergistic integration of green chemistry in education.

EVENTS

ADD AN EVENT

INDUSTRY NEWS

The News - Republican & Green Chemistry agency guidance to identify future regulations

York develops new metrics to assess green chemistry technology

omises Leap Towards Sustainability, Green Energy

What's New?

19th Annual Green Chemistry and Engineering Conference - Catalyzing Innovation: Smarter research, greener design, better world July 14-16, 2015 in the Washington DC metro area.

Atomnet submission is open - deadline March 13, 2015

Program information - <http://www.gceed.net/program/>

Business Plan Competition - <http://www.gceed.net/program/business-plan-competition/>

Advanced Registration - May 29, 2015 - <http://www.gceed.net/registration/>

NSF Student Travel Scholarships - Application session March 13, 2015

Welcome to GCEdNet Sign Up or Sign In

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Share This 1

GC3

But have we mainstreamed green chemistry?

- A time when...

Green chemistry becomes standard practice throughout the economy so that all chemistry is, by default, green chemistry

We have made progress but have a long way to go...

- Despite significant successes in programs, collaborations and recognition of need, it's still a marginal consideration.
- The green chemistry community lacks a coherent long term strategy, strong coordination, and significant, stable funding.
- Much of the progress has been on the demand side and not on the supply side.

Themes from GC3 Launch in 2005

- Lack of a common definition
- Lack of good information through supply chains
- Lack of demand for green chemistry solutions
- Resistance to change (internal/external)
- Negative perceptions of green chemistry
- Need for data to make business case
- Need supply chain and cross-sectoral partnerships to drive solutions

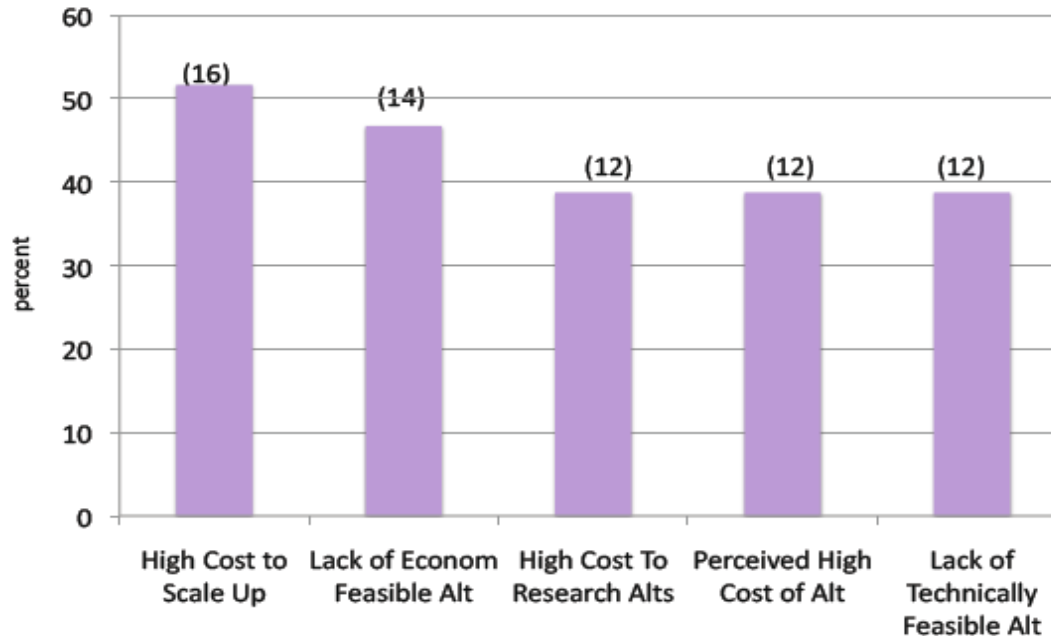
10 Years Ago...

- “When we innovate, we’ve got to be prepared to be called nuts... First they ignore the innovators and hope they’ll go away; then they laugh at you and hope the humiliation will drive you away; then they fight and attempt to stop the new idea; and then they join together and change happens. We all need to join together to drive change.”

Themes from the 2014 GC3 Member Survey

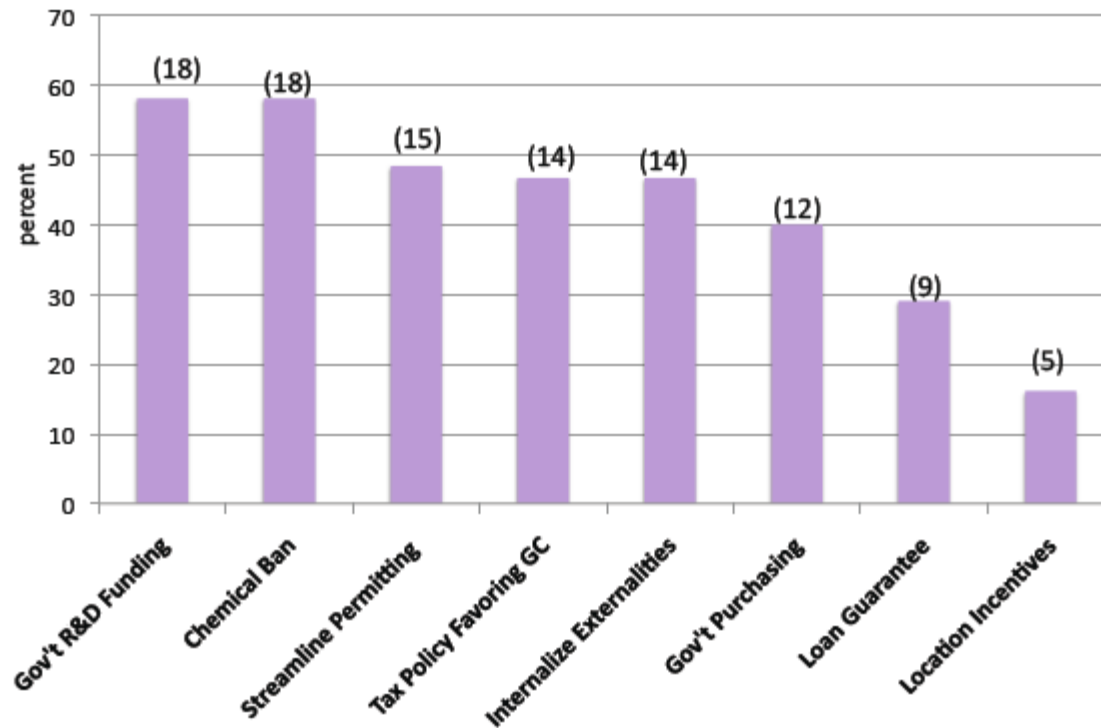
What Hinders You:

N=32



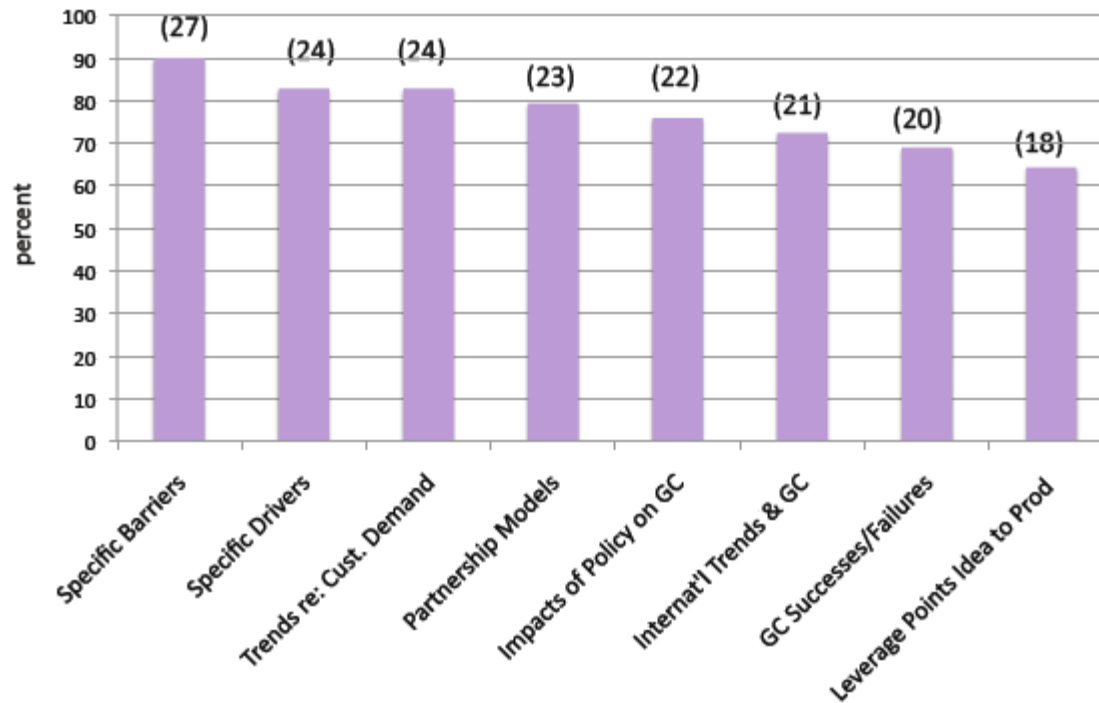
Policies That Would Be Helpful

N=31



What We Need To Better Understand

N=31



Themes from GC3 Strategic Initiative Research 2014-2015

- Potential for creating business and economic value is promising but not yet fully realized. Change is happening but is limited, primarily reactionary and situational.
- There are important barriers to scale including supply chain complexity, incumbency, risk shifting, price/performance, perceived lack of demand, and market confusion.
- There are limited metrics to evaluate progress.
- There is a need for common understanding of terminology.

Lessons learned from research

- Need to address supply chain misalignment:
 - Collaboration across the value chain, including give and take (compromise)
 - Use market forces to drive innovation
 - Need better data to make a business case and better, more consistent metrics
 - Need education across the supply chain

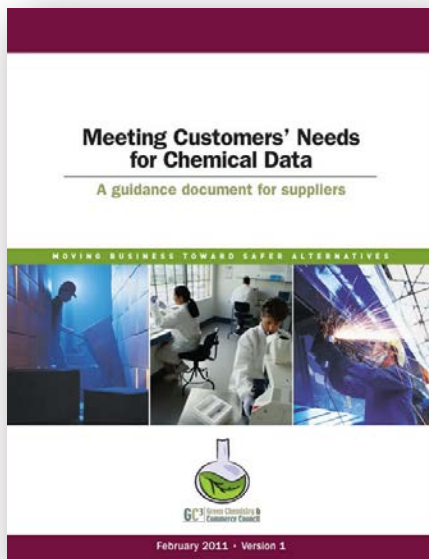
10 Years of GC3 Efforts to Mainstream Green Chemistry

- Information
- Education
- Innovation
- Retail
- Mainstreaming
- Supply chain partnerships
- Collaboration and networking
- Outreach

Why has the GC3 been successful?

- Multi-sectoral and along the entire value chain
- Collaborative
- Visionary
- Pragmatic
- Positive, solutions focused
- Amazing collaborators

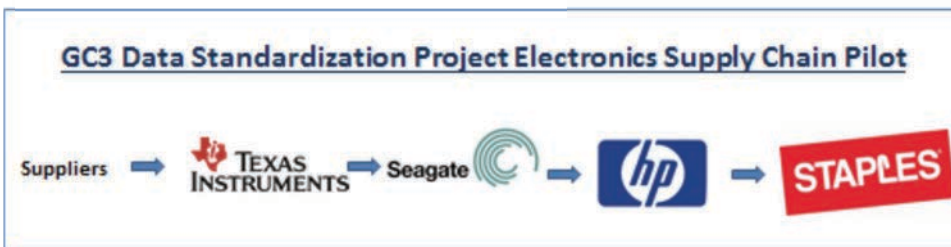
Enhancing information flow through supply chains



This banner features a row of six images: a round-bottom flask with a green leaf inside, a person walking in a brightly lit aisle, a person working at a computer, a person in a lab coat, a person in a lab coat, and a forklift in a warehouse. Below the images is the GC3 logo and the text "MOVING BUSINESS TOWARD SAFER ALTERNATIVES".

Considered Chemistry at Nike: Creating Safer Products through the Evaluation and Restriction of Hazardous Chemicals
 Case Study for the Green Chemistry and Commerce Council (GC3)

GC3 Approach to Enhancing Business to Business Information Flows while Protecting Confidential Business information



Education



GC3
GREEN CHEMISTRY & COMMERCE COUNCIL
Business Mainstreaming Green Chemistry

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MEMBER AREA



EDUCATION PORTAL

Introduction

Webinars

- Toxicology and Why You Should Care
- Integrating Toxicity Information into Chemical Design
- Introduction to Green Engineering
- The Value of Green Chemistry
- Building Market Share for Green Products
- In Pursuit of Green Chemistry: Perspectives on Careers in Industry
- Presenters

GC3 Webinars

A full list of our webinars is shown in the table below. Click on any webinar title (in the first column) to learn more about the webinar and to view an archived version. You can also click on a presenter's name to read a brief bio.

Webinar Title	Description	Presenters	Chemistry Rating
Foundations for Green Chemistry and Green Engineering			
Introduction to Green Engineering	Green engineering applies principles similar to those of green chemistry to process and product design. In this webinar, experts in green engineering introduce principles, tools, and examples of this practice.	Julie Zimmerman , Associate Professor of Environmental Engineering, Yale University	1
		Matthew Eckelman , Assistant Professor of Civil and Environmental Engineering, Northeastern University	1
		Julie Schoenung , Professor and Vice Chair of Chemical Engineering and Materials Science, University of California Davis	1
	fforts to build ply chains, and	Helen Holder , Corporate Material Selection Manager, Hewlett-Packard	1
		Tse-Sung Wu , Program Manager of Environment, Health, and Safety, Genentech	1
		Andy Shafer , Executive Vice	1

The Green Chemistry Checklist

Green Chemistry and Safer Products Business Commitment, v.1.0



2014

Why Green Chemistry?

Inside

The Business Case

Customers are increasingly expecting companies to show leadership in developing safer products to protect health and the environment. This creates a market opportunity for innovative companies that are able to bring safer chemicals and products to market.

GC3 GREEN CHEMISTRY & COMMERCE COUNCIL
Business Mainstreaming Green Chemistry

The GC3 is a business-to-business forum that advances the application of green chemistry and design for environment across supply chains. It provides an open forum for cross-sectoral collaboration to share information and experiences about the challenges to and opportunities for safer chemicals and products.

Green Chemistry and Commerce Council Policy Statement on Green Chemistry in Higher Education

We are deeply concerned that students are graduating from our colleges and universities with insufficient understanding of environmental and sustainability issues. For our companies to compete successfully in a global economy, it is imperative that principles of sustainability be incorporated throughout the curriculum.

Within this sustainability framework, it is critical for our industries that green chemistry principles are deeply embedded in both the technical and non-technical education of our workforces.

We call on institutions of higher education to integrate green chemistry and sustainability principles into chemistry, engineering, science, and business curricula. This will serve two primary goals:

- Enabling scientists, engineers, and others to enter the workforce with the skills to solve the many challenges today's industries face
- Endowing students with the skills to design and apply safer, more sustainable chemicals, materials, products, and processes.

We also call on institutions of higher education to work with companies, governments, and other stakeholders to develop educational programs and internship opportunities that ensure a well-trained workforce provided with the most up-to-date knowledge on green chemistry and sustainability. These advances in curriculum will require a top-level commitment from university leadership that supports interdisciplinary education.

GC3
GREEN CHEMISTRY & COMMERCE COUNCIL
Business Mainstreaming Green Chemistry



IMAGE PROVIDED BY GC3 MEMBER SHAW INDUSTRIES

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MEMBER AREA



PROJECTS

- Overview
- Retail
- Education
- Mainstreaming Innovation
- Past Project: Chemical Data
- Past Project: Business & Academic Partnerships
- Fellows Program 2015

GC3 Fellows Program 2015

The GC3 Fellows Program places technically proficient students into sustainability-related summer internships with our member companies. The fellows spend 10-12 weeks working within a GC3 member company, learning the skills needed in sustainable industry. After completing the program, this year's fellow will have the opportunity to attend the 2016 GC3 Innovators Roundtable and share their experiences with the next round of students.

Eligibility

- In order to be considered for the GC3 Fellows Program, you must be...
- a current graduate student OR recent recipient of bachelor's degree (<6 months since graduation)
 - specialized in a scientific/technical discipline
 - eligible to receive payment for work in the U.S. during the summer term (citizens, residents, non-residents with applicable visas)
 - passionate about advancing sustainability

GC3

Retail



GC³ SECOND NATIONAL Summit for Retailers

Green Chemistry and Commerce Council
May 7, 2013 - New York City

GC³ Green Chemistry & Commerce Council
Moving Business Toward Safer Alternatives

Home About GC3 Projects Events Publications Retail



RETAILER PORTAL DATABASE
Tools to Evaluate Chemical Ingredients in Products

Key: Restricted Substances Lists Standards, Certifications & Labels Third-party Evaluation Tools

Apparel & Footwear						
Tools relevant to this product sector	Restricted Substances Lists (RSLs) e.g., AAFA RSL, ETAD	bluesign®	EcoLogo	Global Organic Textile Standard (GOTS)	Oeko-Tex® Standard 100	Outdoor Industry Association (OIA) Eco Index Beta
Tools relevant to all product sectors	Cradle to Cradle® Certification	3E Green Product Analyzer™ (GPA)	Actio Material Disclosure	Chemical Compliance Systems (CCS) Tools	GreenWERCs™	IHS Chemical Inventory Greening Solutions
Automotive						
Tools relevant to this product sector	Restricted Substances Lists (RSLs) e.g., GADSL	EcoLogo	EPA Design for Environment (Dfe) Safer Product Labeling Program	Green Seal		
Tools relevant to all product sectors	Cradle to Cradle® Certification	3E Green Product Analyzer™ (GPA)	Actio Material Disclosure	Chemical Compliance Systems (CCS) Tools	GreenWERCs™	IHS Chemical Inventory Greening Solutions
Building Materials & Products						
Tools relevant to this product sector	Restricted Substances Lists (RSLs)	EcoLogo	Greenguard	Green Seal	SMaRT® 4.0 Sustainable Product Standard	Pharos Project

Best Practices in Product Chemicals Management in the Retail Industry

MOVING BUSINESS TOWARD SAFER ALTERNATIVES

GC³ Green Chemistry & Commerce Council

December 2009

GC3 Retailer Leadership Council - An Uncommon Collaboration



Mission: To promote safer chemicals, materials and products across retail supply chains.

GC3 Mainstreaming Efforts



H. R. 5116

ii

One Hundred Eleventh Congress of the United States of America

AT THE SECOND SESSION

*Began and held at the City of Washington on Tuesday,
the fifth day of January, two thousand and ten*

An Act

To invest in innovation through research and development, to improve the competitiveness of the United States, and for other purposes.

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) **SHORT TITLE.**—This Act may be cited as the “America COMPETES Reauthorization Act of 2010” or the “America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010”.

(b) **TABLE OF CONTENTS.**—The table of contents for this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Definitions.
- Sec. 3. Budgetary impact statement.

TITLE I—OFFICE OF SCIENCE AND TECHNOLOGY POLICY

- Sec. 101. Coordination of Federal STEM education.
- Sec. 102. Coordination of advanced manufacturing research and development.
- Sec. 103. Interagency public access committee.
- Sec. 104. Federal scientific collections.
- Sec. 105. Prize competitions.

A Resource Guide for States and Higher Education

2009

Growing the Green Economy Through Green Chemistry and Design for the Environment

*“In a few decades it won’t be special
anymore...Everyone will be doing
green chemistry.”*
Professor Robert H. Crabtree
Yale University
Chemistry Department



113TH CONGRESS
2D SESSION

S. 2879

To provide for the implementation of a Sustainable Chemistry Program,
and for other purposes.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 18, 2014

Mr. COONS (for himself, Mr. COLLINS, Mr. ROCKWELLER, and Mr. ERANKO) introduced the following bill, which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To provide for the implementation of a Sustainable
Chemistry Program, and for other purposes.

- 1 *Be it enacted by the Senate and House of Representa-*
- 2 *tives of the United States of America in Congress assembled,*
- 3 **SECTION 1. SHORT TITLE.**
- 4 This Act may be cited as the “Sustainable Chemistry
- 5 Research and Development Act of 2014”.
- 6 **SEC. 2. DEFINITIONS.**
- 7 In this Act—
- 8 (1) **ADVISORY COUNCIL.**—The term “Advisory
- 9 Council” means the advisory council established
- 10 under section 3(d).

GC3



Innovation



GREEN CHEMISTRY INNOVATION PORTAL

A meeting place for ideas, know-how, guidance and inspiration for the global green chemistry community.



About Forum Calendar

THE PORTAL IS

- A community** of green chemistry professionals seeking to accelerate development and adoption of green chemistry technologies.
- A platform** for innovators to connect to one another to advance research, innovation and adoption of green chemistry technologies and practice.
- A forum** for discussions, networking, and sharing of information on the technical and business aspects of green chemistry, moderated by green chemistry and technology experts.
- A place** to get assistance in finding the right green chemistry expertise and resources, across industry sectors and supply chains.

We are building the Portal brick by brick, adding new topics and features over time with input from our growing community.

PARTICIPATE IN THE PORTAL



DISCUSS

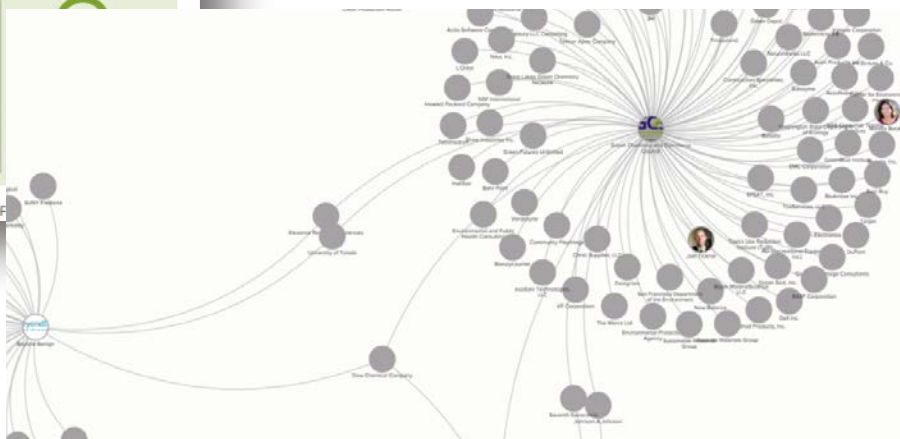
Click on a topic of interest and engage in discussion in the moderated forum. Pose or answer a question, describe your work or a technology that you have developed; post an article of interest and start a conversation.



NETWORK

If you want to connect with someone working in a specific area of green chemistry, need input on something you are developing, or have other questions, contact us. We will get you connected to the right people or resources.

CURRENT TOPICS IN THE P



November 8, 2012

Green Chemistry Innovation in the Chemical Industry: Venturing and Start-Ups



Cora Leibig, VP of R&D, Segetis



Erik Rutten, Senior Investment Manager, DSM Venturing

HOME CHALLENGES PROCESS NETWORK ABOUT CONTACT

SYSTEM CHALLENGE: Green Chemistry

At LAUNCH we see a future where the making of things has a positive impact on human prosperity and planetary sustainability.

With this LAUNCH System Challenge Green Chemistry, LAUNCH seeks innovations that leverage or advance green chemistry to benefit the system of materials and manufacturing to one that advances global economic growth, drives human prosperity and replenishes the planet's resources. When referring to green chemistry we are using the 12 Principles of Green Chemistry, the selection which the Environmental Protection Agency also uses, in order to provide a common framework.

CHALLENGE STATEMENT

LAUNCH is an open innovation platform that was founded by NASA, NREL, The U.S. Agency for International Development (USAID) and The U.S. Department of State to identify and foster breakthrough ideas for a more sustainable world. LAUNCH aims to move beyond incremental change and make an impact at a system-wide level.

READ MORE

The System: Green Chemistry Innovators

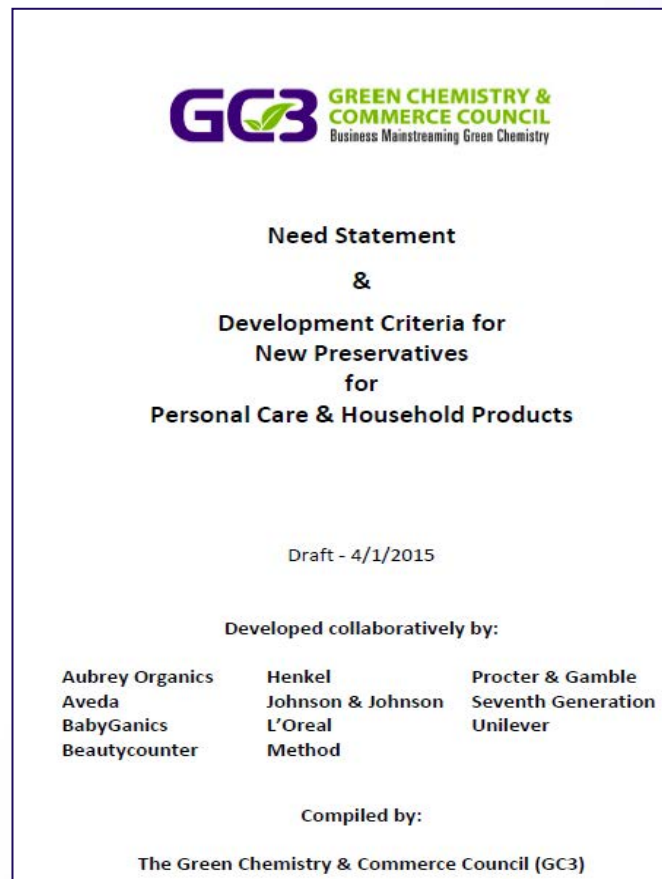
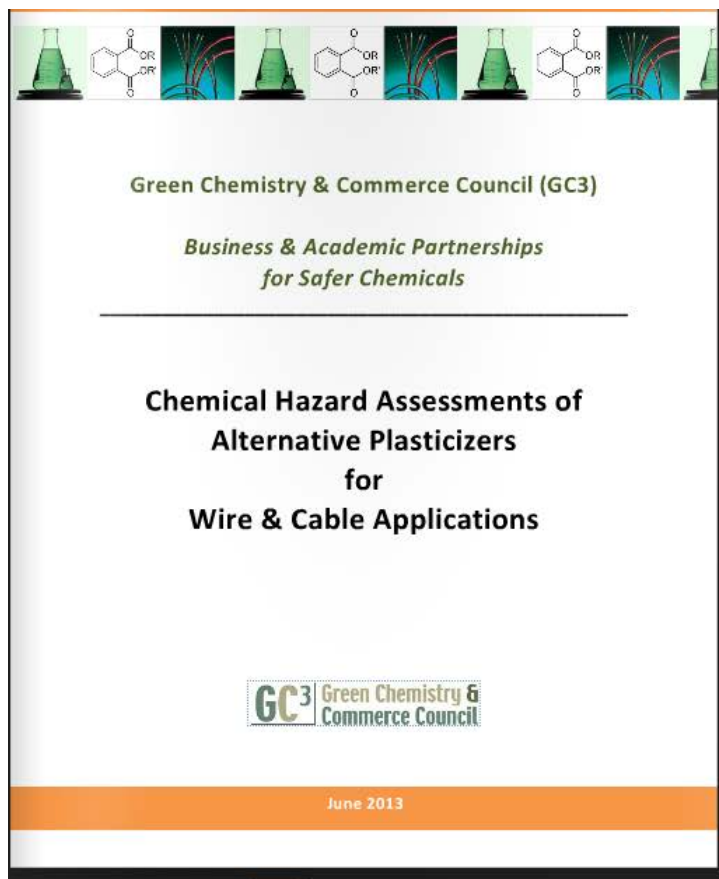
The System: Green Chemistry Council

Related Tweets

- @greenchemsoc: Eco-chemistry @GungGardus... the startups that transform our "waste" (ex. methane, algae) into sustainable resources. @Hans... 2 day 18 hours ago
- @GungGardus: Thanks for the awesome blog post! We think it will be "fruitful" as well. 2 days 42 min ago
- @GungGardus: Read our piece about how @HangoMaterials is manufacturing plastics from methane (instead of fossil fuels). http://bit.ly/12U... 2 days 43 min ago
- @PhoHoover: Excited to make it home! Thanks @GreenChemSociety and @HangoMaterials



Supply Chain Innovation Partnerships



Collaboration and Networking



Education and Outreach

The Right Chemistry

Charting a path to make green chemistry mainstream

share this article




Amy Perlmutter
 Friday, April 3, 2015 - 1:00am



Amy Perlmutter
 Principal
 Perlmutter
 Associates



Many companies want green chemistry, but how can we make it the norm?

Later this month, participants at the Green Chemistry & Commerce Council's 10th annual Innovators Roundtable will hear the results of the soon-to-be-released "Agenda to Mainstream Green Chemistry." This document is the culmination of a year of research into barriers, opportunities and needs to bring green chemistry into the mainstream.

The Green Chemistry & Commerce Council (GCC3) is a business-to-business forum that advances the application



State Perspectives on Promoting Green Chemistry



Allister Innes, Green Chemistry Coordinator,
 Minnesota Pollution Control Agency



Mark Brady, Clean Technology Strategist,
 Business Oregon

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and coatings, including biogels and easily degradable plastics, textiles and polymers. He contacted other chemists for further ideas, checked samples and tested them in the company's laboratories. He spent a year and a half on the project at Method Products in San Francisco, California, and his invention is now sold online and in US stores.

Holzhauser is part of a thriving subfield in chemical manufacturing known as green chemistry. As its name suggests, the field

Green chemistry

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ChemicalWatch

A mission to become mainstream

Green chemistry is still a marginal consideration, how can we up the ante?



Joel Tickner
 Associate professor,
 University of Massachusetts Lowell

CHEMISTRY Green refill

Manufacturers are snapping up chemists who can make their products more environmentally friendly.

BY RACHEL GEMANSKY

When chemist Fred Holzhauser started a job at a cleaning-products company in 2008, his first assignment was to create a tablet dishwasher detergent that contained no polycarboxylates, or any other ingredients commonly found in dishwasher products that have negative impacts on human health and the environment. Of course, the

detergent also had to work well in a — and to last for months on shop at out degreasing or being effectiveness to be achievable.

First, Holzhauser assembled detergent he could put together, but out to find replacements for the a that he wanted to avoid. He had a possible candidate from his 10-year experience in formulating industrial clean-

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Last month, Launch ([launch.org](#)), a sustainable innovation incubator programme hosted by Nasa, the US State Department, the US Agency for International Development and Nike, held its Green Chemistry Forum. With Nasa Cape Canaveral Space Facility as a backdrop, the 10 launch green chemistry innovators, who have developed plastics from methane, bio-based chemistry building blocks and non-chromium based coatings, presented on their visions, practical realities and needs to move to scale.

These innovators — and many others — are seeking to rethink traditional chemistry, which has focused on price and performance, with an emphasis on renewable feedstocks, less hazardous chemical designs and reduced lifecycle impacts. The Green Chemistry and Commerce Council, a network of some 70 companies across sectors and levels of supply chains, has worked to "mainstream" green chemistry for the past decade, to achieve a point in time where it



There is a lot of energy and commitment to integrating green chemistry into education, government programmes and through supply chains

[encompassing] the design, manufacture and use of efficient, effective, safe and more environmentally benign chemical products and processes".

While there are some differences in these definitions, for the most part they are focused on the design of chemicals and chemical processes that are inherently less

as design specifications, specifying and sourcing materials and products that incorporate green chemistry, changing manufacturing practices to substitute or reduce the use of hazardous chemicals in production, and developing and implementing policies restricting certain classes of chemicals or chemical risks in the products they make, source and/or sell.



Green chemistry may not be mainstream, but the avenues to get there are evolving

- Cross-sectoral, value chain collaboration is growing...
- Tools and metrics are evolving....
- Innovative new chemistries and materials are being developed...
- Education and awareness are changing...
- Understand that change is slow

A unique point in time to accelerate green chemistry

- Build incentives for R&D, adoption and scale
- Enhance green chemistry education
- Grow the scientific base
- Accelerate supply chain collaborative partnerships to solve problems
- Communicate the stories
- Transform the chemicals and materials economy
- Create a stronger, more vibrant, integrated green chemistry community

The GC3's next 10 years: The sky's the limit



There is no finish line

- Bill Bowerman

Roundtable desired outcomes

- Understand how the world has changed over the past 10 years and what this implies for mainstreaming green chemistry
- Understand challenges to accelerating green chemistry and concrete solutions overcoming them
- Understand how to effectively use partnerships to advance green chemistry
- Advance cross-sectoral dialogue around green chemistry and understanding among companies

Logistics

- Agenda
- Receptions
- Logistics
- Staff/Advisory Committee
- Evaluations

GC3 Advisory Committee

- Mary Grim, Timberland
- John Frazier, Nike
- Barbara Hanley, Hewlett Packard
- Bob Israel, Valspar
- Al Iannuzzi, Johnson & Johnson
- Rich Liroff, Investor Environmental Health Network
- Roger McFadden, Staples
- Ken Zarker, Washington State Department of Ecology
- Al Innes, Minnesota Department of Pollution Control
- James Ewell, Blue Green Institute
- Bob Skoglund, 3M

Ground Rules

- Respectful, honest dialogue and listening
- Please keep electronic device use to a minimum (or outside)
- Chatham House Rule: Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed

11th Annual Innovators Roundtable

Save the date!

May 2016

Hosted by


seventh
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Burlington, VT



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Steelcase



For more information

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