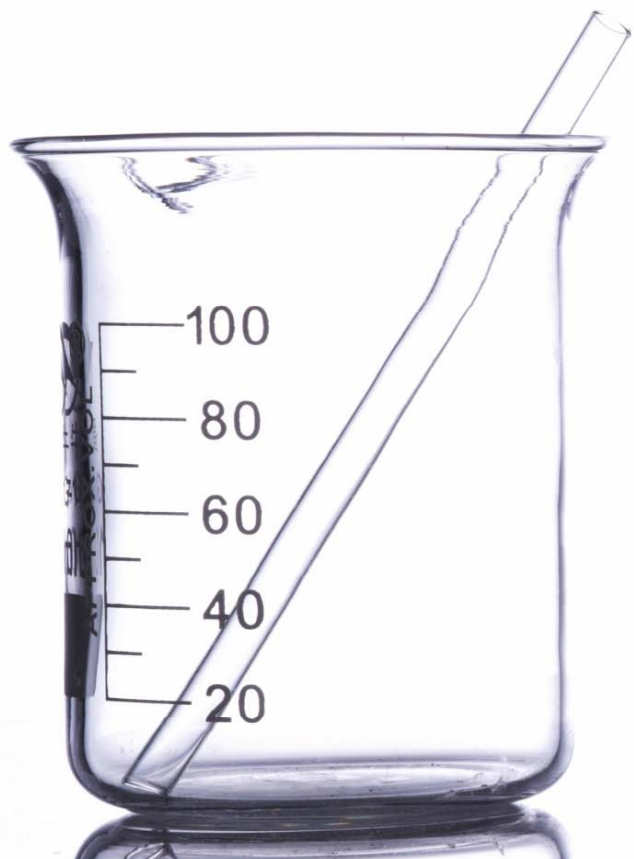




**WELCOME TO THE**  
**GC<sup>3</sup> Green Chemistry & Commerce Council**  
7<sup>th</sup> Annual Innovators Roundtable

SPONSORED BY





The Green Chemistry and  
Commerce Council (GC3): Year  
in Perspective

Seventh Annual GC3 Innovator's  
Roundtable

May 9-11, 2012  
Ann Arbor, MI

## **GC3 Highlights – Marketing and Outreach**

- Quarterly newsletters (to more than 600 people)
- Quarterly webinars
- Outreach and recruitment to sectors – auto, electronics, retail
- Presentations at major conferences
- Major redesign of GC3 website



## **GC3 Innovators' Roundtables**

2005: Charlottesville, VA

2007: Lowell, MA

2008: Beaverton, OR, Nike

2009: Broomfield, CO , Staples

2010: Houston, TX, Sysco

2011: Cupertino CA, HP

2012: Ann Arbor MI, NSF International



The Green Chemistry and Commerce Council (GC<sup>3</sup>) is a business-to-business forum for members to discuss and share information and experiences related to advancing green chemistry and design for environment in commerce and to sustainable supply chain management.

### What's New

- [Retailer Portal](#)
- View the latest edition of the [GC<sup>3</sup> newsletter](#)
- Learn more about participating in our [quarterly webinars](#)



### PROJECTS



[Advancing Green Chemistry Education](#)

[Business & Academic Partnership](#)

[Engaging Retailers in Green Chemistry Adoption](#)

[Facilitating Chemical Data Flow Along Supply Chains](#)

### EVENTS



[7th Annual Green Chemistry and Commerce Council](#)



[Innevators Roundtable](#)

[May 9-11, 2012  
NSF International  
Ann Arbor, MI](#)

### PUBLICATIONS



[Meeting Customers' Needs for Chemical Data](#)

[Best Practices in Product Chemicals Management in the Retail Industry](#)

[Gathering Chemical Information and Advancing Safer Chemistry in Complex Supply Chains](#)

[Growing the Green Economy](#)

### MEMBERSHIP



[Current Members](#)

[Benefits of Membership](#)

[Becoming a Member](#)

[GC<sup>3</sup> Members Area](#)

## Growth as a membership organization

- 60+ Members
- \$89,000 collected in membership dues
- Diversity of sectors represented
- Still much to be done!
  - Enhancing business members – supply chains
  - New “champions”
  - Distinguishing GC3 from other initiatives – value of behind the scenes dialog

# 2011-2012 GC3 Members



[Home](#) [About GC3](#) [Projects](#) [Events](#) [Publications](#) [Retailer Portal](#) [Membership](#) [Contact](#)

## MEMBERSHIP

[Overview](#)  
[Current Members](#)  
[Becoming a Member](#)  
[Benefits of Membership](#)  
[GC3 Members Area](#)



[Members Area](#)

## Member Companies

The following organizations are members of the GC3:  
(Current November, 2011)

ACS Green Chemistry Institute  
**Actio Software Corporation**  
**Anvil Knitwear**  
Avon Products, Inc.  
BASF Corporation  
Bayer MaterialScience LLC  
Bose Corporation  
**Bureau Veritas Consumer Products Services**  
BWC Pharma Consulting  
**Center for Environmental Health**  
Church & Dwight Co. Inc.  
Clean Production Action  
**Colgate-Palmolive Company**  
**Construction Specialties, Inc.**  
Cradle to Cradle Products Innovation Institute  
Dell  
**Designtex**  
Diversey  
DuPont  
**ecoSolv Technologies, Inc.**  
**EMC Corporation**  
**Environmental and Public Health Consulting**  
Environmental Protection Agency  
EPEAT, Inc.  
German Federal Environment Agency  
Green Depot  
**Green Seal**  
GreenBlue  
**HallStar**  
Henkel/Dial  
Herman Miller

**HP**  
**Hubbard Hall**  
Inside Matters  
Intel  
Investor Environmental Health Network  
**Johnson & Johnson**  
Lockheed Martin  
Melliod Products, Inc.  
**Minnesota Pollution Control Agency**  
**Nike, Inc.**  
**NSF International**  
**Pacific Northwest Pollution Prevention Resource Center**  
**Pure Strategies, Inc**  
REI  
Rivertop Renewables  
Seventh Generation, Inc  
**Shaw Industries Inc.**  
**Staples Inc.**  
**Steelcase**  
Sustainable Research Group  
**Target**  
**The Dow Chemical Company**  
The Valspar Corporation  
**The Wercs**  
Timberland  
Toxics Use Reduction Institute  
**ToxServices, LLC**  
UL Environment  
University of Connecticut Health Center  
**Walmart Stores, Inc.**  
**Washington State Department of Ecology**





## STANDARDIZATION

### PROs

- CAN USE "SUPERSET DATA"
- CAN PROVIDE UNIQUE SERVICE WITH DATA
- STANDARDIZING FORMATS NOT DATA
- ALLOW EFFICIENT EXCHANGE OF DATA
- CAN BE IMPACTED BY LARGE NUMBER OF SOFTWARE PACKS
- EASIER COMPLIANCE WITH REGULATIONS (e.g. "CONFLICT MINERALS")
- HIGHER DATA QUALITY

### CONS

- NO COMPETITIVE ADVANTAGE
- CAN BE OVERWHELMED WITH DATA
- ONE STANDARD DOES NOT YET EXIST
- SCIENCE v POLITICS IN STANDARD

## STANDARDIZATION

### PROs (cont)

- EASIER FOR REGULATORS TO REVIEW
- LOWER COST
- ONCE IN SYSTEM LAST TO ADOPT TO REQUESTS (SIMPLIFIES REG COMMUNICATIONS) REGULATORY COMPLIANCE

### BARRIERS

- "WE HAVE OUR OWN WAY OF DOING IT"
- LARGE INITIAL EFFORT

## STANDARDIZATION

### WHAT IS REQUIRED?

- ONE STANDARD NEEDED
- CHEM ID #/NAME
- FUNCTION
- HUMAN HAZARD/ECO HAZARD
- EXPOSURE DATA
- UTILIZE THE CLOUD

NOT FROM SCRATCH!

## STANDARDIZATION

SHOULD THIS BE SECTOR SPECIFIC? WHICH SECTOR FIRST?

- DEVELOP UNIVERSAL SYSTEM FIRST
- CUSTOMIZE FOR EACH INDUSTRY (MASTER LIST OF SUBSTANCES "FILTER" FOR EACH SECTOR)
- ...





## **GC3 Advisory Committee**

Sarah Beatty, Green Depot

Buzz Cue, BWC Pharma Consulting

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

## **GC3 Project Groups**

- *Green Chemistry in Higher Education*: Explores ways to embed green chemistry in university and professional education as well as in research, education, and development funding programs
- *Business and Academic Partnerships for Safer Chemistry*: Model business-academic collaboration to advance alternatives to phthalates in wire and cable.

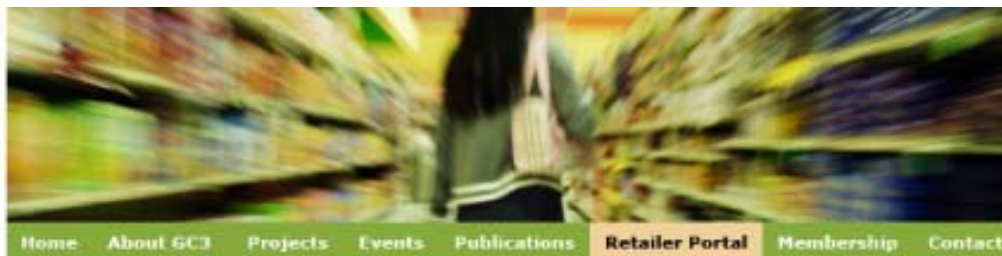
## **GC3 Project Groups**

*Engaging Retailers in the Adoption of Safer Products:* Engages proactive retailers and other stakeholders in dialog about the challenges and solutions to managing chemical ingredients in the products sold in the retail industry

*Facilitating Chemical Data Flow Along Supply Chains:* Advance the efforts of companies to obtain chemical information more efficiently in supply chains through data standardization and enhanced B to B transparency.

## Project Group Accomplishments

- Retailer Portal of tools to manage chemicals in products
- Inventory of initiatives and organizations advancing safer products in the retail sector
- GC3 Position Statement on Green Chemistry in Higher Education
- Evaluation of training programs for green chemistry and safer alternatives education
- Collaborative model developed for comparative chemicals hazard assessment effort including 9 GreenScreen™ assessments of alternatives to phthalate plasticizers in wire and cable.
- Documented needs and efforts in the electronics sector to standardize chemical data collection systems including development of chemical data “superset”, and lessons learned for other sectors



Retailer Portal Database

## Tools to Evaluate Chemical Ingredients in Products

[Printing Instructions](#)

Key: <span style="background-color: #d9ead3;">■</span> Restricted Substances Lists <span style="background-color: #d9ead3; border: 1px solid #000;">■</span> Standards, Certifications & Labels <span style="background-color: #d9ead3; border: 1px solid #000;">■</span> Third-party Evaluation Tools <span style="background-color: #d9ead3; border: 1px solid #000;">■</span> Consumer Guides								
<b>Apparel &amp; Footwear</b>								
Tools relevant to this product sector	<span style="background-color: #d9ead3;">Restricted Substances Lists (RSLs) e.g., AAFA RSL, CTAD</span>	<span style="background-color: #0070c0;">bluesign®</span>	<span style="background-color: #0070c0;">EcoLogo</span>	<span style="background-color: #0070c0;">Global Organic Textile Standard (GOTS)</span>	<span style="background-color: #0070c0;">Oeko-Tex® Standard 100</span>	<span style="background-color: #70ad47;">Outdoor Industry Association (OIA) Eco Index Beta</span>		
Tools relevant to all product sectors	<span style="background-color: #0070c0;">Cradle to Cradle® Certification</span>	<span style="background-color: #70ad47;">3E Green Product Analyzer™ (GPA)</span>	<span style="background-color: #70ad47;">Actis Material Disclosure</span>	<span style="background-color: #70ad47;">Chemical Compliance Systems (CCS) Tools</span>	<span style="background-color: #70ad47;">GreenWERCs™</span>	<span style="background-color: #70ad47;">IHS Chemical Inventory Greening Solutions</span>	<span style="background-color: #70ad47;">SoVera Lens™</span>	
<b>Automotive</b>								
Tools relevant to this product sector	<span style="background-color: #d9ead3;">Restricted Substances Lists (RSLs) e.g., GMPSL</span>	<span style="background-color: #0070c0;">EcoLogo</span>	<span style="background-color: #0070c0;">EPA Design for Environment (DfE) Safer Product Labeling Program</span>	<span style="background-color: #0070c0;">Green Seal</span>				
Tools relevant to all product sectors	<span style="background-color: #0070c0;">Cradle to Cradle® Certification</span>	<span style="background-color: #70ad47;">3E Green Product Analyzer™ (GPA)</span>	<span style="background-color: #70ad47;">Actis Material Disclosure</span>	<span style="background-color: #70ad47;">Chemical Compliance Systems (CCS) Tools</span>	<span style="background-color: #70ad47;">GreenWERCs™</span>	<span style="background-color: #70ad47;">IHS Chemical Inventory Greening Solutions</span>	<span style="background-color: #70ad47;">SoVera Lens™</span>	
<b>Building Materials &amp; Products</b>								
Tools relevant to this product sector	<span style="background-color: #d9ead3;">Restricted Substances Lists (RSLs)</span>	<span style="background-color: #0070c0;">EcoLogo</span>	<span style="background-color: #0070c0;">Greenguard</span>	<span style="background-color: #0070c0;">Green Seal</span>	<span style="background-color: #0070c0;">SMARt® 4.0 Sustainable Product Standard</span>	<span style="background-color: #70ad47;">Pharos Project</span>		
Tools relevant to all product sectors	<span style="background-color: #0070c0;">Cradle to Cradle® Certification</span>	<span style="background-color: #70ad47;">3E Green Product Analyzer™ (GPA)</span>	<span style="background-color: #70ad47;">Actis Material Disclosure</span>	<span style="background-color: #70ad47;">Chemical Compliance Systems (CCS) Tools</span>	<span style="background-color: #70ad47;">GreenWERCs™</span>	<span style="background-color: #70ad47;">IHS Chemical Inventory Greening Solutions</span>	<span style="background-color: #70ad47;">SoVera Lens™</span>	
<b>Cleaning &amp; Janitorial Products (Residential &amp; Commercial/Industrial)</b>								
Tools relevant to this product sector	<span style="background-color: #d9ead3;">Restricted Substances Lists (RSLs)</span>	<span style="background-color: #0070c0;">EcoLogo</span>	<span style="background-color: #0070c0;">EPA Design for Environment (DfE) Safer Product Labeling Program</span>	<span style="background-color: #0070c0;">Green Good Housekeeping Seal of Approval</span>	<span style="background-color: #0070c0;">Greenguard</span>	<span style="background-color: #0070c0;">Green Seal</span>	<span style="background-color: #70ad47;">CleanGridents®</span>	<span style="background-color: #d9534f;">GoodGuide</span>
Tools relevant to all product sectors	<span style="background-color: #0070c0;">Cradle to Cradle® Certification</span>	<span style="background-color: #70ad47;">3E Green Product Analyzer™ (GPA)</span>	<span style="background-color: #70ad47;">Actis Material Disclosure</span>	<span style="background-color: #70ad47;">Chemical Compliance Systems (CCS) Tools</span>	<span style="background-color: #70ad47;">GreenWERCs™</span>	<span style="background-color: #70ad47;">IHS Chemical Inventory Greening Solutions</span>	<span style="background-color: #70ad47;">SoVera Lens™</span>	
<b>Electronics</b>								
Tools relevant to this product sector	<span style="background-color: #d9ead3;">Restricted Substances Lists (RSLs) e.g., JIG</span>	<span style="background-color: #0070c0;">EcoLogo</span>	<span style="background-color: #0070c0;">Electronic Product Environmental Assessment Tool (EPEAT)</span>	<span style="background-color: #0070c0;">Greenguard</span>	<span style="background-color: #d9534f;">GoodGuide</span>			

## **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<sup>1</sup> be incorporated throughout the curriculum. Within this sustainability framework, it is critical for our industries that green chemistry principles<sup>2</sup> 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 Business / University Partnership Project

## Project Group Members:

### Suppliers

BASF  
Dow Chemical  
Hallstar  
Teknor Apex

### OEMs/Retail

Dell  
EMC  
HP  
Staples

### Consulting Toxicologists

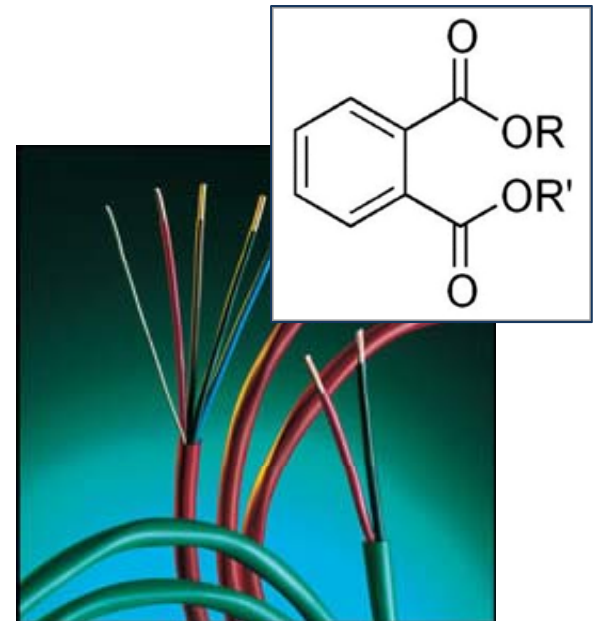
ToxServices

### University Partners

- Lowell Center for Sustainable Production  
- Faculty of Univ. of Mass Lowell

### Government & NGOs

- Washington State  
- Clean Production Action  
- Pacific Northwest Pollution Prevention Resource Center





# Chemical Data “Superset” Modules - Universe of Data that Will Satisfy the Needs of the Companies in Our Supply Chain

## 1. Requestor (Customer) Information

Company Unique ID (DUNS or equivalent)  
Company Name  
Company Address  
Contact Name  
Contact Title  
Contact Email  
Contact Phone Number  
Division Name  
Business Unit

## 2. Supplier (Sender) Information

Company Unique ID (DUNS or equivalent)  
Company Name  
Company Address  
Contact Name  
Contact Title  
Contact Email  
Contact Phone Number  
Division Name  
Business Unit

## 3. General Component Information

Request Date  
Need Date  
Requestor Component Name  
Response Date  
Supplier Component Name  
Component Build Site  
Component Mass  
Unit of Measure (mg, gram)  
Unit Type (each)

## 4. Component Compliance Declarations

Component/ Device Status - REACH  
Component / Device REACH Availability Date  
Component / Product Status - RoHS  
EU RoHS Exemption (if applies)  
Component / Product RoHS Availability Date

## 5. Chemical Substance Information

CAS Number or Other Unique Chemical ID No.  
Substance Name  
Amount in Component (mg, grams or kg)  
Substance Concentration in component – ppm and/or %  
Description of Chemical Use  
Function of Chemical

## 6. Substance & Material Group Information\*

EU RoHS Substance Category  
From IPC 1752 Class B (when updated from IEC 62474)  
Material Class ID (Number)  
Material Class (Name)  
IPC 1752 Class C  
JIG 101 threshold for substance [taken from JIG]  
Below threshold?  
REACH  
Substance on ECHA Substance List?  
(released and proposed Candidate List)  
JAMP\*\*  
Material Name  
Material Group ID  
Material Group  
Use Category

**Staples is seeking  
additional information**

## **Themes and Lessons Learned**

- Information and transparency in supply chains
- Collaboration to solve common challenges

***Moving from big ideas to addressing challenges of pragmatic implementation:  
The niche of the GC<sup>3</sup>***

## Information and Transparency in Supply Chains

- Enhanced pressures to understand chemical flows in supply chains – need to know for regulatory, consumer, sustainability purposes
- Increased data availability – toxicity, alternatives
- Need for standardized datasets and sources of information on toxicity, used, etc. that don't overwhelm companies
- Concerns regarding protection of legitimate proprietary information while ensuring business to business information flow



## GREEN CHEMISTRY



# Green Chemistry

[Green Chemistry News](#)

[Upcoming Events & Symposiums](#)

[Documents and Information](#)

[Getting Involved](#)

[Green Ribbon Science Panel](#)

[Toxics Information Databases](#)

[Frequently Asked Questions](#)

[More Info on Green Chemistry](#)

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### INFORMAL DRAFT REGULATIONS FOR SAFER CONSUMER PRODUCTS

Informal draft regulations for Safer Consumer Products are available for public review. A public workshop was held on December 5, 2011, and the informal comments are listed below.

[SCP Informal Comments](#) (January 20, 2012) **NEW**

If you are having trouble downloading the above comments we have broken it down into [Part A](#) (6 MB) & [Part B](#) (10 MB) **NEW**

[SCP Informal Draft Regulations](#) (released Oct. 31, 2011)

[SCP Informational Summary](#) of Informal Draft Regulations

[Outline](#) of SCP Informal Draft Regulations

See DTSC's [Safer Consumer Products](#) page for more information.

- ▶ **GHS**
- ▶ **Labels**
- ▶ **Placards**
- ▶ **Packaging**
- ▶ **Absorbents & Sorbents**
- ▶ **Publications**
- ▶ **(M)SDS Services**
- ▶ **Training Courses**
- ▶ **Training Supplies**
- ▶ **Services**
- ▶ **Regulations**
- ▶ **Signs**
- ▶ **Pipe Markers**
- ▶ **Printers & Ribbons**
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- ▶ **Information**

## GHS Update | OSHA Publishes Final Rule to the Federal Register



Home / News / Press Releases /

WASHINGTON – OSHA's final ruling on the Hazard Communication Standard (1910.1200) in alliance with the UN's Globally Harmonized Communication System of Classification and Labeling of Chemicals (GHS), was published in the Federal Register March 26, 2012, and will take effect in 60 days. The new standard is expected to significantly improve health and safety for nearly 45 million workers, who manufacture or use chemicals by preventing illness, injury and death with its' "Right to Understand" mantra.

Major changes to the Hazard Communication Standard will affect Hazard Classification, Labeling, Safety Data Sheets, as well as Training. New criteria have been established for Hazard Classification in order to address physical hazards of chemicals, and chemical mixtures. The GHS Labeling standard requires that all hazards are communicated properly in an easy to understand format using signal words, pictograms, hazard statements and a precautionary statement for individual hazard classes and categories. Safety Data Sheets (SDS) will now require a 16-section format, and It is further mandated that all GHS Training must be completed by December 1, 2013.

Under GHS, employers will need to continue to update safety data sheets, offer training that will cover the new label requirements, and if new hazards are identified update their Hazard Communication Programs. Chemical Manufacturers will now be required to assess all hazards related to chemicals they import or manufacture. Manufacturers will have to abide by the new GHS classification criteria and update their labels and safety data sheets.

GHS was introduced in 1992 at the United Nations Conference on Environment and Development (UNCED). GHS has already been implemented in several countries around the world, including in Japan, China, New Zealand and the European Union (EU), and is about to be deployed in the United States.

ICC Compliance Center offers a wide variety of GHS ready products and services such as: training, publications, posters/charts, labeling solutions, workplace safety signs, and much more. With 188 years of regulatory experience, we have resources and knowledge that you can rely on to help you through the transition.

## C&L Inventory database

This database contains classification and labelling information on notified and registered substances received from manufacturers and importers. It also includes the list of harmonised classifications.

The database is refreshed regularly with new and updated notifications. However, updated notifications cannot be specifically flagged because the notifications that are classified in the same way are aggregated for display purposes.



### Non-classified substances

Notifications and registrations which do not indicate a classification are not included in this release of the inventory (see C&L Inventory Q&A question 2).

Search the [Registered substances database](#) to check if the substance is registered as non-classified.







### Further information

- > [More information about the C&L Inventory](#)
- > [Understanding the CLP Regulation](#)
- > [Video tutorial](#)

## Search Classification and Labelling Inventory

### Search Criteria

Substance Name	<input type="text"/>	
	<input type="radio"/> Starts with... <input checked="" type="radio"/> Contains <input type="radio"/> Matches exactly with...	
Other Identifier	<input type="text"/>	
	<input type="checkbox"/> Only Harmonised C&L	
<b>Classification Details</b> 		
Hazard Class and Category Code(s)		Hazard Statement Code(s)
<input type="text" value="Diss. Gas&lt;br/&gt;Exp. 1.1"/>		<input type="text" value="H200&lt;br/&gt;H201"/>

## C&L Inventory database

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- > [Video tutorial](#)

## Search Classification and Labelling Inventory

### Search Criteria

Substance Name  ⓘ

Starts with... 
  Contains 
  Matches exactly with...

Other Identifier  ⓘ

Only Harmonised C&L ⓘ

Classification Details	Hazard Class and Category Code(s)	Hazard Statement Code(s)
Physical hazards	Diss. Gas	H200
	Expl. 1.1	H201
	Expl. 1.2	H202

## ACToR

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[ACToR](#) | [ToxRefDB](#) | [ToxCastDB](#) | [ExpoCastDB](#) | [DSSTox](#)

[Home](#) | [Basic Info](#) | [Data Collections](#) | [Structure Search](#) | [Assays By Toxicity](#) | [Assays By Category](#) | [External Links](#) | [Download](#) | [Help](#)

ACToR is EPA's online warehouse of all publicly available chemical toxicity data and can be used to find all publicly available data about potential chemical risks to human health and the environment. ACToR aggregates data from over 1000 public sources on over 500,000 environmental chemicals searchable by chemical name, other identifiers and by chemical structure.

The data warehouse:

- Allows users to search and query data from other EPA chemical toxicity databases including:
  - ToxRefDB (30 years and \$2 billion worth of animal toxicity studies).
  - ToxCastDB (data from screening 1,000 chemicals in over 500 high-throughput assays).
  - ExpoCastDB (consolidate and link human exposure and exposure factor data for chemical prioritization).
  - DSSTox (provides high quality chemical structures and annotations).
- Includes chemical structure, physico-chemical values, in vitro assay data and in vivo toxicology data.
- Includes, but not limited to, high and medium production volume industrial chemicals, pesticides (active and inert ingredients), and potential ground and drinking water contaminants.

### Chemical Name Parameters

- Search on Chemical Names  
 Search on CAS Numbers

### Match by

- exact  
 any

Enter Chemical Name:



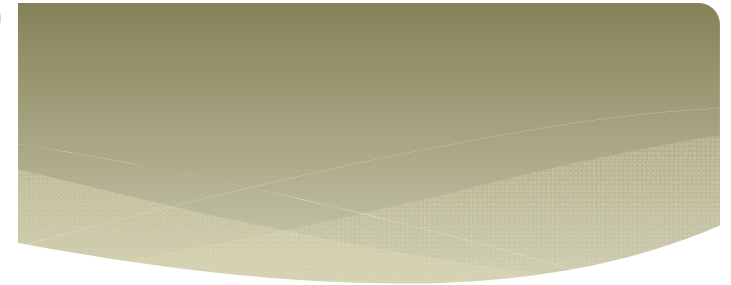
## **Need for Enhanced Collaborations to Address Common Problems and Cross-Sectoral Solutions**

- Intra and inter-supply chain collaboration needs
- Engagement of full supply chain, including chemical suppliers/manufacturers is critical to solutions
- Models for collaboration within industry and between government, industry, and academia
- Successes of partnership models – e.g., DfE

## 8. Summary of Roadmap Projects

The table below summarizes the major actions to be taken based on this roadmap and their relative impact on the issues of inventory, disclosure, elimination, and verification.

Roadmap Element	Categorization of Roadmap Element				Supply Chain Coverage
	Inventory	Disclosure	Elimination	Verification	
Benchmark study whether 9 classes of chemicals not in discharge to water or sludge using on-site visits and audits, inventories, and analytics where appropriate.	○	○	●	●	Pilot
Develop action plan to address phase-out of any 9 chemical classes found in benchmark study.	○	○	●	●	100%
Communication to suppliers to source APEO/NPE free preparations, initiate project to identify 'positive list' of APEO/NPE free detergents.	○	○	●	○	100%
Conduct follow-up study at selection of facilities that have converted to APEO/NPE free detergents to identify remaining sources.	○	○	●	●	Pilot
Confirm, or set timelines for the elimination of products that are associated with PFOA and PFOS by replacing CB fluorinated water repellent chemistry with alternative technologies including short-chain fluorochemical water repellents approved by global regulators.	○	○	●	○	100%
Develop a comprehensive, generic inventory of chemicals used in textile manufacturing.	●	●	●	○	100%
Identify and agree to a cross-industry screening tool for chemical hazards.	●	●	●	○	100%
Establish a plan to evaluate the chemical inventory by intrinsic hazard and establish a sector wide list of hazardous chemicals.	●	●	●	○	100%
Expand our current efforts of prescribing alternative (greener) chemistries to be used on our products.	○	○	●	○	100%
Develop a joint generic audit approach for environmental performance (including chemicals management).	○	○	●	●	100%
Develop a shared dye house and printer audit protocol with a competent third party.	○	○	●	●	100%
Within legal confines, develop a program to incentivize suppliers to fulfill the dye house and printer audit protocol.	○	○	●	●	100%
Continue expansion of individual/collective RSLs and MRSLs.	○	○	●	●	100%
Develop shared approach with 3rd party for dye house and printer audit	○	○	●	●	100%
Collaborate on joint training efforts and knowledge transfer and deliver a joint training program in one or more countries.	●	●	●	●	100%
Convene cross sector group to explore the best ways to encourage sector wide supplier chemical disclosure and deliver a study based on data collection from a select group of facilities.	●	●	●	○	Pilot
Explore platform options for suppliers to disclose their chemical inventory under the assumption that disclosing their inventory will have a positive effect.	●	●	●	○	Pilot



# Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals

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# SUSTAINABLE APPAREL COALITION

The Sustainable Apparel Coalition is an industry-wide group of leading apparel and footwear brands, retailers, manufacturers, non-governmental organizations, academic experts and the U.S. Environmental Protection Agency working to reduce the environmental and social impacts of apparel and footwear products around the world.

## **Pilot Test the V1 Apparel Index**

Our V1 Apparel Index is available for public review and comments after registering and agreeing to a Terms of Use. Please register by clicking [here](#).

Submit comments and feedback by [downloading the feedback form](#).



**EXECUTIVE ORDER NO. 12-05**

**FOSTERING ENVIRONMENTALLY-FRIENDLY PURCHASING AND  
PRODUCT DESIGN**

Emerging market opportunities driven by consumer demand and changing regulations in the U.S. and abroad are creating a shift to products that are designed to be safe for people and the environment. Building materials, electronics, apparel and cleaning products are just some of the products that are increasingly being designed to eliminate or significantly reduce the use of toxic materials. Businesses that use safer, cleaner alternatives to toxic chemicals and processes will be in the best position to capture this growing market.

Fostering innovation and encouraging new business development through a coordinated effort in Oregon will help firms take advantage of emerging market opportunities. Thoughtful application of green chemistry principles, aligned with an over-arching toxic reduction strategy, can foster a cleaner environment that will help all Oregonians live healthy and productive lives, free of illness and disease. Green chemistry is based on a philosophy of encouraging the design of products and processes to minimize the use and generation of toxic substances.



greenchemistrycommitment.org  
*21<sup>st</sup> century chemistry*

Chemists are currently not trained in toxicology.  
**Together we can fill this knowledge gap.**

January 2012 Green Chemistry Commitment Summit

commitment  
overview

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advisory  
board

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green chemistry  
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## **Directions for the future**

- Greater focus on collaboration – practical details and challenges
- Greater focus on products – but also impacts along the supply chain
- Greater focus on getting information in supply chains
- Greater focus on the role of market forces to effect the shift towards safer chemistry (with some exceptions)
- Greater focus on bio-materials

## **GC3 Strategic Questions**

- Where can the GC3 – and its focus on inter-sectoral collaboration – be most effective in advancing common goals?
- What types of pragmatic projects would have the most inter-sectoral value added?
- How can we most effectively engage current members and bring in new ones through our projects?
- Given amount of effort needed for more “hands-on” projects, how do we ensure sufficient resources to make them happen in a meaningful way?

# 7th Annual GC3 Innovators Roundtable

NSF International | May 9–11, 2012 | Ann Arbor, Michigan

## GC3 Innovators Roundtable Agenda

### Wednesday, May 9<sup>th</sup>

- 9:00-11:00am**      **Pre-Conference Tour of Ford Motor Company's Research and Innovation Center**  
2101 Village Road, Dearborn
- 12:00-1:00pm**      **Registration (Lobby) and Lunch (Snyder Room)**
- 1:00-1:45pm**      **Welcome and Introductions (Vaughn Room)**  
Kevan Lawlor, CEO, NSF International
- GC3: A Year in Perspective**  
Joel Tickner, Lowell Center for Sustainable Production
- 1:45-3:00pm**      **Overview of Project Group Activities (Vaughn Room)**  
Facilitator: Monica Becker, Lowell Center for Sustainable Production
- Advancing Green Chemistry Education
  - Business and Academic Partnerships for Safer Chemicals
  - Engaging Retailers in the Adoption of Safer Products
  - Facilitating Chemical Data Flow Along Supply Chains
- 3:00-3:15pm**      **Break**
- 3:15-5:00pm**      **Supply Chain Perspectives on the Opportunities & Challenges to Commercial Adoption of Safer Substitutes (Vaughn Room)**  
Facilitator: Pam Eliason, Toxics Use Reduction Institute

*How are companies in supply chains working together to develop and adopt safer chemical or material alternatives? What are the drivers, opportunities, and challenges for these types of collaborations? How do strategies for*

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*engaging suppliers differ when the supplier is a large chemical company versus a smaller or start-up firm? What kinds of challenges lie ahead (5 – 10 years) and how can these supply chain collaborations help to meet them?*

**Case 1: Durable Water Repellants for High Performance Fabrics**

- Bob Buck, Dupont
- Kevin Myette, REI

**Case 2: Bio-based Solvents for Cleaning Products**

- Tess Fennelly, Segetis
- Chris Miller, Seventh Generation

**5:00-5:45pm**      **Keynote: Sustainability in the Auto Industry** (Vaughn Room)  
John Viera, Global Director, Sustainability and Vehicle Environmental Matters,  
Ford Motor Company

**5:45pm**      **Wrap Up and Adjourn** (Vaughn Room)  
Facilitator: Joel Tickner, Lowell Center for Sustainable Production

**6:30pm**      **Drinks Reception**  
Co-hosted by ToxServices LLC and the Ecology Center  
*The Ecology Center*  
*339 E. Liberty, Suite 300, Ann Arbor*

**Thursday, May 10<sup>th</sup>**

**7:30-8:00am**      **Breakfast** (Vaughn Room)

**8:00-8:45am**      **Keynote: Advancing Green Chemistry Innovations-From Lab to Commercial Application** (Vaughn Room)  
Rui Resendes, GreenCentre Canada

**8:45-10:15am**      **The Auto Sector's Journey Towards Safer and Greener Chemical Design**  
(Vaughn Room)  
Facilitator: Patricia Beattie, SciVera

*How might the experience with collecting material/ chemical information on articles/ parts be useful to other sectors? How has working together within the auto sector as a group (OEMs, suppliers through the supply chain) been helpful? What are the challenges to implementing DfE and alternative assessment strategies, adding value to the chemical data that have been collected? What are the lessons learned and challenges you have experienced?*

Panel Discussion:

- Brad Strohm, Delphi
- Jake Welland, Hyundai-Kia
- Bing Xu, Ford

**10:15-10:45am**

**Break**

**10:45-12:45pm**

**Concurrent Sessions**

**Tools for the Design and Selection of Safer Chemicals, Materials and Products**  
(Vaughn Room)

Facilitator: Emma Lavoie, US EPA, Design for Environment

*What is driving the development of new tools for identifying safer chemicals, materials and products? What are the types of tools available? What are the strengths and limitations of these tools? How are businesses and other organizations using these tools in practice?*

Panel Discussion:

- Ann Blake, Environmental & Public Health Consulting
- Sally Edwards, Lowell Center for Sustainable Production
- Emma Lavoie, US EPA, Design for Environment

**Implementing a Corporate-wide Chemicals Management Program: The BizNGO Guide to Safer Chemicals** (Sinai Room)

Facilitator: Mark Rossi, Clean Production Action

*How has your organization benchmarked and reported on progress to safer chemicals and what have been some of the unexpected successes and hurdles? How should we better align current initiatives and needs for benchmarking and reporting on progress to safer chemicals? What are the similarities and differences in benchmarking and reporting across sectors and types of companies (retailers, manufacturers, specifiers, etc).*

Panel Discussion:

- Tracey Easthope, Ecology Center
- Helen Holder, HP
- Roger McFadden, Staples
- Mark Rossi, Clean Production Action

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- 12:45-2:00pm**      **Lunch** (Snyder Room)
- 2:00-4:00pm**      **Project Group Break Out Sessions**
- Advancing Green Chemistry Education (Board Room)
  - Business and Academic Partnerships for Safer Chemicals (Sinai Room)
  - Engaging Retailers in the Adoption of Safer Products (Snyder Room)
  - Facilitating Chemical Data Flow Along Supply Chains (Vaughn Room)
- 4:00-4:30pm**      **Break**
- 4:30-5:30pm**      **Project Groups Report Back** (Vaughn Room)  
Monica Becker, Lowell Center for Sustainable Production
- 5:30pm**              **Wrap Up and Adjourn** (Vaughn Room)  
Joel Tickner, Lowell Center for Sustainable Production
- 7:00-10:00pm**      **Dinner and Networking Reception**  
Sponsored by Nike, Inc.  
*Vinology Wine Bar and Restaurant*  
*110 South Main Street, Ann Arbor*

**Friday, May 11<sup>th</sup>**

- 7:30-8:00am**      **Breakfast** (Vaughn Room)
- 8:00-9:00am**      **Keynote: Green Chemistry in the Great Lakes Region- From Problems to Solutions** (Vaughn Room)
- Lana Pollack, International Joint Commission
  - Frank Ruswick, Michigan Department of Environmental Quality
- 9:00-11:00am**      **Greening the Textile Industry** (Vaughn Room)  
Facilitator: Sally Edwards, Lowell Center for Sustainable Production
- How is your company collaborating with your supply chain/other brands to make textile products more sustainable? What are the most important factors that have prompted these industry collaborations? What are the key ingredients needed for effective collaboration to occur? How can the lessons learned from these collaborative efforts be applied in other industry sectors?*

Panel Discussion:

- Bob Buck, DuPont
- John Frazier, Nike Inc.
- Sam Moore, Hohenstein Institute
- Tommy Thompson, Hanesbrands Inc.

**11:00-11:30am**

**Break**

**11:30-12:30pm**

**Emerging Issues: Bio-based Chemicals, Materials and Products** (Vaughn Room)

Facilitator: Brenda Platt, Institute for Local Self-Reliance

*How can companies support the development and use of biobased products that are sustainable from feedstock sourcing through production to recovery at end of life? What differentiates one biobased product from another? What are the opportunities and challenges facing emerging biobased chemical/material suppliers? What are the opportunities and challenges facing companies that are pursuing a biobased chemical/material strategy for their products?*

Panel Discussion:

- Steve Davies, NatureWorks LLC
- Ramani Narayan, Michigan State University
- Brenda Platt, Institute for Local Self-Reliance

**12:30-1:00pm**

**Wrap Up** (Vaughn Room)

Ken Geiser, Lowell Center for Sustainable Production

**1:00pm**

**Adjourn**

Sponsorship Provided By:



## **Logistical Information**

- Staff
- Meals
- Receptions and Dinner
- Transport
- Evaluations

**GC<sup>3</sup> | Green Chemistry & Commerce Council**

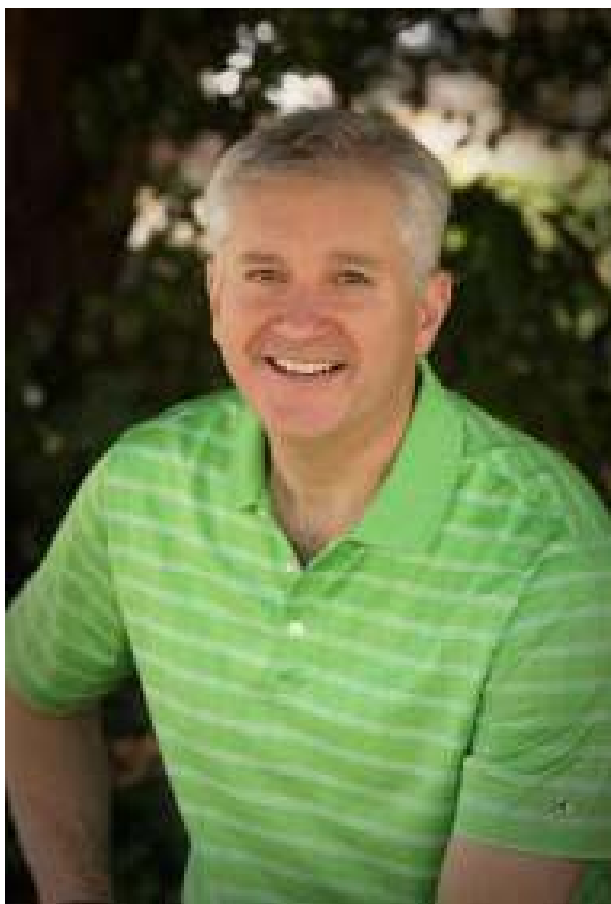
# **GC<sup>3</sup> Green Chemistry Champion Award 2012**



**GC<sup>3</sup> | Green Chemistry & Commerce Council**

**GC<sup>3</sup> | Green Chemistry & Commerce Council**





**John Frazier, Nike**



The GC3 would like to thank the following companies for their generous support

