



**GCC3**

**INNOVATORS  
ROUNDTABLE**

HOSTED BY P&G FABRIC CARE  
MAY 7-9, 2019 • CINCINNATI, OH



# **GC3: A Year in Review**

Joel A. Tickner, ScD

Executive Director

May 8, 2019



**INNOVATORS  
ROUNDTABLE**

HOSTED BY P&G FABRIC CARE  
MAY 7-9, 2019 • CINCINNATI, OH

# Welcome to Cincinnati



<https://twitter.com/i/status/1125439937300520960>



# Thank You Sponsors



**Steelcase**

ESTÉE  
LAUDER  
COMPANIES



novozymes® 



HOHENSTEIN 

 **TOXSERVICES**  
TOXICOLOGY RISK ASSESSMENT CONSULTING

**GC3** 

# Audience Poll

What brought you here? And what do you want to get out of the roundtable?

- Go to [Sli.do](https://sli.do) (or [slido.com](https://slido.com))
- Enter event **#U571**

# New Members Since May 2018

Akron Ascent Innovations

EmulGreen

Nature Coatings

Angus Chemical Company

Evolved By Nature

Performance BioFilaments Inc

Boston Common Asset Management

Genecis Bioindustries Inc.

Pyran

Chinova Bioworks Inc.

Gradient

Sephora

Clariant

Iron Shell LLC

Smarting Sorting

Colorifix Limited

Magnomer

Stichting ZDHC Foundation

Croda Inc.

Material Alchemy

Visolis

Defunkify

Meijer

VivaVax Inc

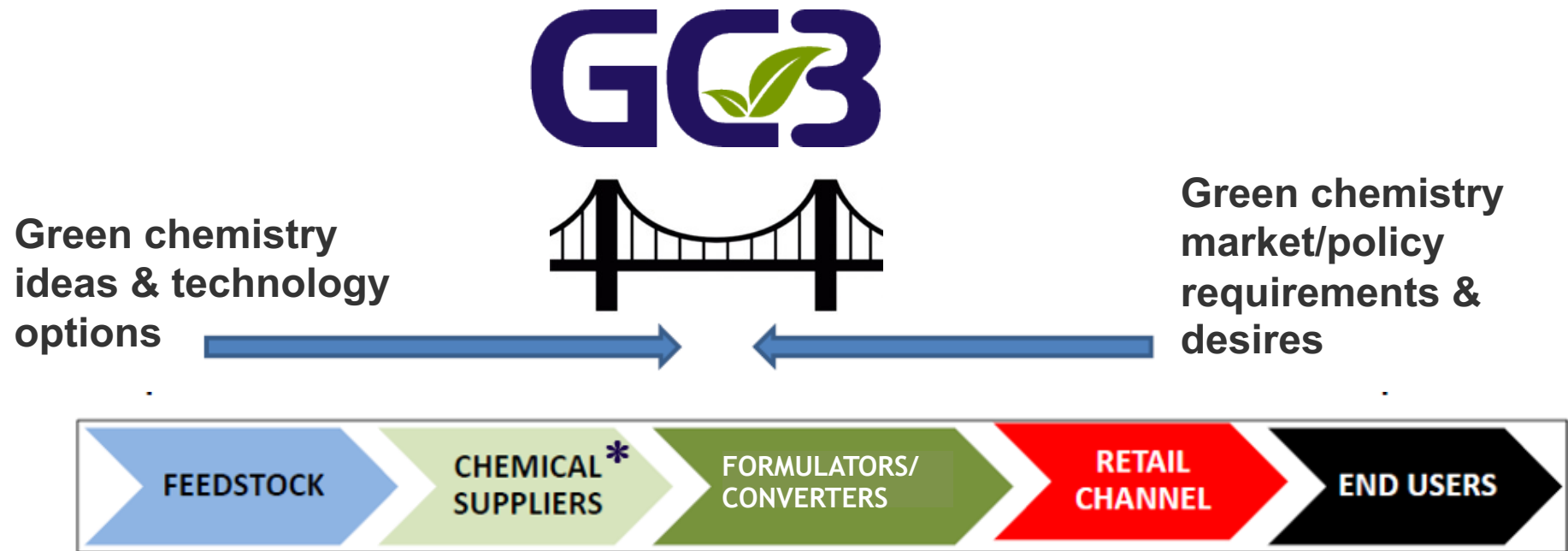
Emerald Kalama Chemical LLC

MilliporeSigma

Yordas Group



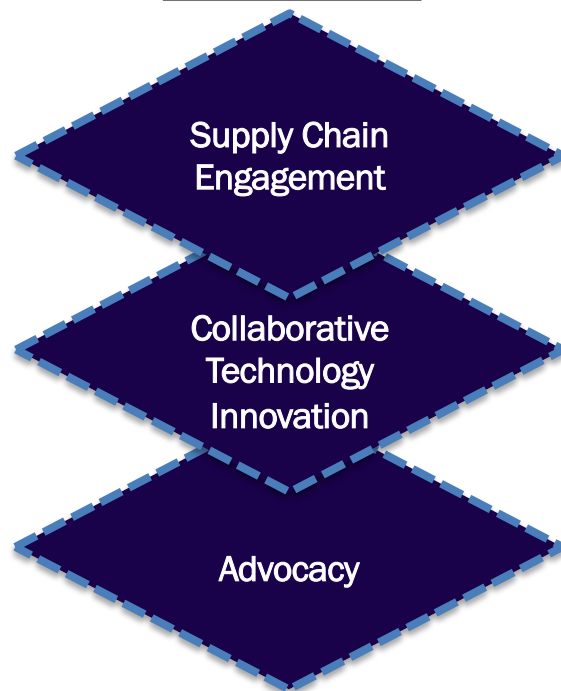
# GC3: Bridging the Supply Chain to Accelerate Green Chemistry Innovation



\* Established companies & startups

# Accelerating the Commercialization of Green Chemistry: Major GC3 Platforms and Projects

## Platforms



## Projects





# Next Steps

Build on our unique niche, recognition, foundations, and core strengths to position GC3 as a thought leader, influencer, and connector with deep knowledge of the green chemistry innovation ecosystem.

# New Strategic Initiatives

- Member development at the C-Suite level
- Building the foundations for a GC3 Europe
- Initiating a GC3 Supplier Working Group
- Building a home for the field of alternatives assessment – Association for the Advancement of Alternatives Assessment (A4)



# Leveraging Strategic Partnerships



**Ø ZDHC**  
Zero Discharge of  
Hazardous Chemicals



And many others...



# Connecting to emerging global themes driving action



## OUTLINE OF A CIRCULAR ECONOMY

### PRINCIPLE 1

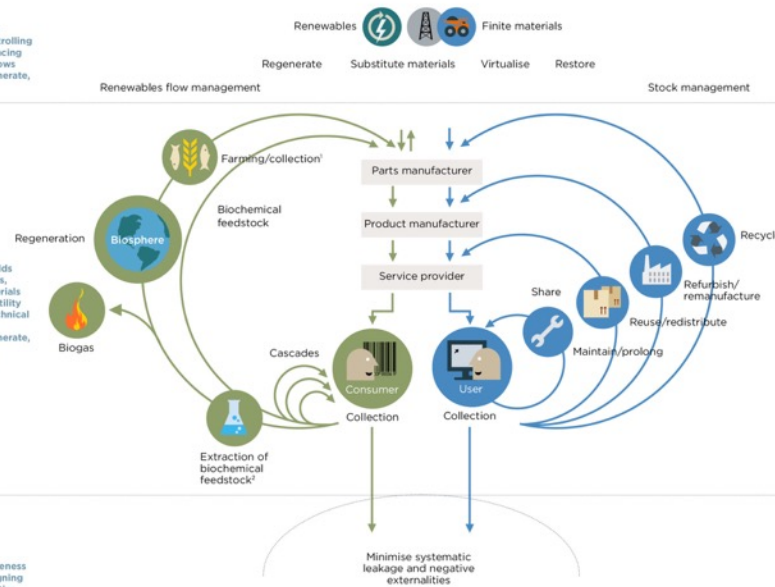
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
RESOLVE levers: regenerate, virtualise, exchange

### PRINCIPLE 2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
RESOLVE levers: regenerate, share, optimise, loop

### PRINCIPLE 3

Foster system effectiveness by revealing and designing out negative externalities  
All RESOLVE levers



<https://www.un.org/sustainabledevelopment>  
<https://www.ellenmacarthurfoundation.org/circular-economy/interactive-diagram>  
<https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook>



# Much has changed since we started in 2005

- Policy and market drivers
- Proactive sectoral and value chain engagement
- Focus on solutions
- Green chemistry is slowly becoming mainstream...but we have a long way to go

## An Agenda to Mainstream Green Chemistry

Green Chemistry & Commerce Council



# 2005

“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.”

*- Roger McFadden, VP of Innovation, Canberra Corp.*

# 2018

“We must innovate or die.”

- *Chemical Industry Executive*

# On opportunity to transform the GC3 to scale our impact...

- GC3 is situated to capitalize on the significant increase in demands for sustainable chemicals and products in the marketplace
- GC3 has been successful in shifting discussion on chemicals challenges from “avoiding bads” to innovation to solve technology needs
- GC3 is in a unique position to catalyze action and collaborations that fill gaps in scalable green chemistry solutions across sectors
- GC3’s recognition as a highly respected convener of the full value chain allows it to apply its to effectively leverage drivers for green chemistry



# Strategic Organizational Planning to Expand the Impact of the GC3

1. Develop and execute a 3-5 year organizational plan
2. Institutionalize lessons from successful programs and develop processes to extend impact and support their replication
3. Strengthen GC3 “trustmark” and brand in the green chemistry space
4. Develop sustainable revenue streams to support growth
5. Guide GC3 Programming to be focused on key trends and opportunities

Schaffer & Combs  
Consulting for Visionary Organizations



Green Chemistry & Safer Alternatives Innovation

Grant Recipients

#### Advancing Green Chemistry

*Program Name:* Science Communication Fellows Program

*Description:* The Green Chemistry Science Communication Fellows Program trains emerging science leaders to effectively engage with media and the public about rapidly evolving research at the intersection of environmental health and green chemistry. Fellows leave the program equipped to build strategic collaborations with other researchers, attract vital research funding, provide validity to the need for safer materials, and influence companies and decision makers to adopt the best science for a greener future.

#### Beyond Benign, Inc.

*Program Name:* Toxicology for Chemists: Designing Safer Alternatives

*Description:* The Toxicology for Chemists program will support current and future scientists to better understand molecular hazard and the intentional design of chemical products with reduced hazards through creation of an open source curriculum.

#### Green Chemistry & Commerce Council (GC3)

*Program Name:* Amplifying the Impact of the GC3 in Commercializing Green Chemistry

*Description:* The 125-member GC3 brings together the entire value chain from start-ups to chemical producers, to product manufacturers, brands and retailers to accelerate the commercialization of green chemistry solutions. This investment will leverage over a decade of successful collaborative GC3 programs to significantly grow the impact of the GC3 across global supply chains. Among the areas of focus for this work are development of a three-to-five-year strategic plan, transformation of the organization and its structure, and strengthening the brand and financial model.



**Join us in shaping this journey.....**



# Logistics

- Agenda
- Reception
- Logistics
- GC3 Advisory Board/Team
- Evaluations

# Roundtable Desired Outcomes

- Gain insights to enhance impacts and effectiveness of green chemistry projects
- Catalyze new partnerships among GC3 members
- Learn about the latest innovations in green chemistry design and commercialization
- Build connections between green chemistry and other important sustainability efforts
- Empower GC3 members as green chemistry change agents

# GC3 Advisory Board



**Tammy Ayers**  
Steelcase



**Bob Buck**  
The Chemours  
Company



**Mike Elder**  
Novozymes



**Paul Ellis**  
Kingfisher



**James Ewell**  
GreenBlue  
Institute



**Tess Fennelly**  
Remooble



**Eunice Heath**  
Dow



**Al Innes**  
State of  
Minnesota



**Bob Israel**  
Sherwin-Williams  
Company



**Roger  
McFadden**  
Canberra Corp.



**Darcy Prather**  
Kalion, Inc.



**Homer Swei**  
Johnson & Johnson



# GC3 Team

- Joel Tickner, Executive Director
- Michele Jalbert, Chief Operating Officer & Co-Director, GC3 SCA
- Jennifer Landry, Business Manager
- Stephanie Malicki, Project Assistant
- Rachel Simon, Supplier Engagement Lead and Manager, A4
- Sally Edwards, Director of Retail Engagement
- Monica Becker, Director of Collaborative Innovation
- Julie Manley, Startup Network Coordinator
- Michael Parr, Co-Director, GC3 SCA



# 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

# Anti-Trust Statement

- The GC3 is committed to facilitating a robust, open and honest exchange of ideas and information among its participants on subjects relevant to this agenda. It is also committed to compliance with all applicable laws, including antitrust and competition laws.
- To avoid any possible problems, communications and exchanges of information at or attendant to any GC3-related proceeding should directly relate to the issues on the agenda.
- There should be no discussions or exchanges of information regarding (1) what price any participant has or may charge for its products or services; (2) strategic business plans or (3) whether or not to do business with any person or entity.
- Please let Joel Tickner or Michele Jalbert know immediately if you have a concern or question about a possible violation of this policy.



# Join the Conversation on Social Media



**Twitter**

**Tag: @The\_GC3**



**Instagram**

**Follow: thegc3**

**Hashtag: #GC3RT**

# WIFI ACCESS

Please use network code,  
no password:

**REDSWIFI**



# Retail Leadership Council (RLC)

Established in 2013 to promote safer chemicals, materials and products across retail supply chains.

## Focus:

- Share challenges and best practices
- Engage in customer/buyer /supplier education
- Share resources

(<https://greenchemistryandcommerce.org/resources/retailer-tools/retailer-tools/>)



# Engagement of Chemical Suppliers 2014-2016

**JOINT STATEMENT ON USING GREEN CHEMISTRY AND SAFER ALTERNATIVES TO ADVANCE SUSTAINABLE PRODUCTS**

Retailers are on the front lines of consumer concerns about the health and environmental impacts of chemicals in products. In response, retailers want to leverage their ability to help catalyze innovation and new solutions. Since spring 2014, thought leaders from seven major retailers<sup>1</sup> and five major chemical manufacturers<sup>2</sup> have been in dialogue about improving product sustainability and finding ways to accelerate the development and scale up of green chemistry solutions as well as increase transparency in the value chain. Green chemistry, focused on the design and application of safer chemical products and processes, is a core element

of many firm's sustainability and/or sustainable chemistry programs. Retailers have shared feedback from their customers, their concerns about hazardous chemicals in products, and their priorities for safer products. Chemical manufacturers have shared publicly available information on their research, development, and commercialization processes, their processes for evaluating product safety and sustainability, the types of information they need to make the business case for pursuing green chemistry solutions, and their challenges in bringing these alternatives to market.

**GC3 GREEN CHEMISTRY & COMMERCE COUNCIL**  
Business Mainstreaming Green Chemistry

Developed by the Green Chemistry & Commerce Council (GC3) with participation from the following companies:




The image shows a grid of logos for the participating companies. The logos are arranged in three rows. The first row contains Walmart, Staples, Target, and BASF. The second row contains The Home Depot, Chemours, Best Buy, and Dow. The third row contains AkzoNobel, CVSHealth, and Eastman.

- Goal setting and continuous improvement
- Communication
- Transparency
- Information on new chemicals and safer alternatives
- Green chemistry education

<http://greenchemistryandcommerce.org/projects/retail>

# RLC 2016-2019

- Implement Joint Statement and discuss internally and with supply chains
- Continue building understanding of challenges and collaborative opportunities
- Provide clearer, collective signals to brands and chemical suppliers of innovation and transparency needs
- Better link to GC3 Collaborative Innovation projects



**Statement on Chemical Innovation Priorities and Transparency Road Map**  
MAY 2019

Retailers play a key role in the supply chain as the interface between product manufacturers, brands, and customers. They face challenges in gathering information about chemicals in the products they source and sell, determining whether ingredients are of potential concern to human health and the environment and, if so, finding safer alternatives that are effective, affordable, and meet customer demand.

Understanding the unique role of retailers in the chemical supply chain, the GC3 created the Retailer Leadership Council (RLC) in December 2013. Its mission is to: promote safer chemicals, materials and products across retail supply and value chains. Current members of the RLC include **Amazon, Best Buy, CVS Health, Home Depot, Kingfisher Plc, Lowe's, Staples, Target, and Walmart**. Each of the participating retailers has its own approach to improve the sustainability of its product assortment through safer chemistry. RLC members share a commitment to having an open dialogue to promote green chemistry research, development, education, adoption and scale-up.

From 2014-2016, the RLC engaged in a structured dialogue, facilitated by the GC3, with five major chemical manufacturers: Akzo Nobel, BASF, Chemours, Dow, and Eastman. The RLC requested this dialogue to share information about the demand signals for safer products that they were hearing from their customers and to understand from these chemical manufacturers how to accelerate the development and scale up of green chemistry solutions and increase transparency in the value chain. This dialogue resulted in the publication in 2016 of the **Joint Statement on using Green Chemistry and Safer Alternatives to Advance Sustainable Products**.<sup>\*</sup> Since that time, each participating company has been working to implement the five elements of the Statement, which include: goal setting and continuous improvement, communication, transparency, information on new chemicals and safer alternatives, and support for green chemistry education. The signers of the Joint Statement encourage any company that is part of the chemical supply chain to use the Joint Statement as a framework to enhance its chemicals management program.

The RLC created this **Statement on Chemical Innovation Priorities and Transparency Road Map** to help execute several key elements of the Joint Statement, including goal setting and transparency. Although each participating retailer has a different product assortment and therefore a different set of priorities for safer chemistry, the RLC has now collectively identified a set of chemical and application priorities for innovation in safer alternatives. (See table on reverse.)

\* Participating retailers at that time included: Best Buy, CVS Health, Home Depot, Staples, Target, and Walmart.

# GC3 Preservatives Collaborative Innovation Challenge

## GC3 Preservative Challenge Sponsors

### CPG Companies

[Babyanics](#)

[Beautycounter](#)

[Beiersdorf](#)

[Colgate-Palmolive](#)

[J&J](#)

### Retailers


[Target](#)

[Walmart](#)

### Preservative Suppliers

[Dow](#)

[Lonza](#)



Source: The Green Chemistry & Commerce Council  
August 06, 2018 08:30 ET

**The Green Chemistry & Commerce Council (GC3) and InnoCentive Announce Award Recipients in the Challenge for Novel Green Preservatives**

Seven Innovators Receive Awards in Unique Collaborative Challenge for Green Chemistry Innovation in Preservative Technologies

Lowell, MA, Aug. 06, 2018 (GLOBE NEWSWIRE) -- The Green Chemistry & Commerce Council (GC3) and InnoCentive are pleased to announce seven winners in the global GC3 challenge. [Developing New Preservatives for Personal Care & Household Products](#). Launched in April 2017, the challenge aimed to identify and support innovators developing preservative technologies with improved environmental, health and safety profiles for use in cosmetics, personal care and household products.

Preservatives are incorporated in products such as shampoos, hand creams, and laundry detergents to slow microbial growth and prevent contamination and spoilage. There is an urgent need for green chemistry innovation in preservative technologies because regulations, market demands and increasing consumer interest have shrunk the palette of acceptable preservative options for formulators. The GC3 Preservatives Challenge sought submissions on new broad spectrum or single action chemical agents on gram-positive bacteria, gram-negative bacteria, yeast and mold, as well as preservative boosters.

Challenge sponsors and participants represented the entire value chain, with 11 consumer packaged goods (CPG) companies, two major retailers and five suppliers: Babyanics, Beautycounter, Beiersdorf, Colgate-Palmolive, Johnson & Johnson Consumer (J&J), Kao USA, Method – People Against Dirty, Procter & Gamble (P&G), Rieckit Bendisier (RB), SC Johnson, Unilever, Target, Walmart, Dow Microbial Control, Lonza, Schülke, Symrise, and Thor, as well as the Environmental Defense Fund and the Minnesota Pollution Control Agency.

The challenge drew 48 innovative technology submissions from around the globe that were judged by a panel of expert microbiologists, product formulators, and safety experts from sponsoring CPG companies and others. After the submissions were formulated into three simple products, the preservative technologies were evaluated for safety and efficacy by contractors Syracuse Research Corporation and Cosmetech, respectively. The innovators received the results from the safety and performance evaluations and feedback from the judges.

Below are the seven finalists that received portions of the prize pool of \$175,000:

1st place award recipients:

- Avisco Ltd.
- IMD Natural Solutions GmbH
- Irena Jevlov Research & Innovation
- United States Department of Agriculture/People Against Dirty/Berkeley Center for Green Chemistry/University of Victoria/Safer Made

2nd place award recipients:

- Hydromer, Inc.
- Russian Academy of Sciences

3rd place award recipient:

- Chinova Bioworks

	GENERAL CRITERIA (For Personal Care, Household, and Natural/Organic Products)	ADDITIONAL WANTS
<b>1. Performance</b>		
Activity	Broad spectrum activity: gram-positive & gram-negative bacteria, yeast & mold	Not likely to build microbial resistance
	In formulation, at use levels, meets preservative challenge test acceptance criteria (e.g., USP 51, CTFA M-3, or similar)	
	Low number of ingredients needed to get broad spectrum activity (ideally 1 - 3 ingredients)	
pH Activity	pH 5 – 8	pH 5 – 10, best is pH 2 – 11
		Shelf life of 3 years
		Stable from 25 to 50°C
		UV stable for 3 months in package



Solvers Our Offering Challenge Center Resources



**GC3 Challenge: Developing New Preservatives for Personal Care & Household Products**

TAGS: [Chemistry](#) [Environment](#) [Life Sciences](#) [Physical Sciences](#) [Public Good](#) [Requests for Partners and Suppliers](#)

RTP

AWARD: **\$175,000 USD** DEADLINE: **Aug 24 2017 23:59 EDT**  
 ACTIVE SOLVERS: 48 POSTED: Apr 24 2017  
 SOURCE: InnoCentive

Preservatives are substances that are added to products to prevent them from spoiling. These chemicals work by retarding microbial growth and preventing product degradation. In addition to being used in foods, preservatives are added to household and personal care products. Due to concerns about the safety of some preservatives that have been in wide use, and the impact of repeated contact with these chemicals on human health, the Seekers desire new and effective preservatives or preservative boosters with improved environmental health and safety profiles for use in personal care and household products.

The Seekers are looking for submissions on:

1. Broad spectrum or single action chemical agents on gram-positive bacteria, gram-negative bacteria, yeast, and mold
2. Preservative boosters (optimizers or potentiators)/multi-functional ingredients that have a primary non-preserving function, yet enhance antimicrobial efficacy

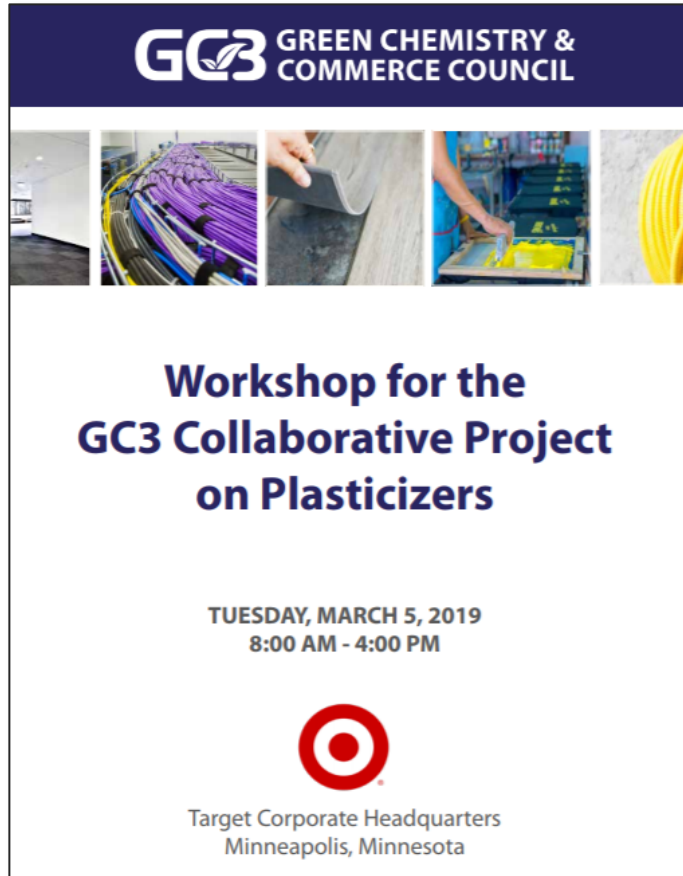
The Seekers expect to award 3 – 5 cash prizes from a prize pool of \$175,000, with a minimum single prize award of \$25,000. No awards are guaranteed unless the submissions meet or exceed the criteria.



# Expanding Collaborative Innovation Efforts

- **Factors for success, based on our experience:**
  - Significant pain point
  - Critical mass of companies with common interest in new technologies or adoption challenges
  - Pre-competitive space for companies to work in
  - Alignment with other GC3 efforts, e.g., RLC
  - Opportunity to partner with strategic organizations/leverage additional resources
- **Drawing on lessons learned:**
  - Significant value across value chain
  - An amplified demand signal for technology scouting efforts
  - Pooling knowhow and resources for better results
  - Derisking of new technologies
  - Pushing the innovation accelerator

# Evolving Collaborative Innovation Efforts




The poster features the GC3 logo at the top left. Below it is a row of five small images: a factory interior, a bundle of purple cables, a person using a tool on a grey surface, a person working with yellow liquid in a tray, and a yellow cable. The main text is centered and reads: 'Workshop for the GC3 Collaborative Project on Plasticizers'. Below this is the date and time: 'TUESDAY, MARCH 5, 2019 8:00 AM - 4:00 PM'. At the bottom is the Target logo and the text 'Target Corporate Headquarters Minneapolis, Minnesota'.

**GC3 GREEN CHEMISTRY & COMMERCE COUNCIL**

**Workshop for the  
GC3 Collaborative Project  
on Plasticizers**

TUESDAY, MARCH 5, 2019  
8:00 AM - 4:00 PM

  
Target Corporate Headquarters  
Minneapolis, Minnesota

- **Past projects:**
  - Plasticizers for wire & cable
  - Preservatives for personal care and household products
- **Current projects:**
  - Surfactants, through a partnership with Nouryon & Unilever
  - Plasticizers in articles
- **Coming up:**
  - Cyclic silicones (Siloxanes - D4, D5, D6) for hair and skincare
  - Solvents?





## ***Creating an innovation ecosystem for green chemistry technologies***

### **Goals:**

- Support green and bio-based chemistry start-ups
- Introduce large strategics to new chemical technologies, partnership and investment opportunities



# Members of the GC3 Startup Network Include:





# GC3 Startup Network

## Main Activities:

- Technology Showcases
- Strategic Connections Program
- Webinars, learning, and networking opportunities
- New partnerships



# GC3 2019 Startup Pitch Competition



Investment Potential Panel  
GC3 Innovators Roundtable  
May 8, 2019



Application  
Process



Internal &  
External  
Review



Semi-Finalist  
Selection



Pitch  
Competition



3  
Winners

# 2019 GC3 Startup Pitch Competition





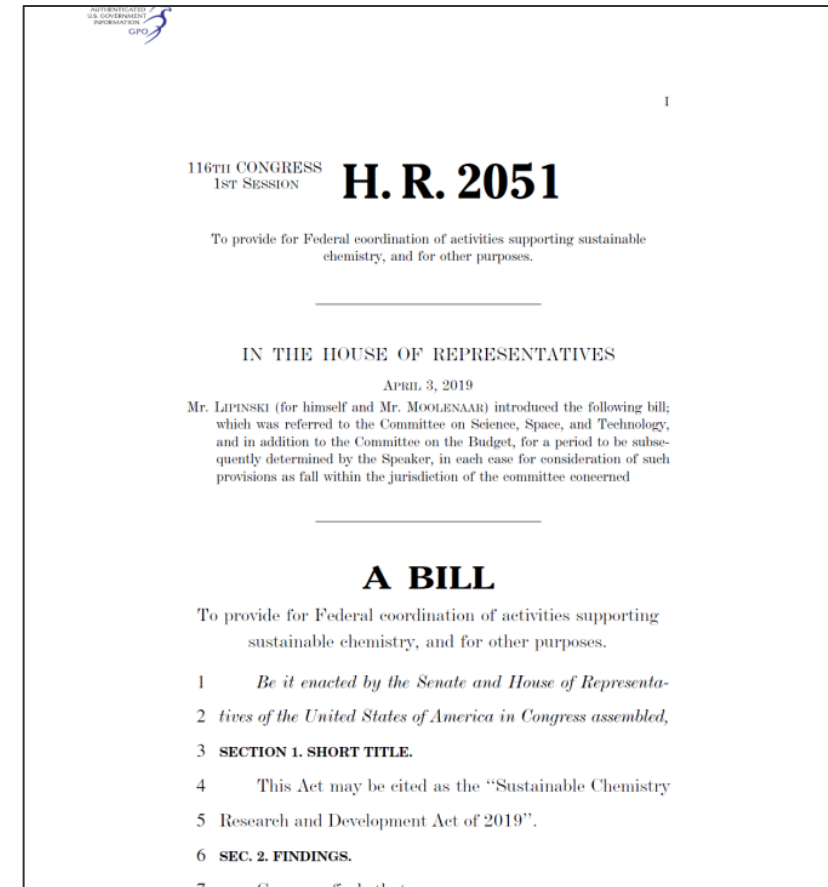
## GC3 Sustainable Chemistry Alliance

- Launched in 2018, led by ten politically influential GC3 member companies across the value chain – currently growing the SCA
- Diverse business-driven advocacy voice for policies to support sustainable chemistry
- Built website and social media presence, developed comprehensive lobbying and communications plan for 2019
- Hosted dozens of hill and agency briefings and met with half of all congressional offices,
- Successfully lobbied with other stakeholders for key changes that increase access to USDA funding programs for bio-based chemicals,
- Leading efforts to build support for bipartisan/bicameral Sustainable Chemistry R&D Act



# GC3 SCA Lobbying Priorities for 2019-2020

- Incentives and support for accelerated R&D
- Incentives and support for accelerated demonstration, adoption, and scale-up
- Education of policy makers
- Through
  - Establishing sustainable chemistry grant program
  - Robust appropriations
  - Sustainable Chemistry R&D Act and emerging legislation





**Thank you!**