Green & Bio-based Chemistry Start-up Event

May 23, 2016
Hilton Burlington Hotel
Burlington, VT



Business Mainstreaming Green Chemistry

MEETING OVERVIEW

In support of our efforts to mainstream green chemistry, the GC3 is seeking to grow and connect a network of small and large companies that are developing, producing, using, and funding green and bio-based chemicals to enable faster market adoption of gamechanging green chemistry solutions.

The goals of our first **GC3 Green & Bio-based Chemistry Start-up Event**are to:

- Support the growth of green and bio-based start-ups by connecting them to suppliers, brands, retailers and investors who can provide insight on their technology needs and interests, provide directional advice, and explore potential partnerships and investments for testing, development, and scale;
- 2. Provide an opportunity for suppliers, brands, and retailers to discover new ingredients and materials for their products, build relationships with innovative start-ups, and find new partnership and investment opportunities; and
- Explore the possibility of creating an on-going, GC3-run networking group for green and bio-based chemistry start-ups.

CONTENTS

About the GC3	3
Start-up Companies	4
Aequor, Inc.	4
Amyris, Inc.	6
Biosynthetic Technologies	8
Connora Technologies	10
GF Biochemicals	12
Mango Materials	14
P2 Science, Inc.	16
Renmatix	18
Rennovia	20
Resinate Materials Group	22
Strategic Advisors	24
Large Companies	26
Venture Capital Funds	31



ABOUT THE GC3

The Green Chemistry & Commerce Council is a cross sectoral, business-to-business network of companies and other organizations working collaboratively to accelerate green chemistry across sectors and supply chains.

AGENDA

Roundtable discussion about strategic needs (Start-ups & Strategic Advisors only)
Coffee break
Welcome and overview of the meeting
Short presentations by start-ups
Networking session
Dinner on your own to continue conversations

THIS EVENT IS ORGANIZED IN PARTNERSHIP WITH:



THIS EVENT IS HOSTED BY:





www.aequorinc.com

REPRESENTED BY:

Marilyn Bruno, CEO Cynthia Burzell, CSO

Aequor has synthesized over 30 biobased chemical analogues of a novel molecule discovered by Aequor's Founder in the Sea. They effectively inhibit the ability of agro-industrial and medical bacteria and fungi to attach to surfaces and colonize. Uniquely, all also remove the resulting biofilm and fouling, have novel molecular structures, are stable and inexpensive to synthesize for incorporation in multiple delivery systems: sprays, washes, pastes, paints, coatings, materials, etc. Aequor is screening each molecule against agro-industrial and medical pathogens with a view towards licensing in defined sectors and territories. Aequor is negotiating with chemical companies to manufacture and distribute the chemicals.

Aequor's chemicals work alone to replace toxic biocides (antimicrobials, antifouling agents, pesticides, antiseptics, antibiotics) or in combination with them to improve their performance at lower concentrations—reducing the toxic load of millions of tons of biocides that accumulate and persist in ecosystems and organisms annually. Aequor's potent antibiofilm/antifouling agents reduce operational inefficiencies (corrosion, scale, slime), contamination, improve yields of all cleantech power technologies (wind, solar, tidal, algae, aquaculture), reduce fouling that requires up to 50% more fuel consumption and noxious gas emissions to overcome clogging and drag in maritime transportation, water treatments, etc.



Partnerships they are seeking:

Licensees for use of one or more molecules in each end-use as regulatory approvals are achieved:

- TSCA: Dispersants for water pre-treatments, ink cartridges, personal hygiene products making no health claims, laundry and household sanitizing agents, etc.
- **EPA:** Antibacterials for preservatives, institutional and clinical sanitizers, water systems, marine antifouling, marine paint, etc.
- FDA: Antiseptics for critical clinical surfaces (instruments, devices, prostheses, implants, etc.), therapeutics, wound treatments and dressings, coatings for devices, new drugs.



www.amyris.com

REPRESENTED BY:

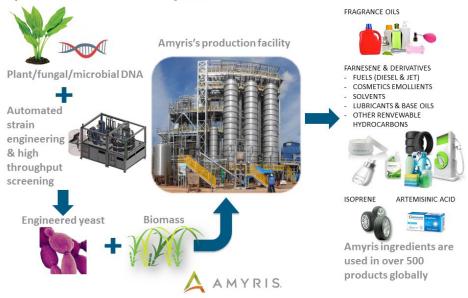
Corbin Johnson, Business Analyst Derek McPhee, Senior Director, Technology Strategy

Amyris is an industrial microbiology company dedicated to providing high-performance alternatives to a variety of chemicals, fuels, and consumer goods. We have created a world-class synthetic biology platform that applies the principles of engineering to biology, pulling together scientists with skills in automation, computing and biology to create an assembly line for genetically manipulating organisms, testing their production of desired compounds, and iteratively learning from this design-build-test cycle. This allows us to continuously improve our designs, reducing both the time and cost to go from concept to commercial viability. The result of this approach has awarded Amyris the distinction of being the only company in our industry to have successfully developed and commercialized multiple molecules. We currently bio-synthetically produce 10 ingredients used in more than 500 end-products. Our portfolio spans from fuels to pharmaceuticals, cosmetic emollients, industrial solvents and fragrance compounds—each reaching commercial production faster than the last.

In addition to speed and versatility to access a wide range of product classes, Amyris is also distinguished because we own and operate our full-scale fermentation facility in Brazil. This reduces the time to market and cost, and allows us to work with our partners to either produce and sell ingredients, or license them the technology and process.



Amyris has proven our technology with over 10 products successfully commercialized



- **Collaborations:** The Amyris model is built on working with strategic partners across multiple industries to develop alternative production sources for ingredients of interest. By collaborating on an R&D project to manufacture compounds in a fermentation system, our partners are rewarded with consistent high-quality, low-cost supply of bio-based ingredients.
- Customers: We are always introducing our existing product lines to companies
 that could benefit from what we're already selling to the market. In addition
 to our F&F molecules through various industry partnerships, this also includes
 myralene (solvent), squalane and hemisqualane (emollients), and various
 farnesene derivatives.



www.biosynthetic.com

REPRESENTED BY:

Greg Blake, SVP Public and Government Relations

Biosynthetic Technologies is commercializing revolutionary renewable chemical technologies by converting plant-derived fatty acids into high-performance synthetic oils able to replace petroleum-based fluids common in motor oil, industrial lubricants, personal care products and other chemical applications; with safer, cleaner alternatives.

These oils have proven particularly effective in motor oil and other industrial lubricants. To demonstrate their effectiveness, Biosynthetic Technologies' has certified SAE 5W-20 and 5W-30 motor oils to the latest industry performance standards set by the International Lubricant Standardization and Approval Committee (ILSAC GF-5) and the American Petroleum Institute (API SN). Both demonstrate a 3% fuel economy improvement and are certified by the USDA's BioPreferred program.

Biosynthetic Technologies' unique chemical ester also functions impressively in personal care applications. When used in skincare, haircare and decorative applications, CocoEstolide imparts a luxurious feel, good absorption and superior functionality as an emollient. The product's excellent oxidative and hydrolytic stability properties provide considerably longer shelf-life than most natural oils.



These USDA developed technologies are successful in overcoming the inherent deficiencies of plant oils while retaining the excellent lubrication and environmental attributes.

Biosynthetic Technologies will soon start construction on a full scale commercial production facility to produce and sell these renewable base oils.

- · Lubricant formulation, demonstration and use
- Policy advocates favorable to the bio-economy
- · Personal care development



www.connoratech.com

REPRESENTED BY:

Rey Banatao, CEO

Connora is a sustainable systems company in the advanced materials industry. Our proprietary technology platform combines novel chemistry, high performance plastics, and an innovative recycling process for next generation technology products such as transportation vehicles, mobile electronics, and consumer goods. The core of our technology is based on our proprietary Recyclamine® chemistry, which is used to make novel classes of recyclable thermosets for composites. Composite waste can be dissolved in a low energy recycling process. Our recycling process returns virgin quality reinforcements and a novel, super adhesive, epoxy thermoplastic that can be injection molded or filmed for use in high performance applications.

Connora is going to market in 2016 by selling Recyclamine epoxy formulations and thermoplastics to composites manufacturers of sporting goods, consumer products, and automotive composites. Connora is targeting electronics, sporting goods and consumer products for near term revenue. Longer term, Connora envisions scaling its Recyclamine sales with the rapidly growing auto composites market. Connora also partners with manufacturers to recycle their production waste. Connora currently has a pilot recycling facility, and can license the recycling technology to third-party recyclers. Reclaimed materials will be sold back to manufacturers or the marketplace.

Connora & Burton: Zero-landfill Manufacturing Project



- Pilot projects for sustainable manufacturing in composites: electronics, auto, aero, wind, transportation, sporting goods, furniture, consumer
- Licensing agreements with chemical manufacturers
- **Equity Investments** or paid development agreements





www.gfbiochemicals.com

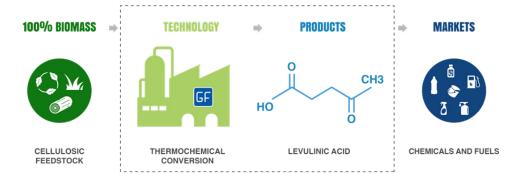
REPRESENTED BY:

Tess Fennelly, Global Business Development

Bringing Levulinic Acid and its value-added derivatives to market

GFBiochemicals is the first company to produce levulinic acid directly from biomass at commercial scale. Levulinic acid was recognized by the US Department of Energy as one of the top biobased building block chemicals of the future. GFBiochemicals has the world's largest levulinic acid plant which started up in 2015. The plant will scale to full capacity of 10,000 MT/year in 2017. With the acquisition of Segetis™ and the Javelin™ value added levulinic derivatives, GFBiochemicals now has a broad and vertically integrated portfolio of levulinic acid derived products. The versatility of the offering includes solvents, platicizers, polyols, intermediates, specialty additives and other products which have application in numerous industries such as Personal Care, Industrial and Home Cleaners, Agriculture, Resins and Coatings, Specialty Additives and others.





- Commercial relationships in the supply chain: can be formulators, compounders, brand owners, or off-take customers
- Partnerships with biomass providers, biomass process experts
- Retail and brand owner relationships that will facilitate pull through of green chemistry technologies
- Collaborative relationships with other suppliers to strengthen
 the growth and penetration of green chemistry solutions, this could
 include licensing.



www.mangomaterials.com

REPRESENTED BY:

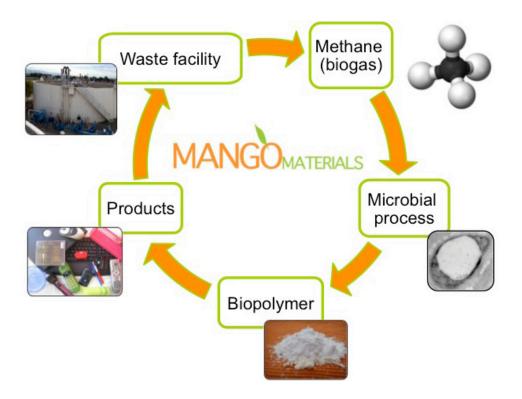
Allison Pieja, Chief Technology Officer

Mango Materials is transforming waste biogas into ecofriendly, affordable materials while creating a positive environmental impact. The company was founded by researchers from Stanford University based on a unique approach to production of polyhydroxyalkanoate polymers (PHAs). PHA biopolymers can be used in a variety of applications and can be a substitute for many conventional plastics goods.

Mango Materials has developed a unique process technology platform to produce these biopolymers from low-cost, globally abundant waste biogas (methane) such that they are cost competitive with conventional oil-based plastics. Mango Materials' unique process uses rapidly renewable waste methane and a fermentation process in which bacteria are naturally selected to produce low-cost, biodegradable materials. The company has scaled its conversion process technology to pilot scale (500L reactor) at its partner methane site, Silicon Valley Clean Water (a waste water treatment plant in Redwood City, CA).

Mango Materials is initially targeting applications where biodegradability is key, such as microbeads in cosmetic products; however, the biopolymer may be used in a variety of applications. Mango Materials will produce pellets of biopolymer and sell these to plastic manufacturers to be formed into useful products.





- **Joint development partnerships** to advance application and product development
- Strategic partners
- Contract R&D





www.p2science.com

REPRESENTED BY:

Neil Burns, CEO Patrick Foley, CSO

P2 is a renewable specialty chemical company. We use a patent pending chemical oxidation process which is low cost, scalable and safe vs. the alternatives in use today. The process is used to convert unsaturated feedstocks into products for use in flavors & fragrances, cosmetics, polymers, lubricants, surfactants and other markets. The company is running a 10's of kg per day continuous pilot production system in is its Woodbridge, Connecticut laboratory. We are in the process of raising equity financing for a 300 MT/yr production plant. 90% of this capacity is covered by customer commitments. We are interested in connecting with consumer goods companies who are looking to improve renewability, costs and performance.

- Consumer product manufacturing companies
- · Polyamide and polyester manufacturers



www.renmatix.com

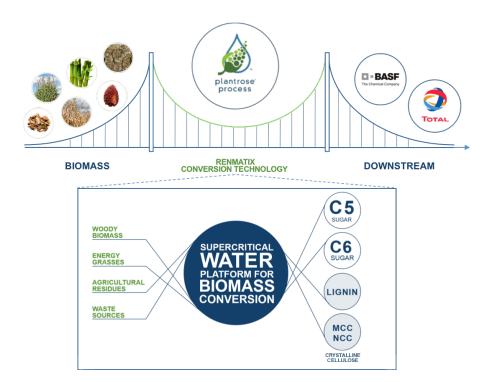
REPRESENTED BY:

Duncan Cross, Vice President, Corporate Development Jeremy Austin, Director, Business Development

Renmatix's technological innovation, the use of water-based chemistry instead of enzymes, and/or acids, provides a cleaner, faster, and lowercost method for deconstructing non-edible biomass into cellulosic sugars, and other bio building blocks. Those sugars become the starting point for a multitude of renewable downstream partner technologies that serve significant biobased market demand, from many product categories. Co-products, like clean lignin solids (Omno™ polymers) and a unique Crysto™ cellulose can be utilized in applications such as adhesives, thermoplastics, or pharmaceuticals today, and higher performance applications like green building and construction materials or carbon fiber, tomorrow. The company's patented Plantrose® technology won the 20th Annual Presidential Green Chemistry Award last year.

Renmatix's proven breakthrough is its ability to deliver practical economics for cost-competitive cellulosics. With current co-product valorization, the technology goes beyond competing with first generation sugars, to compete with traditional petrochemical equivalents (a historical costbarrier that has severely limited the broad integration of cellulosics into large scale production and sustainable manufacturing). BASF and French energy major TOTAL are two of Renmatix's prominent strategic investors and joint development partners. Renmatix enables customers to build their own biorefineries by licensing the Plantrose process to convert locally available plant material into bio building blocks, for the sustainable substitution of biochemical manufacturing ingredients worldwide.





- Those looking for cellulosic sugar derived ingredients (or currently using 1st gen, evaluating options to get to 2nd gen) in their value chains
- JDA partners who want to understand specific market applications, and develop solutions for them that take advantage of novel biobased materials (like clean lignin or spherical crystalline cellulose) for sustainable substitution or new product development
- Those with identified "waste/scrap" streams who are looking to convert such underutilized feedstocks into materials within their own manufacturing process
- To work with companies that understand the marketing-value inherent in these green chemistry success stories, or want to explore consumer insights in market research targeting the benefits and relevance of such work





www.rennovia.com

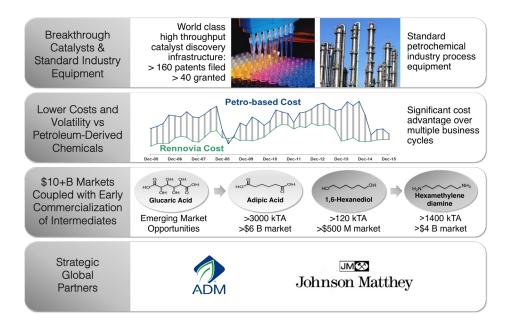
REPRESENTED BY:

Tim Dummer, VP Commercialization

Founded in 2009 Rennovia has focused its unique High Throughput Experimentation (HTE) capabilities to develop breakthrough catalysts and processes for the production of cost advantaged "drop-in" chemicals from sugars.

The first product platforms that we are commercializing include cost advantaged, 100% bio-based, drop-in intermediates for the \$10+B nylon and polyurethane polymer markets—including 1,6-hexanediol (HDO), hexamethylenediamine (HMD) and adipic acid (ADA).

We are finalizing the engineering designs for commercial scale chemical plants and are actively seeking strategic partners and investors to accelerate the commercialization of these first products and expand the pipeline of products using our HTE technology.



- Strategic investment, e.g. Series-C funding
- Strategic partnerships, e.g. JVs to make & sell cost advantaged bio-based chemicals
- **Technology partnerships**, e.g. JDAs to develop & commercialize additional chemicals



www.resinateinc.com

REPRESENTED BY:

Kris Weigal, Business Director/Chief Commercial Officer Adam Emerson, Director Laboratory Operations

Resinate is committed to Performance-driven green chemistry™.

- Resinate® 1000MW polyols outperformed conventional 1000MW polyols in 2k coating formulations
- Resinate® polyols delivered balanced performance across key coating test methods
- Resinate® polyols are priced comparably to conventional specialty polyols

Resinate is turning waste streams into high-performance polyols

- Most Resinate® high-performance polyols contain over 60% recycled content
- · Recycled PET is a key ingredient in Resinate polyols, supported by other proprietary recycled ingredients



 Resinate has filed more than 16 patent applications on recycled content chemistry

Resinate has the capabilities to deliver on our promises

- Resinate has the technical expertise to address customer challenges, with scientists who bring experience from the biggest names in chemistry
- Resinate has reliable supply chain capabilities
- Resinate has 8200 square feet of dedicated R&D and lab facilities, supported by a talented technical team

Resinate is working to advance the Circular Economy

- Resinate collaborates with like-minded companies to advance sustainability and green chemistry
- Resinate lives its core values of environmental and social commitment through employee service projects
- Resinate uses renewable resources to supplement our recycled content, creating polyols which are up to 100% green

- Innovative and flexible companies who have a sense of urgency to embrace the circular economy and develop and commercialize products from recycles and renewable content
- Large quantity purchases of Resinate Materials Brand Polyols or joint applications development or licensing agreements



Strategic Advisors

A.J. (Sandy) Marshall

Chairman, Board of Directors, Bioindustrial Innovation Canada

Sandy Marshall is a Senior Executive with strategic planning and general operations management expertise gained through 30 years experience in the polymer and chemistry industries in Canada, Germany and the United States. A seasoned Chemical Engineer and an innovative thinker, he is recognized for strong leadership, negotiation and relationship building skills. His experience includes P&L responsibility, R&D scale-up, market development, Board of Directors membership and interaction with government at the federal, provincial and local level. Sandy is a leader recognized for his commitment to environmental sustainability in Canada.

Andrew Corr

Managing Director, Accenture Strategy

Andy is a Managing Director at Accenture Strategy with over 25 years of experience as an entrepreneur, strategic advisor, and business leader. Andy has worked extensively with both early stage and mature companies in the chemicals, environmental, consumer, and industrial technology spaces. He has a passion in maximizing value and building capabilities through transformational programs in sourcing, manufacturing, supply chain, and product development. Andy brings broad operational and strategy experience serving Fortune 500 companies, and through practical experience building companies that have provided solutions for both the industrial and consumer markets. Prior to joining Accenture Strategy, Andy was the SVP of Consumer and Industrial Ingredients at Elevance, a renewable chemicals company, spent seven years at McKinsey & Co. as a leader in the Energy and Materials Practice, and started and built a regional commercial and industrial water treatment business in Eastern Europe. Andy has an MBA with high honors from the University of Michigan Ross School of Business, where he also received the Zell Lurie Entrepreneur of the Year, and has a BA from The George Washington University in International Affairs and Economics.



Andrew Shafer

Strategist & Business Builder, Shafer's Innovation and Business Building Services

A founder of two leading bio-material companies with a long track record establishing compelling value propositions, creating growth from disruptive innovations, building corporate and product brands, and establishing and leading business strategies, commercial capabilities and teams, Andy is now helping large and emerging companies build their businesses and innovate. His background as an executive at Elevance Renewable Sciences, Inc. and with NatureWorks, LLC, Cargill, Inc. and The Dow Chemical Company gives him a unique understanding of the dynamics required for success at both start-up and Fortune 50 multi-national companies. Andy has a bachelor's degree in chemical engineering from the University of Notre Dame with an MBA from the University of Minnesota's Carlson School of Management.

Babette Pettersen

Green Chemistry Executive

Babette Pettersen has held numerous leadership roles focused on the development and commercialization of green chemistry technologies. She has served as Chief Commercial Officer as well as a Senior Advisor to BioAmber Inc., a market leader in bio-based succinic acid and a pioneer in renewable chemicals. Babette built BioAmber's commercial team to develop applications for bio-based succinct acid across multiple markets. Under her leadership, Babette's team created market demand for, and accelerated market adoption of, more sustainable solutions throughout the value chain that are based on green chemistry. Before joining BioAmber, Babette led new business development for Performance Materials at Royal DSM. Prior to DSM, she held Marketing & New Business Development roles in different industry groups at Dow Corning. Babette has a BSc in Biology from Wellesley College, USA and an MBA from INSEAD. France.



Large Companies



3M

Maureen Kavanagh, Technical Manager, Corporate R&D/Materials Laboratory



BASF

Denise Petersen, Sustainability Manager



Beautycounter

Mia Davis, Head of EHS
Nicole Acevedo, Science Director
TECHNOLOGY INTERESTS: As a skin care/beauty
company, we are most interested in safer yet
effective: preservative solutions, alternatives
to silicones, new surfactants, natural colorants,
and bio-based plastic packaging.

Beiersdorf

Beiersdorf Inc

Alexandra Kowcz, VP, US R&D
TECHNOLOGY INTERESTS: Finding green
replacements for specific ingredient classes,
for example: preservatives for the personal
care industry, replacements for microplastics,
and replacements for mineral oil



Burton Snowboards

Ali Kenney, Director—Global Sustainability **Mitch Krauss**, Sustainable Production Manager

TECHNOLOGY INTERESTS: Durable water repellants, epoxies, lacquers, plastics, and technical fabrics





The Chemours Company

Bob Buck, Technical Fellow, Sustainability **Robert Giraud**, Principal Consultant, Engineering Technology



Covestro

Sharon Papke,

Director, Coatings, Adhesives & Specialties TECHNOLOGY INTERESTS: Covestro has more than 75 years of experience in polyurethane (PU) chemistry research and development. We continue to develop PU raw materials for coatings, adhesives, foam, and specialty systems for use in many industries and applications. We additionally provide high quality polycarbonate products that foster automotive light weighting and innovative building materials. Our attention is in new and unique materials and processes that provide additional value to our customers to allow them to improve their product resiliency and performance. Our interests span bio-based raw materials to 3D printing processing.



Designtex

Adity Phadnis, Product Services
TECHNOLOGY INTERESTS: Non-PFC finishes,
non-halogenated FRs, alternatives to PVC,
performance coatings, and bio-based
materials.



Dow Chemical Company

Eunice Heath, Global Director, Sustainability



EASTMAN

Eastman Chemical Company

Marc Schurger, Director Public Policy
TECHNOLOGY INTERESTS: Eastman is one of
the world largest players in cellulosic chemistry.
We esterify cellulose with various low molecular
weight organic acids to make a variety of products (coatings chemicals, fibers and plastics).
We also have lines of non-bio-based copolyesters, solvents, and novel esters (e.g. our
GEM™ technology). We are always looking
for bio-based alternatives.



GOJO Industries, Inc.

Antonio Quinones-Rivera, Product Safety Manager

Joe Sarley, Director of Product Development



Herman Miller

Denise Van Valkenburg, Sustainability Manager



HP Inc.

Barbara Hanley, Regulatory Affairs & Chemical Compliance Manager



Al lannuzzi, Senior Director, Environment, Health, Safety & Sustainability



L'Oreal

Jeanne Chang, AVP Research & Innovation



LEVI STRAUSS & CO.

Levi Strauss & Co.

Bart Sights, Vice President, Technical Innovation Linda Gallegos, Innovation Project Manager TECHNOLOGY INTERESTS: Materials/technologies that work with cellulosic fabrics, primarily cotton and denim. Performance attributes range from PFC Free durable water repellency treatments, stain release/repellency, antimicrobials/preservatives, water savings technologies in fabric and garment finishing.



Lowe's

Michael Chenard.

Director Corporate Sustainability



New Balance

Greg Montello, Manager, Product Chemistry **TECHNOLOGY INTERESTS:** Bio-based materials



Nike

Samantha Shintay, Chemical Researcher, Material Science Innovation



Novozvmes

Arlan Peters, Head of Sustainability



Procter & Gamble

Mike Jensen, Director Research & Development Todd Cline, Fabric Care Section Head— Research & Development



Replenish

Roger McFadden, Chief Science and Sustainability Officer







Michael Greene, Sr. Marketing Manager, Casting & Release Paper

TECHNOLOGY INTERESTS: Laser engraving, photolithography, and functional textures



SC Johnson & Son

Marie-Esther Saint Victor.

Principal/Technology Leader, Operations Excellence/Science & Technology



Schulke & Mayr

Klaus Weber, Head of Product Development SAI Christine Oleschkewitz, Special Additives International Product Manager



Seventh Generation

Kay Gebhardt, Scientist, Consumer Science



Steelcase

Garah Luff, Sustainability Analyst **Megann Head**, Environmental Design Engineer,
Global Sustainability

TECHNOLOGY INTERESTS: Substrates for horizontal surfaces; New stain/non-stick treatments with low persistence, bioaccumulation, and toxicity; Materials that can pass vertical burn tests without added FRs; High performance adhesives, possibly bio-based



Target

Chris Uecker, Senior Scientist, Product Development

TECHNOLOGY INTERESTS: Non-ethoxylated non-ionic surfactants/fragrance solublizers; biobased solvents; non-food bio-based feedstocks (e.g. algae, cellulose, etc.)





Valspar

Terri Ziegler, Manager, Global Innovation Practices

TECHNOLOGY INTERESTS: Monomers/building blocks for making polymers of various types (acrylics, polyesters, epoxies, etc.). In particular, "new" building block structures that may impart different performance compared to the raw materials we use today (vs. just hearing about biobased sources of conventional materials). Solvents or other materials that would not contribute to VOC content.



VF

Emily Alati, Director, Material Innovation, Global Innovation Center

Margaret Morey-Reuner, Director, Business Strategy, Timberland

TECHNOLOGY INTERESTS: Any new technology/ chemistry/material that might work in the Footwear and Apparel product categories. This could be anything from water/stain resistant treatments to anti-odor technologies to new rubber/foam/polymers with enhanced performance or even additives for those materials that increase longevity or recyclability

Venture Capital Funds







ecosVC, Inc.
Judith Giordan,
VP, Managing Director
Lawrence Friedman,
Business Manager

First Green Partners

Doug Cameron,

Managing Director

Safer Made Adrian Horotan,
Partner

