



**AkzoNobel's Startup Challenge Imagine Chemistry:  
Advancing Sustainability Through Collaborative Innovation**

December 12, 2017



# What is the GC3?

- A cross-sectoral, full value chain business membership organization
- A convener of collaborations to advance green chemistry innovation & practice
- An advocate for government policy & funding that advances green chemistry R&D and innovation

**Mission:** To make green chemistry standard practice – **Mainstream** – in industry, for innovation, public health, and environmental protection



# More than 120 Members Across Sectors and the Value Chain





# GC3 Green & Bio-based Chemistry Startup Network

*Creating an innovation ecosystem for green and bio-based  
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 Technology Showcases



Workshop on Leveraging Partnerships to Accelerate Green & Bio-Based Chemistry Innovation



February 1, 2017

Hosted by **LEVI STRAUSS & CO.**

<http://greenchemistryandcommerce.org/startup-network/>



# 3<sup>rd</sup> Annual Green & Bio-based Chemistry Technology Showcase & Networking Event

May 8, 2018



**GC3**  
**INNOVATORS  
ROUNDTABLE**  
May 8-10, 2018 • Kingsport, TN  
Hosted by  
**EASTMAN**



## GC3 Innovators Roundtable



# Today's Speakers

**Danny Haynes**



Common Application Team Leader  
and Challenge Team Member  
Imagine Chemistry 2017

AkzoNobel Specialty Chemicals

**Lennaert Klerk**



Common Application Team Leader  
AkzoNobel Specialty Chemicals

**Jeremy Austin**



Director, Business Development  
Renmatix

# Ground Rules

- Due to the number of participants in the webinar, all lines will be muted
- If you have a question or comment, please type it in the “Questions” box located in the control panel
- Questions will be answered at the end of the presentation

# Imagine Chemistry

The AkzoNobel chemicals startup challenge

Powered by KPMG



# Our challenge: make more, with less

AkzoNobel

Bio-based  
raw  
materials

Energy  
efficiency

Circular  
production

Bio-  
degradable  
products

The industry needs to provide a growing population with affordable essential products in a sustainable way.

# Innovation in Specialty Chemicals

AkzoNobel

Invested in  
RD&I per year

€100mIn

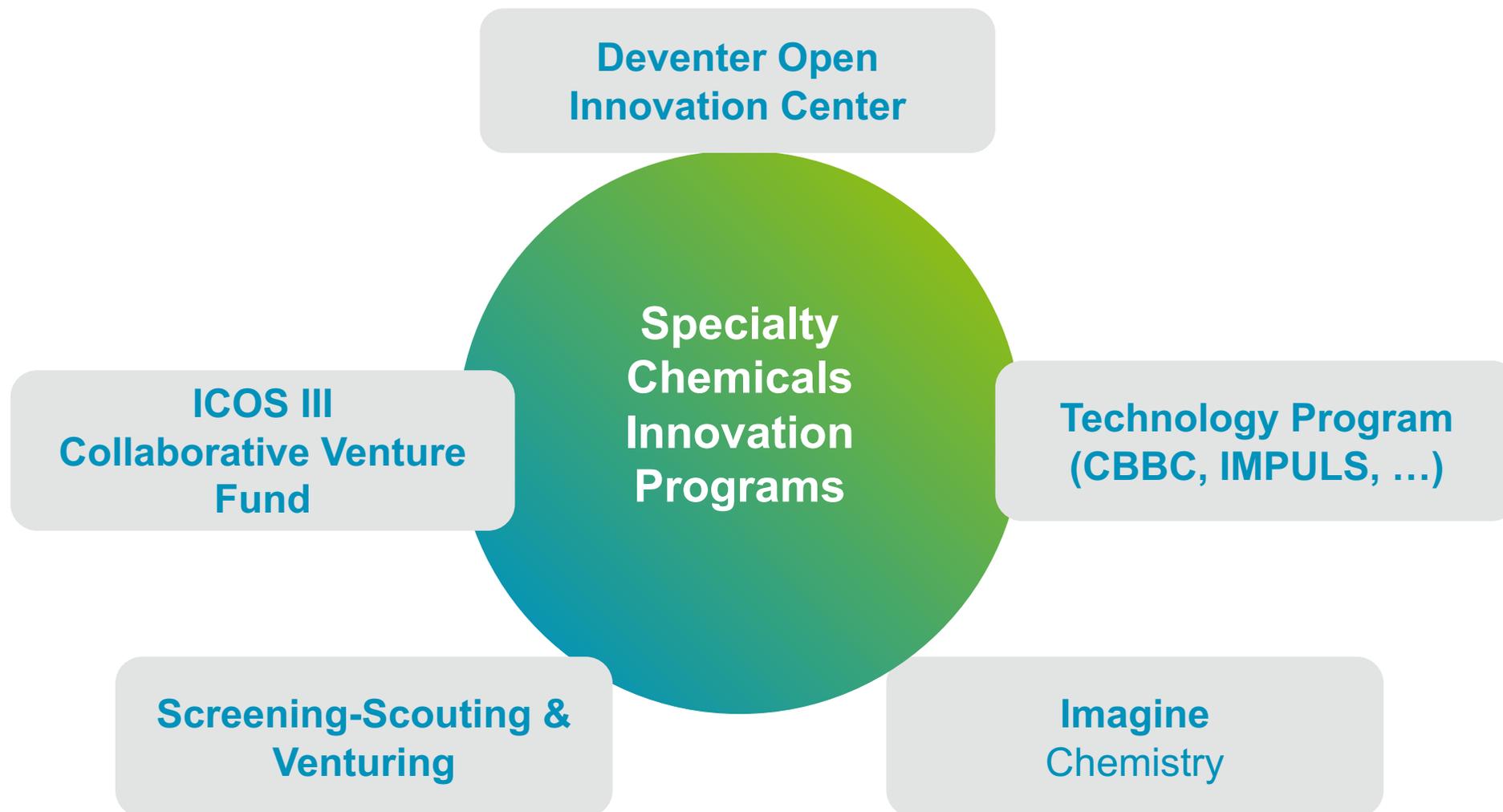
Patents

>5,000

We believe that breakthrough solutions require **collaboration** across the value chain, and we continue to forge resilient partnerships through a model of **open innovation**.

# Our open innovation approach

**AkzoNobel**



# Imagine Chemistry

The AkzoNobel chemicals  
startup challenge

Powered by KPMG

To solve real-life chemistry-related challenges and co-create sustainable business opportunities in collaboration with startups.



# Bringing new ideas to life

AkzoNobel

## Startup solutions

- ↪ Fresh ideas
- ↪ New perspectives
- ↪ Passion and energy



## AkzoNobel global capabilities

- ↪ Bring ideas from lab to production
- ↪ Safety and operational excellence
- ↪ Global footprint

Collaborate as equals, by listening and learning from each other

“We seek to get infected by start-up passion; in exchange offering our experience, capabilities and route-to-market”

# A unique approach

AkzoNobel

## Collaborative approach

Not a beauty contest  
but joint development

No IP claims in  
advance

## Business impact

Focused on real-life  
business challenges

Solutions can be  
brought to market

## One-stop shop

Cover all aspects of a  
business plan in 1  
event with partners  
like KPMG and Lux  
Research

## Strong partners



# How it works

**AkzoNobel**

**January**

**Submit ideas via open challenge platform**

- Online community: everyone can join the discussion
- AkzoNobel experts help enrich ideas
- Your IP remains yours, no claims in advance

**February**

**March**

**April**

**Select finalists**

- Based on fit with the business and real-life potential

**May**

**June**

**Final Collaborative event**

- Joint development of ideas and exploring opportunities for collaboration with over 80 AkzoNobel experts and decision makers

## A collaborative platform

- Platform is open for **everyone**
- >40 AkzoNobel RD&I experts give comments to further improve ideas **during** the challenge
- 678 enrichments in 2017

“The platform provided an identity, validation and exposure to potential partners around the world.”

Idea updated on 31 Mar, by Jeremy Minty • Challenge: Bio-based and biodegradable surfactants and thickeners

 **BioGel(TM) Polyglutamic Acid: An Eco-friendly, Biobased, and Biodegradable Alternative to Polyacrylates**

**Jeremy Minty**

Ecovia Renewables Inc. is a University of Michigan startup company that is developing and commercializing a proprietary technology platform to produce low-cost polyglutamic acid (PGA) from renewable biomass res...



👍 0 📌 2 💬 2 🗑️ 0

 **Joke Speelman** 16 Mar CHALLENGE TEAM

Dear Jeremy,

Thanks for your application in this challenge.

You indicate already that the polyglutamic acids are more hydrophilic backbone than polyacrylates. In connection with our question in this platform, I understand you will propose these products are thickeners. Are you able to share information how these polyglutamic acids behave compared to polyacrylates in thickening applications?

Best regards,

Joke Speelman

# Imagine Chemistry 2017

AkzoNobel

## > 200 submissions in 7 challenges:

- **67** - Sustainable alternatives to our current technologies
- **37** - Revolutionizing plastics recycling
- **29** - Bio-based surfactants and thickeners
- **24** - Cellulose-based alternatives
- **33** - Wastewater-free chemical sites
- **10** - Highly Reactive Chemistry
- **13** - Bio-based ethylene

## Top countries:

-  USA – 59
-  Netherlands – 19
-  UK – 19
-  Sweden – 11
-  Canada – 11
-  India – 11

# 2017 Final event

**AkzoNobel**

**9  
master-  
classes**

**3 days at  
the  
Deventer  
Open  
Innovation  
Center**

**80 experts  
from  
AkzoNobel  
and  
partners**

**20  
finalists**

**100  
expert  
sessions**

“Participating in the  
Finals made all the  
difference”

– uFraction8 (UK)

“It was very valuable to  
have the opportunity to  
meet such a cross-  
section of the Akzo  
team”

– Renmatix (USA)

# Imagine Chemistry 2017 Finals

AkzoNobel

The AkzoNobel Chemicals  
Startup Challenge

Powered by KPMG



Imagine  
Chemistry  
The AkzoNobel Chemicals  
Startup Challenge 2017

AkzoNobel

KPMG

Letter of Intent, regarding a  
Joint Development  
Agreement

Imagine  
Chemistry  
The AkzoNobel Chemicals  
Startup Challenge 2017

AkzoNobel

KPMG

Letter of Intent, regarding a  
Joint Development  
Agreement

Between AkzoNobel, represented by  
Henry van Loenen,  
Chairman of the Jury, and RENMATIX,  
represented by [signature]

Finalized in the Imagine Chemistry Challenge

RENMATIX

June 17, 2017

# 2017 winners: Joint Development Agreements

AkzoNobel

Award certificate

**Noah Helman,  
Industrial  
Microbes, USA**

Biocatalysis of  
ethylene to ethylene  
oxide

**Jeremy Minty  
and Andrew Hertig,  
Ecovia, USA**

BioGel(TM)  
polyglutamic acid:  
a sustainable  
alternative to  
polyacrylates

**Charles  
Sanderson and  
Jeremy Austin,  
Renmatix, USA**

Soluble and insoluble  
cellulose oligomers  
from supercritical  
water hydrolysis

# 2017 winners (2/3)

AkzoNobel

Imagine  
Chemistry

The AkzoNobel Chemicals  
Startup Challenge 2017

## Lux Research Support

Dan Derr and John  
Abernathy, Logos  
Technologies, USA

Natural biosurfactants from  
fermentation

## Research Agreement AkzoNobel

Brian Miller and Monika  
Tomecka, uFraction8,  
UK

Scalable, low-cost, post-  
bioreactor dewatering

## DOIC Rent Voucher

Steven de Laet and  
Kwinten van Eyck,  
InOpSys, Belgium

On-site treatment  
of waste water

## Partner Support by ICOS and KPMG

Wim Nijhof and Johan  
Kerver, FiliGrade B.V.,  
The Netherlands

Interactive watermarks  
for plastic products

# 2017 winners (3/3): research support

AkzoNobel

Imagine  
Chemistry

The AkzoNobel Chemicals  
Startup Challenge 2017

KPMG

Award certificate

for  
Chemical Support  
For ... Weeks

Mark Mascall and  
Nema Hafezi,  
University of  
California, USA

A green alternative to  
wood pulping using  
highly reactive  
chemistry

Liuba Dominguez  
Chabalina and  
Pablo Cartagena,  
Cadel De-inking,  
Spain

Waste-based  
recycling technology  
for plastics

Gertjan de Jong,  
Hein van Elderen  
and John Erdhardt,  
MISCQ, Netherlands

Miscanthus grass as a  
sustainable source of  
cellulose

# Imagine Chemistry 2018: 6 Challenges

AkzoNobel

Intelligent  
chemical  
plants

Sustainable  
small  
particle  
technologies

Wastewater-  
free  
chemical  
sites

Revolutionizing  
chlorate  
production

Sustainable  
liquid to  
powder  
technologies

Zero-  
footprint  
surfactant  
platforms

# Sign up for 2018!

- Pre-register now: [imaginechemistry.com](http://imaginechemistry.com)
- Info on a specific challenge – [danny.haynes@akzonobel.com](mailto:danny.haynes@akzonobel.com)
- Launch January 10<sup>th</sup> 2018
- Finals in Sweden, June 2018

Follow us via [@ImagineChem](https://twitter.com/ImagineChem) 



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Hosted by Eastman Chemical Company at the  
MeadowView Conference Resort, Kingsport, TN

*Registration opens in January 2018*



# Upcoming Webinar for the GC3 Startup Network

## The Chemical Angel Network

Tue, Jan 16, 2018 12:00 PM - 1:00 PM EST

**Speaker:** Mark Vreeke, Co-founder, Chemical Angel Network

The Chemical Angel Network provides a source of capital for early stage firms that converge with the chemical sector in the materials, measurement and manufacturing space. Many of these companies have had a green chemistry focus from Connora and their technology for recycling thermoset plastics to SioTex and their process for conversion of waste rice hulls to fumed silica.

In this webinar, Mark Vreeke, co-founder of Chemical Angel Network will give an overview of the Network and how it works, describe several of the Network's investments and answer your questions on the Network and angel investing in general.



# Thanks for joining us!

For more information about the GC3:  
[www.greenchemistryandcommerce.org](http://www.greenchemistryandcommerce.org)

