

++ Special Topics: ++ Lignin ++ Polyhydroxyalkanoates (PHA) ++ Innovation Award 2016 ++

# HIGHLIGHTS OF THE WORLDWIDE BIOECONOMY:

- Policy and Markets
- Bio-based Building Blocks and Polymers
- Biorefineries and Industrial Biotechnology

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### Venue

Maternushaus Cologne Kardinal-Frings-Str. 1–3 50668 Cologne, Germany

+49 (0)221 16310 info@maternushaus.de

The venue is located within 10 minutes walking distance from Cologne central station and 30 minutes by train from Cologne/Bonn airport.

If you are coming by airplane: The Frankfurt airport – the second biggest in Europe – is a good choice. The high speed ICE train needs only one hour to Cologne central station and is very comfortable.



# **Preface** Dear participants,

Welcome to the 9<sup>th</sup> International Conference on Bio-based Materials in Cologne, which has become an important meeting place for bio-based building blocks, polymers and other materials.

Currently, the bio-based economy is showing some signs of weakness. Both the degree of political support and customers' willingness to pay GreenPremium prices for bio-based products have been better. Low oil prices make alternatives unattractive and non-committal climate decisions show almost no positive impact. Market interventions of the policy makers will be much more moderate in the future. The level of support that was created for bioenergy and biofuels will not be repeated and will not be continued – neither for materials, nor for the energy sector.

On the other hand, this presents the chance to implement the "best" bio-based building blocks, polymers, composites, textiles, adhesives, solvents, detergents or lubricants. This is exactly what is happening in Europe right now: a multitude of investments are made in medium-sized production plants for new biobased fine chemicals that provide new features and properties for end products – putting them out of direct competition with conventional petrochemical solutions. New biorefineries are emerging in Northern Europe, using wood in a variety of ways for cellulose fibres and a vast number of different chemicals.

nstitute

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Marketing Strategies

Environmental

Evaluation

Life Cycle Assessments (LCA)

Life Cycle Inventories

Meta-Analyses of LCAs

Sustainability

Political Framework & Strategy

System Analysis

Strategic Consulting

**Bio-based Economy** 

**Bio-based Chemicals & Materials •** 

Biorefineries • Industrial Biotechnology

Carbon Capture & Utilizatior

Market Research

Volumes & Trends Competition Analysis

Feasibility and Potential Studies

Technology & Markets

There are even new specific approaches for commercial use of the by-product lignin.

This year, the USA has started offering tax credits for investments in bio-based chemicals. Exciting times! We are convinced that the bio-based economy and biotechnology will provide necessary solutions for the challenges of the future.

The conference will therefore highlight bio-based solutions with special features and properties. They will conquer the market without strong support – simply because they have a lot to offer! An annual highlight of the conference will again be the presentation of the innovation award "Bio-based Material of the Year" – who of the participants will win this year?

The nova team wishes you an exciting and inspiring conference and fruitful networking opportunities.

hide Ce

Michael Carus Managing Director nova-Institute



## **Your Conference Team**



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Raw Material Supply

Availability & Prices

Sustainability

Techno-Economic Evaluation (TEE)

**Process Economics** 

Target Costing Analysis



# Programme | 1<sup>st</sup> Day | 5 April 2016

09:30	
10:00	

Registration and welcome coffee Michael Carus, nova-Institut GmbH 💻 – Conference Opening

#### **POLICY & MARKETS**



Moderation: Kathryn Sheridan Sustainability Consult



#### Biotechnology Industry Organization (BIO) Dr. Rina Singh What are the Policy Drivers which impact Renewable Chemical Technologies?



#### narocon Innovation Consulting 💻 Dr. Harald Kaeb

Consumption of biodegradable plastics in Europe: Drivers and Trends



#### nova-Institut GmbH **—** Michael Carus

Technical, economic and market data on bio-based economy – highlights of nova research in 2015/16



# WWF Deutschland Jenny Walther-Thoß

Cascading use of wood – the smart way to use a natural resource (Mapping Study on Cascading Use of Wood Products)

12:10 Lunch Break

#### NEW BIO-BASED BUILDING BLOCKS



Moderation: Prof. Dr. Ludo Diels Flemisch Institute for Technological Research (VITO)



#### Tecnon OrbiChem Ltd. Doris de Guzman Latest development of bio-based building blocks, status and outlook



University of York R Dr. Thomas J. Farmer New bio-based building blocks vs. drop-in solutions – utilizing the full potential of functionalized platform molecules



#### Jarno Dakhorst, Harmen Willemse

Tools for demonstrating sustainable sourcing of biomass for bio-based materials and the determination of the bio-based content

15:00 Coffee Break

#### **BIOREFINERIES**



Moderation: Prof. Dr. Jörg Müssig Hochschule Bremen 💻



NC Partnering Oy Ltd. Jukka Kantola Biorefinery trends



Metsä Fibre Oy III Dr. Niklas von Weymarn Bioproduct mill – A next generation biorefinery in Finland



#### **INNOVATION AWARD "BIO-BASED MATERIAL OF THE YEAR 2016"**



**Moderation: Michael Carus & Florence Aeschelmann** nova-Institut GmbH 💳



#### **Award Sponsor:**

**Gordana Hofmann-Jovic** InfraServ GmbH & Co. Knapsack KG 💳



#### Amyris Inc. = – Myralene<sup>™</sup>-10 **Ross Eppler**

New high-performance, sustainably sourced and cost-competitive solvent made from  $\beta$ -farnesene



#### Covestro Deutschland AG 💳 – Impranil® eco Dr. Gesa Behnken Bio-based waterborne polyurethane dispersions for textile coatings



Evonik Nutrition & Care GmbH - REWOFERM® SL 446 **Dr. Dirk Kuppert** Novel sophorolipid-type biosurfactant



#### Orineo BVBA **III** – Touch of Nature™ **Philippe Willems** Filled bio-based resin for stimulating biomaterials



#### SIP Ltd : - SIPDRILL RS Luke Goldsmith First renewable, hydrocarbon drilling base fluid for high performance drilling mud systems



Tetra Pak International S.A. - Tetra Rex<sup>®</sup> Bio-based **Francesca Priora** World's first fully renewable package for chilled liquid food

#### 18:00 Voting



**Director (ret.) EU Commission, Advisor and Member** of the 1<sup>st</sup> German Bioeconomy Council 💻 Dr. Dr. h.c. Christian Patermann Ten years bioeconomy - lessons learnt

20:15 **Dinner buffet and Innovation Award Ceremony** 

22:00 Get together in the party room & bowling alley beneath Maternushaus

# **NC PARTNERING**

NC Partnering Ltd is a bioeconomy advisory company set up to utilize the collective skills and insights of a diverse team. Each partner brings hands-on experience from world-class companies and major industrial projects, and our international network of individuals, companies and institutions provides us with virtually unlimited resources for tackling intricate and demanding projects.



**NC Partnering Oy Ltd** Shaping the Biofuture www.ncpartnering.com

Jukka Kantola, Partner, CEO Phone: +358 40 552 8880 jukka.kantola@ncpartnering.com



# Programme | 2<sup>nd</sup> Day | 6 April 2016

#### **BUILDING BLOCKS & POLYMERS**



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Moderation: Christiaan Bolck
Wageningen University
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**Covestro Deutschland AG Dr. Christoph Gürtler** CO<sub>2</sub> as raw material for sustainable plastics



Solvay S.A. Thibaud Caulier Solvay Epicerol<sup>®</sup>: sustainable bio-based building block for reducing the environmental impact of products



TransFurans Chemicals bvba Dr. Ir. Hans Hoydonckx PFA or Polyfurfuryl alcohol thermosets in biocomposite applications



ALBIS PLASTIC GmbH Eric Fautz Cellulose esters – Properties, Markets and Applications



RWTH Aachen 💳

**Dr. Gunnar Seide** From plant to implant – Bio-based materials for medical applications

11:00 Coffee Break

#### LIGNIN UTILISATION



Moderation: Prof. Dr. Antje Potthast University of Natural Resources and Life Sciences



University of Natural Resources and Life Sciences Prof. Dr. Antje Potthast Status and outlook of lignin utilisation



Renmatix, Inc. Dr. Ewellyn Capanema Omno Polymers: Production and Application



 West Fraser Mills

 Dr. Eddie Peace

 Application development of a commercial lignin facility



Wageningen UR Dr. Jacco van Haveren Bio-based aromatics from lignin and furans

13:10 Lunch Break

nova-Institut GmbH - Chemiepark Knapsack - Industriestr. 300 - 50354 Hürth - Germany



#### **POLYHYDROXYALKANOATES (PHA)**



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Moderation: Prof. Jan Ravenstijn
Jan Ravenstijn Consulting 💻
```

Jan Ravenstijn Consulting 💳



**Prof. Jan Ravenstiin** The PHA platform - Extension and diversification

th International Conference on Bio-based Materials 5-6 April 2016, Maternushaus, Cologne, Germany



Bioplastech Ltd. Dr. Kevin O'Connor Producing and developing applications for bio-based biodegradable polymers



#### Kaneka Corp. 📕 / 💽

Kenichiro Nishiza, Takahiko Sugaya Market Development of Kaneka **Biopolymer AONILEX®** 



AIMPLAS 🔤 Miguel Ángel Valera Gómez Fire resistant biocomposites and sandwich panels from biopolymers for automotive applications



16:00

#### **University of Natural Resources and** Life Sciences, Vienna 💳 **Eva Sykacek**

Development of heat resistant drinking cups made of poly(lactic acid) (PLA), polyhydroxyalkanoate (PHA) and chalk



# GFBiochemicals Ltd.

**Alexander Krapivin** Levulinic acid as a feedstock for bio-based polymers that are biodegradable in multiple environments



i2i - inventions to innovation, Consultant to Metabolix, Inc. 💻 / 🔜 **Anindya Mukherjee** Improving versatility of polymers using Metabolix PHA copolymers

### **Advisory Board**



PRECISE Corporation **Dr. Wolfgang Baltus** 



Wageningen University 💳 **Christiaan Bolck** 



Flemisch Institute for Technological Research (VITO) Prof. Dr. Ludo Diels



Hochschule Bremen 💳 Prof. Dr. Jörg Müssig



Jan Ravenstijn Consulting 💳 **Prof. Jan Ravenstijn** 



CLIB2021 💻 **Dr. Thomas Schwarz** 



IBB Netzwerk 💻 **Prof. Dr. Haralabos Zorbas** 

# Coming conferences of nova-Institute

# 5<sup>th</sup> Conference on

Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers

# www.co2-chemistry.eu

# Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers

6-7 December 2016, Maternushaus, Cologne (Germany)

#### **Entrance Fee**

#### **Conference incl. Catering**

Two Days (6–7 December 2016): € 790\* (incl. dinner buffet)

1<sup>st</sup> Day (6 December 2016):  $\in$  490\* (incl. dinner buffet)

2<sup>nd</sup> Day (7 December 2016): € 440\*

Undergraduate and PhD students can attend the conference with a 50% discount.

\*plus 19% VAT.



#### Achim Raschka

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#### Dominik Vogt Organisation

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#### 1<sup>st</sup> Day, 6 December 2016: Political Framework & Visions

ere ere

- Policy & Visions
- H<sub>2</sub> Generation: Prerequisite for CO<sub>2</sub>-Economy
- Artificial Photosynthesis

#### 2<sup>nd</sup> Day, 7 December 2016: Chemicals & Energy from CO<sub>2</sub>

- CO<sub>2</sub> Capture & Purification
- Chemicals & Polymers
- CO<sub>2</sub>-based Fuels

Over the last few years, the rise of carbon dioxide utilization has developed to become more and more dynamic. Especially in the area of fuels several players are very active and different technologies to generate aviation and transport fuels from  $CO_2$  are ready to use. But also in  $CO_2$ based chemicals and polymers as well as mineralization processes a lot of projects and realization steps are in place to create a new  $CO_2$ -based future.

At the conference leading players will showcase some enhanced and also new applications using CO<sub>2</sub> as feedstock and representatives from political bodies and research institutes will present and discuss the latest national and regional policies, strategies and visions. Be part of this innovative and active network!

# More information at www.co2-chemistry.eu



nova-Institut GmbH Chemiepark Knapsack Industriestraße 300

50354 Hürth, Germany



International Conference of the European Industrial Hemp Association (EIHA)

www.eiha-conference.org

**1–2 June 2016** Rheinforum, Wesseling near Cologne (Germany)



Conference language: English

++ Cultivation ++ Processing ++ Economy ++ Sustainability ++ Innovation ++



#### Don't miss the biggest industrial hemp event in 2016 - worldwide!

#### Applications

- Fibres & Shives
   Bio-Composites
   Insulation
   Construction
- Textiles Hemp Seeds, Oil and Proteins Pharmaceuticals (CBD)

#### **Spectrum of Participants**

- Natural Fibre Industry 
   Hemp Food and Feed Industry 
   Cultivation
- Consultants
   Engineers
   Traders and Investors
   Research and Development





## **Innovation Award "Bio-based Material of the Year 2016"** "Top 6" candidates nominated!

For the ninth year in a row, the Innovation Award "Bio-based Material of the Year" will be awarded to the young, innovative bio-based material industry, finding suitable applications and markets for bio-based products. The competition focuses on new developments in these areas, which have had (or will have) a market launch in 2015 or 2016.

This year, six bio-based materials and products have been nominated for the Award by the advisory board – out of more than 20 submitted products. The nominated companies are from the United States, Germany, Belgium, the United Kingdom and Sweden.

In a short 10-minute presentation, each of the six companies will introduce its innovation. The three winners will be elected by

the participants of the International Conference on Bio-based Materials, 5-6 April 2016 in Cologne, Germany, and awarded with a prize, sponsored by InfraServ GmbH & Co. Knapsack KG at the dinner buffet.



#### Nominees for the Innovation Award "Bio-based Material of the Year 2016"



www.bio-based.eu/conference



## The "Top 6" candidates are:

#### 1) Amyris Inc. 📕

#### Myralene<sup>™</sup>-10 – New high-performance, sustainably sourced and cost-competitive solvent made from β-farnesene

Myralene<sup>™</sup>-10 is a new high-performance, sustainably sourced, cost-competitive, environmentally advantaged solvent made from β-farnesene that Amyris produces in Brazil on a commercial scale by fermentation of sugarcane juice using special strains of baker's yeast. It is a low vapour pressure non-VOC solvent with superior solvating and degreasing power, excellent thermal, oxidative and hydrolytic stability, low odour, no colour, a favourable viscosity profile and readily biodegradable. It is nontoxic and has superior Environmental, Health & Safety (EH&S) and flammability safety profile. With regulatory approval in the USA (TSCA) and the EU (REACH) and USDA Biobased Product Certification, it was launched commercially in 2015. The first product line containing it is the Muck Daddy family of waterless hand cleaners and wipes.

#### 2) Covestro Deutschland AG 💳 Impranil® eco – Bio-based waterborne polyurethane dispersions for textile coatings

Sustainability has an increasing impact on the product and rawmaterial purchasing decisions of consumers and brand owners. Covestro has developed a technology to raise the content of renewable resources in polyurethane dispersions (PUDs) up to 65%. This makes new levels of sustainability possible for PU synthetic materials (footwear, garment, accessories...). Thanks to this development, it is now possible to produce coated textiles with high performance and low content of fossil-based raw materials in each layer. The key benefits are: 43%-65% renewable carbon content, not in direct competition with the food chain; can be used in every layer of the production of synthetic materials or coated textiles; drop-in of existing Impranil PUD types, i.e. low reformulation efforts.

#### 3) Evonik Nutrition & Care GmbH 💳

#### REWOFERM<sup>®</sup> SL 446 – Novel sophorolipid-type biosurfactant

REWOFERM<sup>®</sup> SL 446 is a novel sophorolipid-type biosurfactant. It is made by fermentation with a natural, non-GMO yeast using European sourced sugar and oil feedstock. Due to its environmentally benign production process, REWOFERM® SL 446 has a low carbon footprint and a Renewable Carbon Index (RCI) of 100%. It exhibits an excellent toxicological and eco-toxicological profile and is completely biodegradable. It is compliant with European Ecolabel requirements. It also behaves as a super-mild surfactant to the skin. Replacement of petro-chemically based surfactants by REWOFERM® SL 446 boosts the foaming and the grease removal efficacy in hand dish wash formulations. Thus, it is possible to increase both the performance and the ecological footprint of your cleaning formulations.

#### 4) Orineo BVBA 🚺 Touch of Nature<sup>™</sup> – Filled bio-based resin for stimulating biomaterials

Imagine the work and people involved in bringing coffee beans from their exotic plantation into your morning mug. Consider now the tiny fraction of the bean being brewed and the few minutes to empty your espresso. Well, Orineo has developed a new range of biomaterials based on the 80% waste of your cup of coffee, coffee grounds. They are biomaterials designed for a 20 years' lifetime. Plenty of time for nature to replenish the feedstock! And it does not stop here. Branded as Touch of Nature<sup>™</sup>, these materials look good, feel good and perform well. One more step? Same story with used cork stoppers, berry seeds, olive leaves, to obtain a range of colours and patterns based on nature. It's now commercial: liquid bio-based formulations for seamless floors, tabletops and furniture based on these sidestreams.

#### 5) SIP Ltd 🗮

#### SIPDRILL RS – First renewable, hydrocarbon drilling base fluid for high performance drilling mud systems

SIPDRILL RS is renewable alkene designed specifically for use in high performance drilling mud systems. SIPDRILL RS is 100% hydrocarbon, manufactured via the proprietary fermentation of sustainable sugar, producing ß-farnesene. Designed to meet exacting physical and eco-toxicological performance requirements. SIPDRILL RS exists in two forms: SIPDRILL RS (North Sea), >73% wt. renewable and SIPDRILL RS (GoM) >85% wt. renewable. SIPDRILL RS has been shown to perform exceptionally well in drilling muds, whilst exhibiting very low toxicity characteristics as mandated by the US EPA and CEFAS. SIPDRILL RS is thought to be the first renewable, hydrocarbon drilling base fluid and will begin sale in fourth guarter, 2016.

#### 6) Tetra Pak International S.A. **E** Tetra Rex<sup>®</sup> Bio-based – World's first fully renewable package for chilled liquid food

Tetra Pak's biotechnology innovation, Tetra Rex<sup>®</sup> Bio-based, launched in 2015 is a significant industry achievement in sustainable packaging. The world's first fully renewable package for chilled liquid food is produced from nothing but renewable, recyclable and traceable FSC<sup>™</sup> certified packaging and biobased (bio-ethanol) plastic derived entirely from sugarcane. Full traceability of the carton's origins assures consumers, setting it apart from mass balance solutions. Following European market success, 100 million packs are expected to be delivered globally in 2016. Tetra Rex® Bio-based offers a win-win solution: a product benefiting both customers and the environment, while revolutionising the packaging industry with a fully renewable responsibly sourced innovation.



## Market study on Bio-based Building Blocks and Polymers in the World

Capacities, Production and Applications: Status Quo and Trends towards 2020

#### NEW: Buy the most comprehensive trend reports on bio-based polymers – and if you are not satisfied, give it back!

Bio-based polymers: Worldwide production capacity will triple from 5.7 million tonnes in 2014 to nearly 17 million tonnes in 2020. The data show a 10% growth rate from 2012 to 2013 and even 11% from 2013 to 2014. However, growth rate is expected to decrease in 2015. Consequence of the low oil price?

10Va Institute

The new third edition of the well-known 500 page-market study and trend reports on "Bio-based Building Blocks and Polymers in the World - Capacities, Production and Applications: Status Quo and Trends Towards 2020" is available by now. It includes consistent data from the year 2012 to the latest data of 2014 and the recently published data from European Bioplastics, the association representing the interests of Europe's bioplastics industry. Bio-based drop-in PET and the new polymer PHA show the fastest rates of market growth. Europe looses considerable shares in total production to Asia. The bio-based polymer turnover was about €11 billion worldwide in 2014 compared to  $\in$  10 billion in 2013. http://bio-based.eu/markets

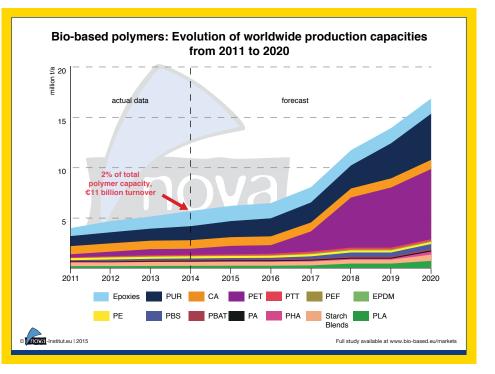
The nova-Institute carried out this study in collaboration with renowned international experts from the field of bio-based building blocks and polymers. The study investigates every kind of bio-based polymer and, for the second time, several major building blocks produced around the world.

#### What makes this report unique?

- The 500 page-market study contains over 200 tables and figures, 96 company profiles and 11 exclusive trend reports written by international experts.
- These market data on bio-based building blocks and polymers are the main source of the European Bioplastics market data.
- In addition to market data, the report offers a complete and in-depth overview of the bio-based economy, from policy to standards & norms, from brand strategies to environmental assessment and many more.
- A comprehensive short version (24 pages) is available for free at http://bio-based.eu/markets

#### To whom is the report addressed?

- The whole polymer value chain: agro-industry, feedstock suppliers, chemical industry (petro-based and bio-based), global consumer industries and brands owners
- Investors
- Associations and decision makers



#### **Content of the full report**

This **500 page-report** presents the findings of nova-Institute's market study, which is made up of three parts: "market data", "trend reports" and "company profiles" and contains over 200 tables and figures.

The "market data" section presents market data about total production capacities and the main application fields for selected bio-based polymers worldwide (status quo in 2011, 2013 and 2014, trends and investments towards 2020). This part not only covers bio-based polymers, but also investigates the current bio-based building block platforms.

The "trend reports" section contains a total of eleven independent articles by leading experts

in the field of bio-based polymers. These trend reports cover in detail every important trend in the worldwide bio-based building block and polymer market.

The final "company profiles" section includes 96 company profiles with specific data including locations, bio-based building blocks and polymers, feedstocks and production capacities (actual data for 2011, 2013 and 2014 and forecasts for 2020). The profiles also encompass basic information on the companies (joint ventures, partnerships, technology and bio-based products). A company index by biobased building blocks and polymers, with list of acronyms, follows.

#### Order the full report

The full report can be ordered for 3,000 € plus VAT and the short version of the report can be downloaded for free at: www.bio-based.eu/markets

NEW: Buy the trends reports separately!

#### Contact

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Award Sponsor | InfraServ KNAPSACK

#### Engineering and construction by InfraServe Knapsack

The idea of producing chemical building blocks with the help of biotechnology is becoming more and more appealing to a majority of players in the chemical industry in Europe. The dynamic European market is the ideal basis for the commercialization of your bio-based chemicals due to the large amount of available renewable feedstock as well as a fast growing number of potential bio-based applications.

#### **Process development**

Your good product idea is a sound start. Yet to actually get this idea onto the market you need the appropriate production process. InfraServ Knapsack develops these processes for and with customers once the basic producibility of the product and its general specifications have been determined.

#### **Individual solutions**

Every product, every company and every site has its own requirements when it comes to processes and plants. Satisfying these requirements calls for customised planning and development processes at every stage. InfraServ Knapsack places particular emphasis on the engineering of individual plants - from process development and conceptual design to basic and detailed engineering, regardless of whether we just carry out sub-services or take over the general planning for every stage. InfraServ Knapsack does not supply one-size-fits-all solutions. Instead, we adopt a flexible approach and gear ourselves towards the specific requirements of the current project stage – step-by-step.

We set a fundamental course early on in the planning process using process development and conceptual design. Thanks to a broad range of diverse engineering fields and an extensive selection of methods, we can guarantee the very highest degree of flexibility with regard to content.

#### Scale-up platform

The Chemiepark Knapsack near Cologne in Germany also offers companies a scale-up platform and access to know-how for bio-based production and integration into existing value-chains. The innovative capacity of the Chemiepark Knapsack, qualified skilled workers, solid infrastructure, plug & play services, as well as less bureaucracy and red tape all offer huge benefits for your company to commercialize your product.



When planning to jump into the future with your new chemical facility, a lot depends on the particular way of thinking: Only those who think in terms of real solutions can act in a target oriented process. This is our strength - thinking in terms of solutions! We advise and work side by side with you in our capacity as an established industrial partner from the outset - seeing things with your eyes and delivering suitable solutions. After process development or plant planning phase, we see trough conceptual design and basic engineering right up to commissioning and gladly even more.

#### WWW.INFRASERV-KNAPSACK.DE/FUTURE



# InfraSerV KNAPSACK

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InfraServ GmbH & Co. Knapsack KG Chemical Park Knapsack Industriestrasse 300 50354 Hürth

#### www.infraserv-knapsack.de

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Composites Germany



# **Exhibition**

Take the extraordinary opportunity to present your company and your products at the conference with an exhibition stand. The first 20 exhibition booths are free of charge, thereafter the fee of an exhibition booth is  $400 \in +19\%$  VAT.

A chair, a table, a pinboard + power connection are included. You are welcome to use your own booth system.

The exhibition is located in the lobby in front of the conference hall where the breaks will take place.

#### **BOOK YOUR BOOTH NOW!**

Blue marked areas are still available. Please contact: **Dominik Vogt** 



## **Overview of the Exhibition**

Booth No. 1 TECNON ORBICHEM

Booth No. 2 InfraServ GmbH & Co. Knapsack KG

Booth No. 3 NEN – Netherlands Standardization Institute

Booth No. 4 RTDS Group

Booth No. 5 European Industrial Hemp Association (EIHA)

Booth No. 6
DIN CERTCO Gesellschaft für Konformitätsbewertung mbH

Booth No. 7 nova-Institut GmbH ==

Booth No. 8 Kompetenzzentrum Holz GmbH

Booth No. 9 & 19 Innovation Award "Bio-based Material of the Year 2016"

Booth No. 10
ALBIS PLASTIC GmbH

Booth No. 11 Bio Base Europe Pilot Plant

Booth No. 12 ANIMOX GmbH =

Booth No. 13 Fraunhofer UMSICHT

Booth No. 14 GFBiochemicals Ltd.

Booth No. 15 Forschungszentrum Jülich GmbH

Booth No. 16 NC Partnering Oy Ltd. 🛨

Booth No. 17 J. RETTENMAIER & SÖHNE GmbH + Co KG 💻

Booth No. 18 Sustainability Consult

Booth No. 23 Industrielle Biotechnologie Bayern Netzwerk GmbH (IBB)

# **BIO-BASED START-UP DAY** 7 April 2016 · Maternushaus · Cologne · Germany

Programme | Bio-based Start-up Day

09:30	Registration	and we	Icome coffee
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#### **START-UPS AND FUNDING**

Moderation: Dr. Asta Partanen, nova-Institut GmbH 💳



nova-Institut GmbH 📒 **Michael Carus** Basic data on European Bio-based Economy and smart CAPEX calculation for early stage projects



#### OECD **Jim Philp**



Public investments and funding for start-ups



KPMG AG **Dr. Carl Henning Reschke** 

Market entry strategies - reducing complexity

11:00

Coffee break and exhibition on Start-ups, Funding and Industry – meet the Start-ups

#### **START-UPS SELECTED BY THE NOVA-INSTITUTE**

#### Moderator: Michael Carus, nova-Institut GmbH 💻



BIOTREM **Malgorzata Then** BIOTREM: processing wheat bran into packaging products



#### Kiverdi, Inc 📕 Dr. Lisa Dyson

Using CO<sub>2</sub> & CO to make Oleochemicals and Specialty Oils



#### Mycoplast S.n.c Federico Maria Grati

MOGU - Biomaterials from mycelium and agro-insdustrial wastes



Nafigate Corporation, A.S. **Daniel Pohludka** Hydal Biotechnology - Game Changing Innovation



NordBioChem OÜ 💻 **Andres Pajuste** Cost effective C3-fermentation chemistry the NordBioChem's way out of Fossils



#### Skytree **Max Beaumont**

Carbon Dioxide from the air? Skytree's solution to providing a convenient and reliable source of recycled CO<sub>2</sub> as feedstock for biomass and fuel production

13:00 Lunch break and exhibition on Start-ups, Funding and Industry - meet the Start-ups

#### ALSO REGISTER TO THIS NEW CONFERENCE!

The Bio-based Start-up Day will bring start-ups, investors and industry together by giving the floor to everyone and providing great opportunities for networking.

Take part in the 9<sup>th</sup> Conference on Bio-based Materials and benefit from a 30% discount on the registration fee of the Bio-based Start-up Day!

More information: www.bio-based.eu/startup

#### **START-UPS FROM CLIB2021**

#### Moderation: Dr. Tatjana Schwabe, CLIB2021



**Dr. Wilfried Schwab** Flavor-on-Demand



Dr. Martin Krehenbrink Dipeptides: the future of amino acids



**Gratian Permien GLYCONICation of Flavonoids** 

#### **START-UPS FROM IBB NETZWERK**

#### Moderator: Prof. Dr. Haralabos Zorbas, IBB Netzwerk 💻

#### 14:45 CASCAT GmbH 💳



**André Pick** Novel process strategies by use of (chemo)-enzymatic cascade reactions



Electrochaea GmbH 💻 **Dr. Doris Hafenbradl** Power-To-Gas - from the laboratory to industrial scale

15:15

Coffee break and exhibition on Start-ups, Funding and Industry – meet the Start-ups

#### **START-UPS AND FUNDING**

#### Moderation: Tobias Kirchhoff, BCNP Consultants GmbH 💻



**Benno Weißner** Support by EU and the Enterprise Europe Network for Start-ups



B.R.A.I.N. Capital GmbH 💳 **Frank Goebel** B.R.A.I.N. - From start-up to public listing



i2i - inventions to innovation 📕 / 📕 **Anindya Mukherjee** Start-ups - What you need to succeed!



18:00 **Coming together** 



**Partners** 



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# iBIB

The Leading Business Directory of the Bio-based Economy now offers free Standard Profiles for companies, associations and institutes!



## International Business Directory for Innovative Bio-based Materials

- Players of the bio-based and CO<sub>2</sub>-based industry can now present themselves with PDF files in the iBIB online directory – for FREE and for an unlimited time period.
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Pictures: Fraunhofer IAP (2), IAR, Novamont, Isowood, Biowert, Evonik, Metabolix



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