

**Editorial**

Nic Alexakis



*Industrial biotechnology is unfortunately not very active in Switzerland. The OECD (Organization for Economic Cooperation and Development), Scienceindustries and NTN Swiss Biotech™ are about to change this for the*

*benefit of the biotech-sector in Switzerland. Sustainability is one of the key bioeconomy benefits that Europe will investigate and develop further.*

*SBA (Swiss Biotech Association) is part of an Framework Protocol Program FP11 Project called ECOBIOFOR (ECOpaint BIO-based FORMulations - [www.ecobi-for.eu](http://www.ecobi-for.eu)). This project focuses on the development and production of bio-based solvents, by the easiest chemical and biotech production way. The advantages will be a key focus for the chemical industry moving forward.*

**ECOBIOFOR Gains Momentum**



The project to create solvents from biomass is now 12 months underway. At the September consortium meeting in San Sebastian, the three research Institutes reported the progress made in this EU funded project to the eight beneficiaries.

With biomass as starting material the project has a threefold objective:

- To synthesize copies of a few oxygenated solvents like MEK (Methyl ethyl ketone also known as butanone) and acetates
- To synthesize a reactive solvent for high solids alkyd systems and thereby replace a large part of the aromatic solvents
- Find re-use opportunities for by products from the previous two routes

The use of these solvents is intended for the paint industry which is the biggest user of solvents by volume. A starting point in this project was to make an overview of market-available, bio-based materials (like lactates) and their properties. This inventory has since been made and the real trials for synthesizing from biomass have started. The first lab scale quantities of some acetates have been successfully produced. The paint companies in the consortium are about to evaluate the performance of these new solvents in some of their paint formulations.

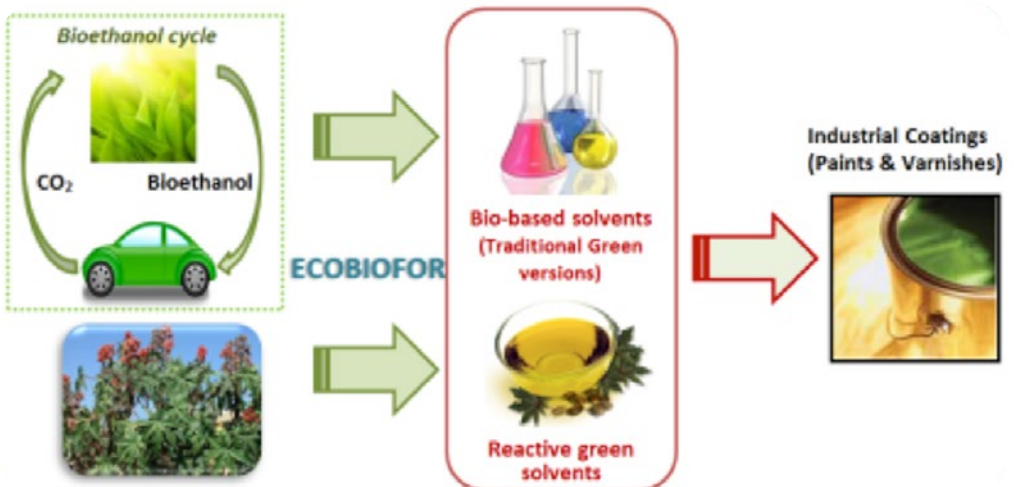
Responding to the first results, the coating companies and associations stressed the importance of the purity of such solvents. The researchers have to be aware that the paint industry is used to high purity grades and for their use in many different applications; in particular 2-component iso-cyanate or epoxy paints. Any residues of water or other substances may impact the network building and therewith the performance of the paint formulation. *(continued on next page)*

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**The Process**



NTN partners:



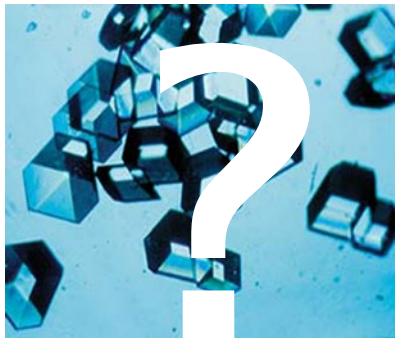
Project partner:



(continued: *ECOBIOFOR Gains Momentum*)

Further into the project, the economics of these new synthesizing routes will need careful investigation. Commercially produced quantities should be comparable with solvents derived from petrochemical sources. This will be a challenge indeed and especially with today's low oil prices. Certainly, there is still a lot to do before the biomass route fulfills its promise for the future. The ultimate demonstration of being more sustainable will have to be proven with a life-cycle assessment covering starting materials and the whole production process.

The paint industry would substantially enhance sustainability if the solvents came from biomass. For the research institutes however, it is clear that much work is still to be done to achieve the goals before the project finishes in December 2016. Nevertheless, if the project achieves the afore-mentioned goals, it will open the door to new opportunities and innovation, responding to the sector's needs to introduce more environmentally-friendly products in the market.



## What is Industrial Biotechnology?

Industrial or white biotechnology uses enzymes and micro-organisms to make biobased products in sectors such as chemicals, food and feed, detergents, paper and pulp, textiles and bioenergy (such as biofuels or biogas). In doing so, it uses renewable raw materials and is one of the most promising and innovative approaches to lowering greenhouse gas emissions.

The application of industrial biotechnology has been proven to make significant contributions towards mitigating the impacts of climate change in these and other sectors. In addition to environmental benefits, biotechnology can improve industry's performance and product value and, as the technology develops and matures, white biotechnology will yield more and more viable solutions for our environment.

## Bioeconomy 2.0 Will Help Lead The EU's Renewable Revolution

Utrecht, 12 April 2016

**On the occasion of Bioeconomy Utrecht 2016, the fourth bioeconomy stakeholders' conference, the European Bioeconomy Alliance (EUBA) called on the EU to lead a worldwide transition towards a renewable, low-carbon economy. Europe has all of the means necessary to become a global leader in the bioeconomy, if its potential is realized and embraced by European policy makers.**

The bioeconomy encompasses the sustainable production of renewable resources and their conversion into food, feed, fibers, materials, chemicals and bioenergy through efficient, innovative technologies. It is already worth €2 trillion annually and employs 22 million Europeans, but holds the potential to significantly further boost competitiveness and long-term economic growth. At a time when the pressure is on to deliver on post-Paris climate commitments, the bioeconomy offers a viable alternative to today's fossil carbon equivalents and has the potential to save up to 2.5 billion tonnes of CO<sub>2</sub> per year.

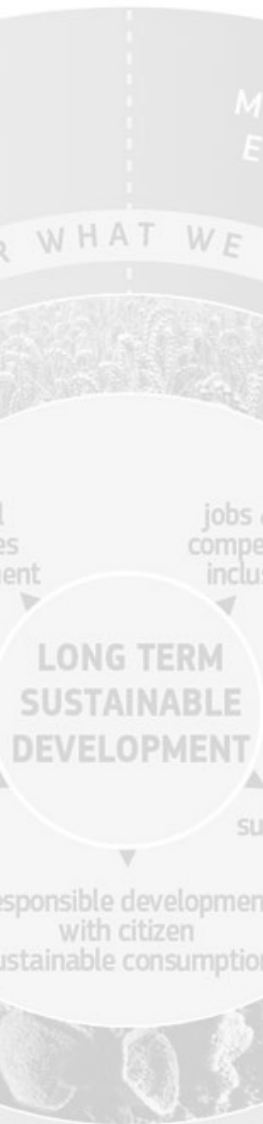
In advance of the conference, EUBA members, together with other stakeholders in the growing bio-based community produced a set of recommendations on how Europe can promote bio-based products in public procurement. The report, which was launched at the conference in Utrecht, outlines what needs to be done at EU, regional and national level to create dynamic new markets for home-grown, EU-sourced bio-based products.

Speaking on behalf of EUBA, Pekka Pesonen, Secretary General of Copa and Cogeca commented: 'We are at a pivotal moment in the development of the European bioeconomy. The EU's strategy is currently being reviewed and we find that we have both great achievements to celebrate as well as

some much needed new measures to put in place. Financial tools are needed to boost innovation and investment in existing and new bio-based value chains. In addition, boosting public procurement of bio-based products is one example of how Europe can develop renewable product markets and accelerate the move towards a circular bioeconomy.'

Also speaking on behalf of the Alliance, Jamie Fortescue, Managing Director of Starch Europe, a member of the Primary Food Processors added: 'Europe has, in abundance, the renewable resources, industrial base and know-how to lead its own bioeconomy revolution. What we now need, to attract more contributors and investment, is open and inclusive discussion underpinned by unwavering, cross-sectoral, political commitment. We want to look back at Utrecht in five years' time and marvel at what has been achieved in the interim.'

EUBA member EuropaBio's Industrial Biotech Council Chair, Stephan Tanda, concluded: 'With the steadfast support and leadership of the European institutions, the member states and their regions, huge progress has been made over the past five years with many national authorities setting out their own tailor-made roadmaps towards vibrant and regenerative home-grown bio economies. In addition, thanks to the development and launch of the EU's first ever Bio-based Industries Joint Undertaking for €3.7 billion, ground-breaking cross-sectoral innovation has been given a new lease of life. As a result, we will see new partnerships forming across borders and disciplines in the development of smarter, more sustainable products and processes. The potential is there to be harnessed and, with the right support, Europe will lead the way in the development of a world leading bioeconomy.'



# Enabling a 50 Billion European Industrial Biotechnology Market by 2030

BRUSSELS, June 23rd, 2016

**The BIO-TIC project launched its final roadmap for tackling barriers to industrial biotechnology in Europe. The roadmap is entitled 'The Bioeconomy Enabled: A roadmap to a thriving industrial biotechnology sector in Europe'. BIO-TIC is the industrial biotech research and innovation platforms center working for technological innovation and solid foundations to support a growing industrial biotech sector in Europe.**

The roadmap was introduced at the project's high level policy conference, entitled 'From bugs to business: Unlocking the Bioeconomy in Europe'. This was held in Belgium at the Royal Flemish Academy for Science and the Arts, Brussels. The conference brought together industry, academia, policy makers, innovation agencies and other stakeholders to discuss the actions needed to stimulate the development of industrial biotechnology in Europe.

According to the BIO-TIC partners, the EU market for industrial biotechnology-derived products is expected to increase from €28 billion in 2013 to €50 billion in 2030. This growth will be largely driven by replacement of fossil carbon materials, reflecting Europe's desire to develop more sustainable and resource-efficient products and processes.

However, in spite of this market growth, significant hurdles remain and hamper the full development of industrial biotechnology in Europe. For example, the principal barrier relates to product cost-competitiveness, both compared to fossil alternatives and to equivalent products from elsewhere in the world. To tackle this and other hurdles, and to ensure that most of this potential is realized in Europe, the BIO-TIC roadmap outlines ten pragmatic recommendations for action.

These are to:

1. Improve opportunities for feedstock producers within the bioeconomy;
2. Investigate the scope for using novel biomass;
3. Develop a workforce which can maintain Europe's competitiveness in industrial biotechnology;
4. Introduce a long-term, stable and transparent policy and incentive framework to promote the bioeconomy;
5. Improve public perception and awareness of industrial biotechnology and bio-based products;
6. Identify, leverage and build upon EU capabilities for pilot and demonstration facilities;
7. Promote the use of co-products;
8. Improve the bioconversion and downstream processing steps;
9. Improve access to financing for large scale biorefinery projects;
10. Develop stronger relationships between conventional and non-conventional players in the value chain.

Nathalie Moll, Secretary General of EuropaBio, which coordinated the project, said 'We are thrilled to see BIO-TIC come to fruition. The roadmap represents a comprehensive summary of expertise and insight from across the member states. In 10 recommendations, it highlights ways of capturing the huge potential for environmental, societal and economic solutions that this cutting-edge technology offers in the development of a more competitive, circular EU bioeconomy'.

All BIO-TIC roadmaps can be downloaded via the web portal: [www.industrialbiotech-europe.eu/](http://www.industrialbiotech-europe.eu/).

## The Potential for Industrial Biotechnology in Europe

**Industrial biotechnology has been identified as a key enabling technology which can drive European competitiveness in the coming decades and its use can help develop a more sustainable and resource-efficient Europe. However, major hurdles hamper its full exploitation. These include access to feedstock and financing, low public awareness of the benefits of industrial biotechnology products, a lack of incentives for producing them and various technological constraints.**

The BIO-TIC project, coordinated by EuropaBio, held a series of workshops in late 2014 to examine what could be done to overcome the hurdles to industrial biotechnology in Europe and to develop concrete, actionable solutions to unlock the potential of this technology. The solutions developed in these workshops will be used in the development of an integrated roadmap for Europe, which will be completed and submitted to the European Commission in summer 2015.

Input from market, policy and technological experts is crucial to help us develop recommendations which best address the needs of industry. If you have expertise in any of the product categories, or work in an industrial sector where industrial biotechnology could be used, but is not currently, we are keen to hear your views!

KEY TECHNOLOGY  
COMPETITIVENESS  
SUSTAINABILITY  
EFFICIENCY  
SOLUTIONS  
INTEGRATED  
ROADMAP  
DEVELOP  
RECOMMENDATIONS  
YOUR INPUT



## Upcoming Events of SBA - 2016

▶ September 20-23	<b>ILMAC</b>	Basel
▶ September 23	<b>Research Day by NTN Swiss Biotech</b>	Basel
▶ September 29	<b>Swiss Biotech Fall Day</b>	Fribourg
▶ November 7-9	<b>BioEurope</b>	Cologne
▶ November 30	<b>Innovation Day</b>	Brugg

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### Swiss Biotech Report 2016

The expectation is that biotechnology will continue to play a key role in the sustainable development of Switzerland. Boosting innovation in this industry will be vital to economic growth, to our environmental endeavours, to commercialization of new technologies and to public health.

By further strengthening academic output, enablers and competitive clusters, we can create a strong 'bioeconomy' moving forward. The current report highlights major initiatives and key players in the value proposition, and looks at the contribution they make to its success.

Download a copy at: [www.swissbiotechreport.ch](http://www.swissbiotechreport.ch)

### NTN Swiss Biotech

The NTN Swiss Biotech has received positive feedback and will be continued for 2017/2018.

### swiTT Workshop - Non-Patent Licensing

*Bern, Switzerland, 06 Sep 2016*

Discount for SBA members. This conference will give an overview on the three major non-patent license types relevant for academia: Licensing of software (copyright); Licensing of biological materials; Licensing of know-how. The legal basis for each of the intellectual property rights will be introduced and key aspects of the contractual framework will be elucidated.



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