



Bionanopolys



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**OITB
NEWS
NO. 2**

9 GOOD REASONS WHY TO APPLY FOR THE OPEN CALL

KATRIN WEINHANDL, ACIB GMBH

Bionanopolys is an open innovation test-bed that aims at the development of safe nano-enabled bio-based materials. The interdisciplinary team of Bionanopolys creates an open innovation environment that allows a holistic approach for novel innovative technologies. The service portfolio includes 14 pilot plants, transversal and non-technical services such as business consultancy that can be accessed via a Single Entry Point (SEP). Why should you make use of the Bionanopolys platform? Here are 9 good reasons:

1. You have an innovative idea but you are lacking some experts for your approach?

Our 14 pilot plants and technical services are providing infrastructure and know-how to develop and validate your project idea appropriately. You don't need to re-invent the wheel and learn everything from scratch, but you will benefit from the long-lasting knowledge of our technical experts.

2. You are not experienced in business development?

Our business support services cover different aspects such as market analysis, SWOT analysis, PESTLE analysis or business model canvas development. Our team is organizing workshops and mentorings that cover most relevant aspects of a business and we help you to get in contact with your potential stakeholders.

3. You need help in legal support for your development process?

Let's leave the legal topics to those who have been educated in that. You are supported in regulatory issues and IPR management, and you will be advised about your individual protection strategy for your idea.

4. A thorough life cycle assessment is out of your capacities?

An innovative idea is one thing, its sustainability is the other. Validations like techno-economic assessment or life cycle assessment will help you to identify cost drivers, relevant aspects to impact or social acceptance of your idea.

5. You need a sound risk or safety analysis?

With our safety evaluation and risk management we can define Safe-by-Design strategies together, the food safety service will support you in regulatory issues and assessments and the analyses for compostability will assess biodegradation and recyclability. Risks for your approach are identified and mitigation measures are defined in a joint approach.

6. You want to extend your network on materials sector?

Our consortium of 26 partners is spread all over Europe and brings along a huge network in different industrial sectors such as packaging, textiles, agriculture, cosmetics, pharma or food. Our scientists are employed by universities or research institutions like for example University of Ghent, ITENE, Austrian Centre of Industrial Biotechnology, biotrend, CTP, Wroclaw University, CENTI, Cidaut, AITEX, STFI, Cellmat Technologies or Particula.

7. You are part of a legal organization?

If you are part of an SME, a start-up company, a large entity or a research centre, you are highly welcome to submit your idea. Even research institutions of universities are allowed to join our network by sending us an application form.

8. You belong to one of these industry sectors?

Our pilot plants and services are addressing innovators from the industry sectors of polymers, packaging, textiles, agriculture, cosmetics, pharma, hygiene, food or additive manufacturing. If your idea fits to one of these fields, don't hesitate to get in touch!

9. You want to create an impact and work on sustainable solution for climate protection?

Let's join forces and create an impact! With a joint approach we want to save fossil resources by providing competitive alternatives. We want to reduce greenhouse gas emissions and accelerate innovation processes on their way to the market.



THE OITB PLATFORM HAS LAUNCHED!

On 17th February, the Bionanopolys open call kicked off with a virtual event and since then, the portal is open for your applications! You are eligible if you are a legal entity (eg SME, large company, research institution etc.) and if your topic is related to the development of bio-based nano-materials or nanocomposites.

WHY IS THERE AN OPEN CALL?

The Bionanopolys Open Innovation Test-Bed is an EU-funded project (H2020) that aims to develop an ecosystem offering a wide range of cutting-edge technologies and services. It is an opportunity for clients with new ideas and innovative projects to access our facilities, capabilities and services. In order to improve this ecosystem according to the client's needs, the open call launched a test phase where new customers have a unique chance to use our service offering for free. Of course, we only have capacity for a number of test cases. Therefore, we have to select the most suitable applicants for the free test phase based on the evaluation criteria defined for the project.

WHEN AND HOW CAN I SUBMIT PROJECT IDEAS?

The open call is lasting from 17th February to 30th April 2023. In this period of time you can submit your project ideas by registering to our platform and filling the online form. To increase your chance for the free trial, answer the questions as clear and specific as possible. Follow the application guideline and contact us in case of any questions. Of course we can do an NDA before you start filling the form. A template NDA is provided at the platform.

WHO IS EVALUATING THE SUBMISSIONS?

For the selection of applicants we have a core team of Bionanopolys to evaluate all incoming submissions and to score the ideas according to the evaluation criteria of the application guidelines. The core team is composed of the pilot lines service leader (AITECH), the technological service leader (CEA), the business and innovation service leader (PARTICULAR & EBN) and the Bionanopolys project coordinator (ITENE). The evaluation team will be supervised and supported by the Management Board of Bionanopolys.

HOW DO I GET INFORMED ABOUT THE OUTCOME?

You will be notified by email, if your application has been selected or not. If you are selected, you will be invited to complete your application form (stage 2, additional information) and to negotiate the tailored service package with our team. In September 2023, the implementation of selected projects will start.



**You missed our virtual open day?
Watch the recording:**

https://www.youtube.com/watch?v=6vOn2qkGH_U&t=5s

Start your submission

YOU ARE NOT SURE IF YOUR PROJECT IDEA FITS? CONTACT US!

Our team will be happy to advise you for submission. Let's get started!

USER VOICES:

BIONANOPOLYS FOR TEXTILE INDUSTRY

WHAT IS TEXTISOLS MISSION?

Textisol is a textile sector company, its main activity is to produce non-woven textiles used for personal hygiene and home hygiene. It was founded in 1972, and since then, the focus has been on improving its processes and products. For this purpose, Textisol has always been committed to innovation, within a framework of sustainability performance. The plant has advanced facilities and a multidisciplinary team of technicians with proven and constantly evolving technologies.

WHAT IS YOUR BIONANOPOLYS USE CASE ABOUT?

Textisol is involved in two different use cases: First of all, cellulose nanofibers will be used as reinforcement and nanolignin will be used as antimicrobial additive on non-woven textiles for personal care and cleaning wipes to improve the final product to make them more environmentally friendly and 100% compostable product. In a second approach, active nanocapsules with antimicrobial activity will be provided by the essential oils nanoencapsulated to reduce odours and antimicrobial effect in textiles for personal care (nonwoven textiles).

WHICH SERVICES OF BIONANOPOLYS ARE RELEVANT FOR YOUR USE CASE?

For the use cases mentioned before, a couple of pilot plant services are essential for a complete approach: Extraction of raw materials (PP1), Obtaining cellulose nanoproducts (PP2), Functional nanocapsule production (PP5), Modification and functionalization of nanomaterials (PP6), and Textiles and nonwoven fabrics (PP11) are the services required. They will be complemented by modelling and simulation services as well as a compostability assessment.



Visit **TEXTISOL** Homepage:
<https://www.textisol.com>



Textisol



Images by TEXTISOL

SERVICES IN SPOTLIGHT

FUNCTIONAL NANO CAPSULES DEVELOPMENT AND PRODUCTION

SARA FERNANDES, REGINA MALGUEIRO, CENTI

The Centre for Nanotechnology and Smart Materials – CeNTI - is a private, non-profit R&D institute in the north of Portugal with a multisectoral focus and cutting-edge technology. CeNTI promotes research, technological development, innovation and engineering activities in the fields of nanotechnology, advanced materials and smart systems, exploring breakthrough technologies that enable the development, testing, prototyping and scaling of nanotechnology solutions for industry, focusing on the sectors: "Automotive and Aeronautics", "Construction, Architecture and Smart Buildings", "Health, Protection and Wellbeing" and "Energy and Decarbonization".

CeNTI's participation in the BIONANOPOLYS project focuses, among other things, on the production of bionano-additives, i.e. functional nanocapsules for the controlled release of active ingredients that can be used in various fields.

From an industry perspective, biomaterials are readily adopted if they offer functional properties for high-volume applications and better performance than fossil materials. In this sense, transforming biobased materials to the nanoscale is an important strategy to address this challenge by providing them with new properties needed in many sectors, such as larger specific surface area to solve the problem, high aspect ratio, and improved mechanical, thermal, rheological, optical, barrier, and active properties. Therefore, biomaterials could be a key sector for achieving a climate-neutral EU by 2050.

The production of most capsule systems uses fossil-based polymers for the encapsulating shell, as well as toxic organic solvents in their processing. As such, the deve-

lopment of encapsulated systems at a nanoscale using natural and bio-based materials, as well as greener solvents, and through low environmental impact processes, is a promising approach to address the referred problematic.

In Bionanopolys, Pilot Plant (PP) 5 is comprised of several equipment for the preparation of functional nanocapsules at a pilot scale, such as: 10L capacity reactor, recirculation systems for mixtures homogenization, heating or cooling systems, rotary evaporator that can work in continuous mode, centrifuge, and freeze-dryer. This PP focuses on nanocapsules obtained from cellulose derivatives with essential or vegetable oils encapsulated, guaranteeing the solution sustainability, but similar raw-biomaterials systems can also be used. The encapsulation methods are focused on nanoemulsions; however, they can be easily adapted to other types such as ion gelation, coacervation or even in-situ polymerization. The final materials can be obtained in aqueous dispersion or in dry state.

The obtained bionanoadditives can be used, for example, in coatings for textile industry, to give new or improved functionalities to nonwovens and fabrics (i.e., antimicrobial, etc), turning them into added-value products in a sustainable and efficient way.



SERVICES IN SPOTLIGHT

TEXTILES AND NONWOVEN FABRICS

ELENA TORRES, AITEX & ANNA GROSSE, ROMY NAUMANN, STFI

The Textile Industry Research Association – AITEX, is a research & innovation centre which performs characterisation trials and certification of textile materials and articles for a wide range of sectors including interior design, fashion, work wear, healthcare, sports and leisure, land and sea transport, aerospace and sports surfaces. AITEX has a network of ten international offices providing cover for its associates and clients in fifty countries, and this has led to the centre becoming one of Europe's leading research centres.

The AITEX's core objective is to create and transfer knowledge of textiles to the private sector, making the textile industry more competitive and opening up doors to new opportunities with a high added-value factor. The centre promotes modernisation and the introduction of emerging technologies through its on-going R+D activities and other projects which contribute to the evolution of the textile industry and issues the most appropriate product certifications to allow an article to compete in the international marketplace and facilitate its introduction into high-end niche markets. AITEX research work has culminated in the signing of several bilateral agreements with centres from around the world to exchange experiences, participate in international R+D projects and generate know-how to provide the private sector with a value-added factor for their products.

The Saxon Textile Research Institute (STFI) is a German non-profit research institution in the Free State of Saxony and continues the long standing traditions of the Saxon textile research and textile industry. Process-related and product-related research work of STFI covers classical textile technologies as well as innovative technical solutions for a wide range of applications in nonwovens and technical textiles. The main fields of research are: non-

wovens/films, processing of high-performance fibres, lightweight engineering, technical woven and knitted fabrics, functionalisation/chemical analytics, smart textiles, textile and carbon fibre recycling as well as textile materials research. STFI's expertise is bundled in the Competence Center of Excellence in Nonwovens, the Innovation Center of Technical Textiles and also the Center for Textile Lightweight Engineering.

In 2023, a Center for Textile Sustainability will be inaugurated. STFI runs an accredited textile test laboratory and certification department where all commonly required textile physical, physiological, chemical and optical investigations for fibres, yarns, fabrics and clothing as well as geotextiles are carried out.

STFI works closely with European, national and regional authorities together to promote industrial R&D and recommend support programmes for SMEs. STFI is a long-standing member of TEXTRANET (European Network of Textile Research Organisations) and of EDANA (International Association serving the Nonwovens and Related Industries). The research institute is actively supporting the European Technology Platform (ETP) for the Future of Textiles and Clothing.



In this sense, the participation of AITEX and STFI in BIONANOPOLYS project is focussing on the textile sector providing our broad experience to develop innovative and eco-friendly products by offering pilot plants available in the BIONANOPOLYS portfolio, such as:

Pilot Plant 7 “reactive extrusion” which grants specific properties through covalent bonds between polymer and functional molecules, obtaining biomaterials with stable and irreversible properties.

These functionalised biomaterials are transformed into mono- and multifilaments using **Pilot Plant 11a**, which provides continuous filaments and staple fibres to produce final products. For instance, “weaving pilot plant” allows the obtention of small woven textiles samples from one simple coil, while “nonwoven technology” generates nonwovens with specific properties by mixing staple bio-fibres with natural fibres.

Pilot Plant 11b, the fibre nonwoven line, processes such staple fibres by carding, cross-lapping and needle-punching or stitch-bonding into fibre nonwovens. They

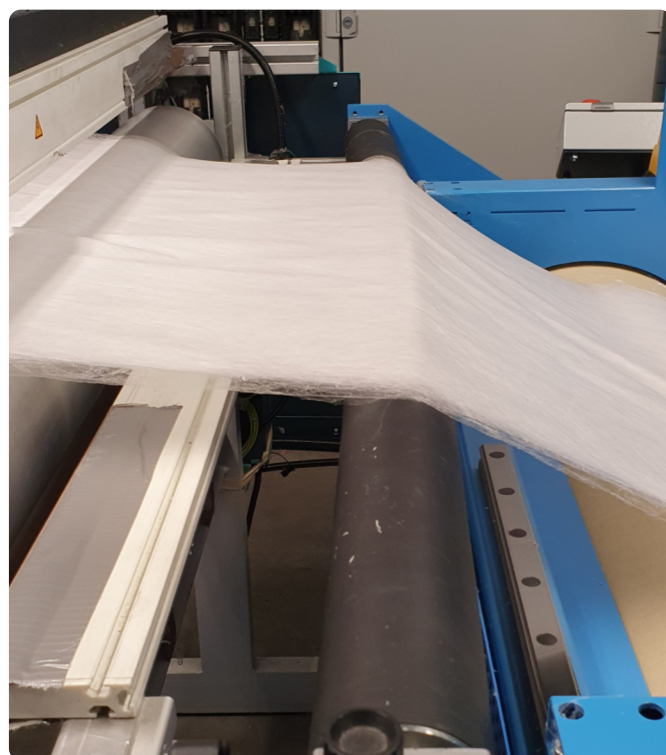
are used for e. g. upholstering material, medical applications (e.g. compresses), coating substrates, interior for the automotive industry as well as insulation material for the building sector.

Pilot Plant 11c is a meltblown nonwoven line for production of nonwovens made of very fine up to ultra-fine filaments for filtration or medical applications.

Then, **Pilot Plant 5** engineers functional nanocapsules with cellulose-based shell and essential or vegetable oils to obtain functional coating for nonwovens and textiles.

Pilot Plant 11d comprises an auxiliary hand-operated system such as spray cabinet, and a batch system such as nanobubble finishing.

Pilot Plant 11e enables the incorporation of functional nanocapsules bonded onto nonwovens and fabrics through solvent-free adhesives and biopolymer dispersions through “hot-melt lamination, knife coating and padding system”.



LET'S MEET AND INTERACT



DEADLINE FOR OPEN CALL SUBMISSIONS:

30th APRIL 2023, SUBMIT HERE:

<https://www.bionanopolys.eu/open-call>



BIONANOPOLYS PITCHING EVENT (EBAN CONGRESS):

24th – 26th MAY 2023, THESSALONIKI, GREECE

www.bionanopolys.eu



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