



Sustainable Chemistry Innovations Shaping the Future of the Process Industry

Significant Success of Start-ups Presented by ISC3 at AICHEMA 2024

Sustainable Chemistry provides solutions to the challenges faced by the process industry. Sustainable textile dyes, alternatives to microplastics, innovative recycling technologies, and AI-supported applications are becoming increasingly important. This is one of the outcomes of AICHEMA 2024. Another key takeaway: Start-ups like Vienna Textile Lab (Austria), BIOWEG (Germany), Plastale (Egypt), Mavisol (Netherlands), and Banyan Nation (India) can make a significant global contribution with their innovative ideas and developments. At the invitation of the [International Sustainable Chemistry Collaborative Centre \(ISC3\)](#), these start-ups showcased their innovations as co-exhibitors at the ISC3 booth and during the "ISC3 and Friends Pitch Slam," held in collaboration with Forum Startup Chemie (Germany), 5-HT (Germany), and Brightlands (Netherlands) on the EY Green Innovation Stage, to a global audience.

5 Start-ups, 5 Valuable Experiences for ISC3 and the Process Industry

“The success of the start-ups presented by ISC3 at AICHEMA 2024, particularly at the Pitch Slam, has confirmed that our Global Start-up Service offers a unique opportunity to advance Sustainable Chemistry innovations in the process industry,” stated Dr. Alexis Bazzanella, Director of the ISC3 Innovation Hub. The ISC3 Innovation Hub’s Start-up Service is the world's first program to provide comprehensive support for innovators in Sustainable Chemistry, offering direct access to talent, experts, stakeholders, and collaborations.

The solutions presented by the start-ups at AICHEMA offer significant environmental benefits for the process industry, such as waste reduction, emission lowering, and enhanced sustainability standards. These advancements are beneficial not only for the environment but also for meeting the growing consumer and regulatory demands for greener and more sustainable products.

Vienna Textile Lab Sets Standards for Sustainable Manufacturing

[Vienna Textile Lab](#) is at the forefront of developing biodegradable dyes and pigments from naturally occurring microorganisms. Their collaboration with leading fashion brands and textile mills has demonstrated the feasibility and benefits of their sustainable dyes. As they now expand their reach into the process industry, the start-up is poised to drive significant environmental improvements and set new standards for sustainable manufacturing. “We are thrilled to see our innovations in textile dyes contributing to broader sustainability efforts in the process industry,” said Karin Fleck, CEO of Vienna

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Textile Lab. "ACHEMA is a great event that allowed us to connect with numerous stakeholders, suppliers, customers and colleagues. ISC3 is an important partner for resources, advice and networking."

BIOWEG offers bio-based alternatives for the process industry

BIOWEG replaces fossil-based chemicals with innovative bio-based alternatives developed through fermentation, material science and green chemistry. Its 100% biodegradable functional ingredients replace synthetics without any loss of quality. The ISC3-supported start-up thus offers an alternative to microplastics for the process industry. "At ACHEMA, we had the opportunity to network with several key industry players, meet potential investors, collaborate with other start-ups and open doors for promising partnerships that could drive joint growth and innovation," explained Naomi Michali, Chief of Staff at BIOWEG. "ISC3's Global Start-up Service offers tailored mentoring programmes, extensive network access and resources that fit perfectly with our sustainability mission."

Mavisol, Plastale and Banyan Nation offer solutions for a circular economy

Mavisol has developed an on-line quality monitoring solution using machine vision and AI for PET packaging production. This technology enables the wider use of recycled PET (rPET) without compromising quality and supports the transition to a circular economy in line with Industry 4.0 standards. "The support of ISC3 has been invaluable in showcasing our innovation on a global stage and engaging with key industry players," said Nikolai Bredelev, CEO of Mavisol.

Other solutions for the circular economy were presented by Plastale and Banyan Nation. "We had the privilege to co-exhibit at the ISC3 booth and present to global investors and various stakeholders at the Innovation Stage. ISC3 provided us with a great platform for visibility and exposure," said Abdallah Hassanin, CEO of Plastale.

Start-ups from the partner network presented their ideas at the "ISC3 and Friends Pitch Slam"

Energy Robotics GmbH (Germany) offers inspections with AI-supported robots and drones. This makes it possible, for example, to consistently and reliably monitor critical plant components in chemical plants and capture high-quality data that is difficult for humans to access.

Coac GmbH (Germany) sees itself as a driving force and enabler for data-driven innovations. Its products include intelligent tools for product safety and regulatory compliance as well as smart sensors for laboratories.

Nextmol (Spain) offers cloud-based molecular modelling and artificial intelligence for computational chemistry.

Blueplasma Power (Netherlands/Spain) has a patented technology for converting hard-to-recycle waste (mixed plastics, textiles, foams, paper, ...), which today ends up in landfills or incinerators, into CO₂-free hydrogen and circular carbonates.



ETB Technologies (Netherlands) developed a process to produce bio-butadiene from bio-ethanol with state-of-the-art conversion and selectivity. 1,3-butadiene is a building block for plastics, rubber and other chemicals that is conventionally produced mainly from fossil raw materials.

FRE Technologies (Netherlands) is a clean-tech company with a technology that enables the recycling of low-grade plastic waste, previously considered non-recyclable, into valuable chemicals that can be used in the manufacture of new plastic products.

AllocNow (Germany) offers a scalable solution for the automation of life cycle assessments in accordance with the relevant ISO standards and based on the GHG protocol.

UniteLabs (Switzerland) has developed an integration platform for laboratories that makes it possible to connect laboratory hardware and software, build applications, control instruments and automate dataflow.

Exomatter (Germany) connects and assimilates data from a global network of science-based materials research sources into a powerful search engine. In this way, the start-up enables researchers from all industries and at all levels of technical expertise to find the right materials for their application.

For more information on the innovative solutions presented at AICHEM 2024 and the ISC3's Global Start-up Service, please visit www.isc3.org

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About ISC3

The **International Sustainable Chemistry Collaborative Centre** promotes Sustainable Chemistry for a sustainable world. ISC3 supports the chemical industry and chemical-related sectors in their transformation process through sustainable, innovative approaches from Sustainable Chemistry. The goal is a circular economy that implements the multiple aspects of sustainability over the entire life cycle of products and a rethinking of the behaviour of all stakeholders. To advance the dialogue between different sectors and actors worldwide, including Europe and other regions as well as emerging and developing countries, ISC3 follows a multi-stakeholder approach with the networking of policymakers, public and private sectors, education, science and society. It contributes to international chemicals policy, develops professional and academic training programs, advises companies, and promotes start-ups and research. Founded in 2017 by the Federal Environment Agency and the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection,



the centre is supported by the German Society for International Cooperation (GIZ) and by the Society for Chemical Engineering and Biotechnology (DECHEMA e.V.) as ISC3 Innovation Hub and Leuphana University Lüneburg as ISC3 Research & Education Hub. www.isc3.org