Company profile

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Green Chemistry Campus: accelerating biobased business

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The Green Chemistry Campus (<http://www.greenchemistrycampus.com/>), on the premises of SABIC Innovative Plastics in Bergen op Zoom, is a business accelerator for biobased innovations. B2B entrepreneurs – both large companies and SMEs, knowledge institutions, and the government work closely together in an open innovation environment to develop new biobased technologies and products with a focus on performance materials, chemicals and coatings. Through the valorization of residual flows from the agricultural and food sector, the Campus actively contributes to a sustainable and profitable biobased economy with less dependence on fossil fuels, without competing with food supplies. The Campus is an initiative of the Province of North Brabant, the Municipality of Bergen op Zoom and NV REWIN West-Brabant.

Incubator services to take the step from (pre)start-up to full-scale production

At the Green Chemistry Campus start-up businesses benefit from incubator services to take the step from

(pre)start-up to full-scale production. Large companies and knowledge institutions perform R&D activities at the Campus. Tenants can use SABIC's state-of-the-art process technology laboratories (walk-in fume hoods, reactors) and centre of excellence for analytical technology (chromatography, spectroscopy, and micro-analysis). Furthermore, the Campus provides work spaces, facilitates business development programs, stimulates open innovation in the value chain and hosts an inspiring community of like-minded entrepreneurs.

The Green Chemistry Campus is part of the Biobased Delta, in the Southwest-Netherlands: a triple-helix, public-private valorization platform in the field of biobased chemistry. Under the heading 'Agro meets Chemistry' the Biobased Delta, together with partners in Flanders and the province of South Holland, presents itself, as a Biobased Economy hotspot in Europe.

Three representative examples of companies that are based at the Campus:

1. Progression Industry: innovative green technologies for automotive industry

Progression Industry is a globally operating company, which aims to excel in researching and developing innovative green technologies, products and services for the automotive industry and automotive aftermarket. One of its products is CyclOx which is an abbreviation for cyclic oxygenates. The combination of a cyclic structure and onboard oxygen improves the fuel-oxygen mixing process before and during combustion, thereby suppressing soot formation. On average, the addition of 10% CyclOx® to diesel fuel results in a 50% (best-in-class) decline in soot emissions.

2. Nettenergy: mobile pyrolysis plant

Nettenergy produces renewable energy and material on the basis of plant biomass. The company specializes in developing the innovative 2nd generation

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flash pyrolysis technology PyroFlash and in producing high quality pyrolysis oil (3% water content, HHV 24 MJ/kg). Municipalities, forest managers and farmers can use Nettenergy's unique mobile pyrolysis plant to process their raw waste material (wood, grass and crop residues) to generate electricity and heat.

3. Planty Pot: bio degradable plant pots out of potato industry waste material

Planty Pot BV manufactures bio degradable plant pots. Planty Pots are made out of waste material from the potato industry. The waste stream starch that is released from the cutting of fries and chips is collected and processed (upgraded) into bio plastic.

Shared Research Center Biorizon: technology development of functionalized biobased aromatics

One major development at the Green Chemistry Campus is the launch of Biorizon (<http://www.biorizon.eu/>) that is based at the Campus. Biorizon is a Shared Research Center that focuses on the technology development of sustainable and profitable functionalized aromatics out of sugars and lignin. Biorizon is anticipating the expected growing shortage of aromatics from the petrochemical industry and the widely shared ambition to green the chemical industry. The goal is to be a leading European Center for functionalized biobased aromatics within 3 years and to be in the global top 3 within 5 years.

This Shared Research Center Biorizon is a cross-border initiative between TNO, VITO and the Green Chemistry Campus and is part of Biobased Delta.

The industry's need for security of supply

Aromatic compounds are at the basis of our daily life. Among numerous applications, aromatics can be found in carpets, vitamins, tires, paints and flame-retardants. Currently Biorizon is talking to global industry leaders in the fields of feedstock, conversion, equipment and end products to invite them to join this Shared Research Center. During this industry consultation it became clear to Biorizon that the main focus of industry is not on premium value, but rather on security of supply.

Develop biobased aromatics to address ecological and economical challenges

Currently virtually all aromatic building blocks are made from fossil oil that will become scarce. Hence, it is important to develop technology to replace the current aromatic petrochemical based building blocks by alternative feedstocks. Shale gas and shale oil are rapidly emerging as a new feedstock, but will produce mainly light fractions such as ethylene/propylene, and no aromatics in gas-fueled crackers. Given the global challenges that society is facing with respect to CO₂ emissions, pollution, global warming and shortage of suitable fossil oil reserves, new biobased production routes need to be realized urgently to address the ecological and economic challenges that humanity and industry are facing.

Besides ensuring security of supply, and CO₂-reduction, Biorizon is also looking to establish cost reductions, develop new aromatic compounds (e.g. from lignin) and new products. The overall target is to create profitable business for the participating companies.

Industry driven Shared Research Center

Setting up a sustainable and economically successful commercial scale business, is a major challenge in this field. A significant research effort is needed, more than one single organization can handle. Therefore Biorizon is operated as a Shared Research Center, based on the open innovation methodology, bringing together collective intelligence of various industries, companies and knowledge organizations. The multi-disciplined technological need, as well as the long term roadmap make this effort suitable for shared research, sharing intelligence, investments, risks and workload.

Ambition: global top 3 within 5 years Biorizon community

Biorizon's ambition is to be a leading European Center for functionalized biobased aromatics within 3 years and to be in the global top 3 within 5 years. In order to achieve this, we will build up a group of minimum 50 FTE scientists and technologists and grow this team every year, both in size and quality. Resident technologists of the participating companies will work closely together with the core team of VITO and TNO. This will assure the best results for our partners. The results of Biorizon will allow the partners to commercialize biobased business successfully.

Biorizon aims to be *the* reliable source for information on functionalized biobased aromatics and to provide high quality events and excellent networking opportunities. For partners and companies that want to consider joining our Shared Research Center we've created a community that can be found at <http://www.biorizon.eu/community>.

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Roadmap: develop functionalized aromatics from sugar and lignin