The Knowledge Based Bio-Economy towards 2020

Turning challenges into opportunities

Conference
14 September 2010
Brussels, Belgium

www.kbbe2010.be

Exhibition Catalogue

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Food, Agriculture and Fisheries, and Biotechnology
Knowledge-Based Bio-Economy (KBBE)

CONTENT

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INTRODUCTION

The bio-economy has a lot to offer in terms of people, planet and profit. Europe has already taken a firm position in building a bio-based economy. Today, European companies produce a broad range of bio-based products, and are the global market leader in industrial enzymes technology.

The bio-economy field is an extraordinarily diverse one. Applications range from food and animal feed to chemicals and materials such as detergents, industrial lubricants, paper and pulp, textiles, pharmaceuticals and energy.

Bio-based products are all around us, often much closer than we might think!
The goal of the Knowledge Based Bio-Economy towards 2020 conference exhibition is to make the bio-based economy more tangible and visible and to raise awareness of the societal benefits that a shift towards a bio-based economy can provide.

The twenty exhibition stands from large companies, SME's and research institutions, from nine different European countries will guide you through a fascinating perspective of what a bio-based economy has to offer. You will be amazed by the different applications of red, white, green and blue biotechnology and the resulting bio-based products: from flower pots to tires, from sports drinks to mattresses, from animal feed to plastics. These exhibited products and processes give a snapshot of the enormous potential of biotechnology to tackle health, climate, food scarcity and other challenges.
Furthermore, this exhibition will once again demonstrate Europe's strength in research and knowledge base on the bio-based economy and, even more important, how innovative ideas and excellent research can be converted into exciting products and processes that bring Europe a step closer to a green and sustainable society, resulting in significant improvements in well-being.

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Objectives

There are huge opportunities to add value to waste and by-products from animal production, by treating them with new and safe biotechnological tools and processes. Thanks to international R&D, current non-valuable poultry residues are converted via innovative technological methods and bio-catalytic technologies into peptide hydrolysates of high food and feed value.
The objective is to obtain a product range with programmed functional properties and sensory characteristics to meet consumer expectations, while ensuring end-product safety and satisfying more objective and subjective requirements (taste, aroma, rheology, balanced amino acid composition, digestibility, absence of abnormal or poorly metabolized compounds, low allergenicity, high antioxidant capacity, bifidogenic activity, etc.).
Current collaboration aims to develop an economical and environmentally sound technological platform for multi-purpose processing of animal by-products, in particular poultry (including feathers, bone and meat trimmings), flexible for tailoring systems and proteins developed for different industrial sector needs (e.g. poultry, food products, dietetics, cosmetics, special nutrition, pet food, biodiesel).

These are currently being implemented in Europe, by the company Proliver in Belgium, Italy and France with further implementation planned in Russia and in other regions of the world.

Products

Full design, implementation and support of turn-key systems for the poultry industry have been shown to provide high-quality proteins with distinctive functional properties, reducing waste elimination and environmental impacts. Superior productivity of proteins for food and feed nutrition (>90% in volume) and unique feather treatments benefit from advanced patented enzymatic processes and applied technology.
Exhibited products will be:

- Functional Meat Protein (powder);
- Functional Meat Protein (concentrate);
- Feather's Meal;
- Feather's Meal enzymatically treated;
- Bio-Diesel (from chicken fat).

About CORE Biotech

CORE Biotech S.A., based in Brussels, is an engineering company whose mission is to introduce innovation in the field of agri-food and biotechnologies. In particular, it is specialized in protein-based nutritional solutions obtained from innovative animal by-product patented treatment technologies. Founding members have been active for some time in establishing, at a European level, technology and marketing networking with scientific institutions as well as with the agri-food industry in the area of industrial application of novel technologies addressing enhanced processing of animal by-product resources. In close co-operation with leading academic and R&D institutions in the EU and in the RF, the activities by projects are exploited both by participating in European research, and through the exploitation of innovative turn-key systems to the food industry value chain.

References

PROSPARE (PROgress in Saving Proteins And Recovering Energy) is a EU funded project in the FP7-KBBE research Programme, with partners from Italy, Russia and Belgium.

DEVAN CHEMICALS
Klein Frankrijk 18 • 9600 Ronse • Belgium • www.devan.net

PROBIOTICS IN TEXTILES, AN INNOVATIVE AND SUSTAINABLE SOLUTION FOR MICROBIAL MANAGEMENT

Objectives

A broad range of pathogenic (disease causing) micro-organisms cause numerous health problems for both humans and animals. Some examples are Campylobacter, Candida, Clostridium, E. coli, Legionella, Listeria and Streptococcus.
Using antibiotics and disinfectants, these problems have been easily controlled over the past decades. However, in recent years a rapidly increasing resistance against antibiotics has been observed, urgently calling for a new approach.

- **The Probiotex™ concept**

Devan offers an innovative and sustainable solution to microbial problems that rely on the concept of 'microbial management', where completely sterile environments are no longer desired, but instead a stable and healthy microbial community is created. This can be achieved by means of probiotic micro-organisms. These are safe and useful bacteria or yeasts that are already known and have already been used for years in food.
Through extensive research and validation tests in collaboration with Ghent University, Devan has succeeded in applying this probiotic concept to textiles.

- **Microbial Management, mode of action**

Probitotex™ products have no direct biocidal action towards other organisms. The mechanism of action is based on the principle of 'competitive exclusion', combined with an influence on the 'quorum sensing' communication between pathogenic organisms.

Products

The technologies that are available for the medical market include antimicrobial, fire retardant, antistatic, comfort enhancers and stain release products. These materials will be available to view.

About Devan Chemicals

The Devan Group develops and manufactures speciality chemicals for the textile industry. Our core business is protecting and modifying textiles surfaces, creating new and innovative properties and functionality. Our aim is to develop advanced technologies and tailor-made products in close co-operation with our customers. Our goal is to be the bridge between new technologies and the end consumer. Being a part of the success of our customer is what gives us satisfaction in our work. From initial ideas to concepts, from first technical trials and production to commercialisation and marketing, we offer reliable global support.

GROWING A PORTFOLIO OF BIO BASED CHEMICALS AND PERFORMANCE MATERIALS

Objectives

DSM is committed to playing a leading role in the transition to the bio-based economy. The company is active in the development of bio-based chemicals and materials: the building blocks for the modern economy. With a growing portfolio of composite resins and engineering plastics suitable for a range of industrial applications and sectors, DSM has established an early leadership position in the emerging market for bio performance materials.

Furthermore, DSM is currently developing a new second generation technology that will enable bio-fuels to be made from the sugars broken down – using enzymes developed by DSM - from agricultural waste and other fuel crops suited to non-arable land.

Products

Including Arnitel® Eco, EcoPaXX™, Palapreg® ECO

- **Palapreg® ECO** is composed of 55% renewable resources, making it the composite resin material with the highest bio-based content available on the market today. Industry testing has proven that DSM has been able to achieve this high renewable content without making any sacrifice to product performance or production speeds.

- **EcoPaXX™** is a high-performance polyamide that combines the benefits of a high melting point (approx. 250° C), low moisture absorption and excellent resistance to various chemical substances, including for instance road salt. Approximately 70% of the material is based on building blocks derived from castor oil, a renewable resource.

- **Arnitel® Eco** is a high performance thermoplastic copolyester (TPC) with a 20%-50% content derived from renewable resources, depending on the hardness of the grade. The new material, which is already being sampled to selected customers, is specifically suited for applications in Consumer Electronics, Sports & Leisure and Automotive Interior.

About DSM

Royal DSM N.V. creates solutions that nourish, protect and improve performance. Its end markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electrical and electronics, life protection and housing. DSM manages its business with a focus on the triple bottom line of economic prosperity, environmental quality and social equity, which it pursues simultaneously and in parallel. DSM generates annual net sales of about 8 billion and employs some 22,700 people worldwide. The company is headquartered in the Netherlands, with locations on five continents. DSM is listed on Euronext Amsterdam.

Unlimited. DSM

DUPONT

Chemin du Pavillon 2 • 1218 Le Grand Saconnex • Geneva • Switzerland • www.dupont.com

DUPONT APPLIED BIOSCIENCES AND RENEWABLE SOURCED™ MATERIALS. HIGH-PERFORMANCE MATERIALS AND FUELS DERIVED FROM RENEWABLE SOURCES

Objectives

Renewably Sourced™ Materials from DuPont offer several benefits over petroleum-based products including reduced dependence on petroleum and reduction of the net production of greenhouse gases. Applications for renewably sourced products cross numerous industries and markets. They are used in a wide variety of products including carpeting, fabrics for clothing and interiors, personal care products, automotive components, liquid detergents, food packaging and antifreeze.

- **Biofuels**

One of the greatest challenges facing the energy industry today is the transportation fuels sector. At the forefront of renewably sourced fuel alternatives are two solutions from DuPont and its partners: biobutanol (through Butamax Advanced Biofuels - a joint venture with BP) and cellulosic ethanol (through DDCE - a joint venture with Danisco). These new alternatives to petroleum-based fuels will be renewable, locally sourced, cost-effective, and viable across all geographies with a greatly reduced environmental footprint. Biobutanol and cellulosic ethanol will provide improved options for expanding energy supplies and accelerate the move to renewable transportation fuels, which will help to lower overall greenhouse gas emissions.

Products

Zemea® Propanediol: a 100% renewably sourced alternative to glycols for Cosmetics & Personal Care products.

Susterra® Propanediol: a 100% renewably sourced ingredient for Airplane Deicing fluids, (displayed) heat-transfer fluids and building block for polymer applications (Sorona®, Cerenol®, Polyurethanes, Elastomers...).

Sorona® PTT: 37% renewably sourced fiber for Apparel, Upholstery and Carpet applications.

About DuPont

DuPont is a science-based products and services company. Founded in 1802, DuPont puts science to work by creating sustainable solutions essential for a better, safer, healthier life for people everywhere. Operating in more than 90 countries, DuPont offers a wide range of innovative products and services for markets including agriculture and food; building and construction; communications and transportation.

ECO-SURFACTANTS AS ECOLOGICAL COUNTERPARTS OF CONVENTIONAL SURFACTANTS

Objectives

Ecover has developed pioneering bio-surfactants, called sophorolipids. These are completely natural compounds created through the action of micro-organisms such as yeast, in a fully biochemical and energy-efficient production process. Sophorolipids have a number of unique and beneficial characteristics compared to conventional surfactants. They are fully renewable, fast and completely biodegradable, have a low toxicity level and are highly efficient.

Bio-surfactants are used as a sustainable ingredient for hard surface cleaning applications such as window cleaning and all-purpose cleaners. In 2009 the first products containing these in-house developed bio-surfactants or Eco-Surfactants, as we call them, were launched. These products are praised by consumers as very effective ecological products and have been awarded and nominated for several prizes.

Eco-Surfactants are the ecological counterparts of conventional surfactants in washing and cleaning products. Surfactants act as the cleaning agents in these products and are therefore indispensable. Ecover has spent over 7 years working with various research institutes developing the production process for this ingredient. The use of Eco-Surfactants in washing and cleaning products has been patented by Ecover.

For its production process of these bio-surfactants, Ecover was selected as a finalist for the European Business Awards for the Environment in the Process Award category. Also, Ecover is currently looking into the commercialisation of these biosurfactants as a sustainable ingredient in different areas such as industrial cleaning, agriculture and cosmetics in order to reduce the number of classic surfactants that pollute the environment.

Products

Household cleaning products.

About Ecover

Ecover is a Belgian company founded in 1980 and devoted to developing and producing effective and ecological washing and cleaning products made from plant-based and mineral ingredients. Ecover's vision of sustainability takes ecological, economic and social aspects into account. Strict criteria are employed along the way as guidelines for all business operations. The company operates with sustainability at its very core and has gained knowledge from years of experience that it is a feasible way to operate. Ecover is constantly innovating and pushing boundaries to create new and more effective products that have a minimum negative impact on the environment. The products are manufactured in Ecover's world-famous ecological factories in Belgium and France. Ecover maintains offices in the USA, UK, Germany & Switzerland. Currently the company employs 157 people and generated in 2009 consolidated revenue of € 65 million.

ECOVER
POWERED BY NATURE

GENENCOR, A DIVISON OF DANISCO

Archimedesweg 30 • 2333 CN • Leiden • The Netherlands • www.genencor.com

BREAKTHROUGH TECHNOLOGY FOR TIRES MADE WITH RENEWABLE BIOMASS

Objectives

Genencor has partnered with The Goodyear Tire & Rubber Company to develop an integrated process to manufacture the BioIsoprene™ monomer on an industrial scale. Through the polymerisation of the BioIsoprene™ monomer to synthetic rubber, Goodyear is able to incorporate the monomer into the production of tires and other elastomer applications. The potential of the collaboration was demonstrated when Goodyear concept tires made with BioIsoprene™ monomer were unveiled at the United Nations Climate Change Conference in December 2009.

Products

Prototype of the bio-isoprene tire.

About Genencor

Genencor®, a division of Danisco A/S, is a world leading enzyme supplier and a pioneer in enzyme innovation and metabolic pathway engineering. Genencor improves processes and product performance, and creates new products, for a spectrum of industries. The sectors we serve range from biofuels and laundry detergents to animal nutrition and food. Genencor was founded in 1982, and today is part of the large Danisco A/S global group, with a sales and distribution network that spans more than 40 countries. Worldwide, the division employs about 1500 people, a dedicated team of world-class experts driving Genencor to become the growth engine in industrial biotech.

GENENCOR®
A Danisco Division

ECOVAS, THE MOST NATURAL PRODUCT IN A NATURAL POT

Objectives

The Ecovas plant pot is suitable for growing and cultivating houseplants and outdoor plants. The Ecovas plant pot is made from biodegradable plastic based on renewable resources, namely vegetable oil.

Ecovas is manufactured by injection moulding technology. The material used enables the production of a stable pot with a smooth surface. Therefore, Ecovas can be used in a similar way as pots made out of polypropylene. No adjustments need to be made on the machines. Ecovas is stable and elastic; it can be stacked and is reliable on the pot-filling machine.

The material used is a biopolymer made from renewable resources, namely vegetable oil. This resin is fully biodegradable under composting conditions and it obtained the OK Compost-label from AIB-Vinçotte (Belgium). Dependent on the use and the desired properties the composition can be adjusted. Standard pots will suffer little or no degradation in nursery. This makes them ideal for the cultivation and transportation of houseplants.

Products

Exhibits are biodegradable and compostable materials: plant pots and stakes to fix geo-textile:

- Ecovas: compostable and biodegradable plant, breaks down even at low temperature in the soil
- BioPin: fixing peg made from PLA reinforced with vegetable fibres (compound)
- Econet: biodegradable tree protection net
- BioFilm Sylva: biodegradable mulch film used in landscaping

About GroenCreatie

GroenCreatie bvba started 10 years ago with the production of biodegradable and compostable products for horticulture, agriculture and landscaping. Our main products are biodegradable plant pots and mulch film. Since 2005 new products have been developed and added to our product list, such as tree protection nets, pegs and flower sleeves. All these products are compostable. Most of our products are made by injection moulding. Extrusion and thermoforming was added two years ago. By making these products GroenCreatie bvba obtained an extensive experience in processing bio-polymers and there qualities. As consultants, we make this knowledge available to other companies looking to find more ecological solutions for there products.

INDUSTRIES & AGRO-RESOURCES (IAR) CLUSTER

50-52 • boulevard Brossolette • BP05 • 02930 Laon Cedex • France • www.iar-pole.com

AGROBIOBASE, THE EUROPEAN SHOWCASE OF BIOPRODUCTS

Objectives

In September 2010, the Industries & Agro-Resources (IAR, based in Northern France) cluster has launched the Agrobiobase, the European database of bio-products covering two classes of bio-based products: biomaterials and biochemicals.

On the website www.agrobiobase.com several functionalities are available:

- **Information on bio-based products**
  Product specifications, suppliers, bio-based content, environmental impacts (life cycle assessment, biodegradability etc.) and other technical information.
- **Free registration for suppliers**
  Producers, exclusive distributors and trading companies can submit their bio-products, free of charge and before December 2010, a good way to promote them around the world!
- **Bio-based market keys**
  Information on bio-products: state of the art paper on bio-products (regulatory, market and scientific information) and the latest news, etc.

Bio-products registered on www.agrobiobase.com are selected by taking criteria such as bio-based content and environmental impact into account.

Products

Examples of registered bio-products from the members of the IAR cluster:

- Biomaterials: bioplastics, biocomposites, natural fibers etc.
- Biochemicals: biosolvents, biosurfactants, biolubricants, chemical intermediates, bio-ingredients etc.

About Industries & Agro-Resources (IAR) cluster

The "Industries & Agro-Resources" (IAR) cluster unites stakeholders from research, higher education, industry and agriculture in the Champagne-Ardenne and Picardy regions of France around a common goal: optimize the added value from the non-food exploitation of plant biomass. IAR has defined 4 strategic fields: BioEnergy, BioMaterials, BioChemicals and BioIngredients. IAR has built an ecosystem that favors the development of innovative projects around the exploitation of the biomass and the Biorefinery concept. IAR performs various missions:

- Management of R&D projects
- Coordination and networking
- Information and strategic intelligence
- Promotional and public relations
- Development of international co-operations

Objectives
The originality of our biotechnological approach is the possibility to work in solid state fermentation (up to 20 L) as well as in usual liquid media up to 150 litres. We are able to work with several bacteria and fungi in both aerobic and anaerobic conditions. In this field we are seeking some European co-operation in enzymes and high added value molecules production.
Our motto is: Materia Nova – your green project partner.

Products
The exhibition will have 2-3 well presented posters showing our activities and competences in biotechnology, as well as a showcase of liquid and solid state fermentations, biopolymers (PHA & PLA) and enzymes (lipases). Showcased products include glasses, carpet and tee-shirts.

About Materia Nova
Established in 2000 by the University of Mons, the Centre of Excellence Materia Nova is a non profit organisation pursuing the following objectives:
- to carry out applied scientific research for industry and to carry out tests and analyses of all the materials used or produced by these industries;
- to make its knowledge, expertise and equipment available to businesses in the form of technological guidance;
- to aid the dissemination and development of research results that correspond to its area of expertise (technology watch);
- to carry out other activities, in particular training programmes, that will contribute to the performance of the above objectives.

Our main competences are: bio-polymers, bio-technology, polymer nanocomposites, plasma surface treatment, development and evaluation of anticorrosion treatments, development of gas micro-sensors and organic semi-conductors and smart coatings.

MateriaNova
MATERIALS R&D CENTRE

MTT AGRIFOOD RESEARCH FINLAND

Humppilantie 14 • FI-31600 • Jokioinen • Finland • www.mtt.fi

Objectives

MTT Agrifood Research Finland is a research and technology partner producing innovations from renewable natural resources. Through its research programmes, MTT Agrifood Research Finland aims to engage with the agricultural and food sector to secure a key role and position for these industries within the sustainable bio-economy of tomorrow. Strong research themes include:

- The production and use of biomaterials and bioenergy,
- Developing and promoting solutions for mitigation of, and adaptation to, climate change, including processes and technologies which reduce discharges to the environment
- Promoting responsibility within the food production/consumption chain, taking account of the needs of industry, consumers, and society at large.Here, with the products on display, we wish to illustrate (a) the innovative use of renewable biomaterials and (b) the exploitation of cutting edge genetic technology to ensure product quality for the consumer.In both cases, the products have been commercialised.

Products

- **Bio-control substances** from birch wood, i.e. agrochemicals from natural substances.
- **Genetic test** for eliminating bad-smelling eggs. The test is used to eliminate certain genes in poultry breeding programmes. Chickens carrying these genes produce bad-smelling eggs.

About MTT

MTT Agrifood Research Finland is a non-profit public research organisation operating under the Finnish Ministry of Agriculture and Forestry. MTT employs a staff of nearly 800 people and is the leading Finnish research institute in the agricultural and food sector. Operating at 14 locations across Finland, as well as actively participating in a wide range of international networks and research projects in Europe and worldwide, MTT produces and disseminates scientific information and new innovations for the agriculture and food sector as a whole. MTT's research promotes food industry competitiveness, the well-being of consumers, the vitality of rural areas, the quality of production and living environments, as well as supporting economic forecasting and policymaking in the agri-food sector. MTT is an active participant in several ongoing projects in EU research programmes, particularly within FP7-KBBE.

NATUREWORKS LLC

PO Box 5528 • 1410 EA • Naarden • The Netherlands • www.natureworksllc.com

INGEO™, INGENIOUS NATURAL PLASTIC PRODUCTS MADE FROM PLANTS, NOT OIL

Objectives

NatureWorks Ingeo™ biopolymer is derived from an abundant 100% annually renewable plant resource.

- Carbon is captured in these plant resources, sequestered from the atmosphere during plant photosynthesis and stored in the starch found in the grain of the plant.
- This starch is then converted into natural sugars.
- NatureWorks LLC uses these plant sugars, or dextrose, from a simple existing supply stream as their raw base material.
- Through a process of fermentation, separation and polymerisation, the carbon and other elements in these natural sugars are transformed to make Ingeo™.

Ingeo™ biopolymer is used uniquely to create a full and diverse range of finished consumer lifestyle goods marketed under the Ingeo™ brand name. Bridging both plastics and fibre categories, Ingeo™ is fuelling innovation and spearheading a whole raft of creativity across a wide range of products.
The unique selling position of these products rests on the three basic principles of responsible innovation, and these elements combine to offer a unique choice to both manufacturers and more importantly consumers who are looking for better choices.

- Ingeo™ performs well and often better than incumbents in many of its applications.
- Ingeo™ represents highly contemporary innovative science but also has very attractive aesthetics, combining better choices without compromise.
- Ingeo™ is derived from nature, made by man, bringing the best of both worlds together in a new more responsible reality that respects human choices and the environment at the same time.

Products

From clothing to homewear, personal care products as well as natural plastic food packaging, appliances, auto parts, electrical and durable goods.
Products made of Ingeo® polylactide biopolymers:

- Products with reduced carbon footprint
- Products made from plants, not oil
- Products with additional, innovative end of life options

The stand will showcase examples of rigid containers, plates, paper coated cups, clear cups, several examples of cards, chips bags, water bottles, shirts, baby wipes, a pritt roller, hand shavers, back covers for phones, folded cartons and lipstick cases all made of Ingeo® biopolymer.

About NatureWorks LLC

NatureWorks LLC is a company dedicated to meeting the world's needs today without compromising the earth's ability to meet the needs of tomorrow. NatureWorks LLC is the first company to offer a family of commercially available low carbon footprint biopolymers derived from 100 percent annually renewable resources with performance and economics that compete with oil-based plastics and fibres. The production of these biopolymers uses less fossil fuel and emits fewer greenhouse gases than conventional polymers. The company applies its proprietary technology to process natural plant sugars to make Ingeo™ biopolymer, which is then used uniquely to produce and market finished products under the Ingeo™ brand name. NatureWorks LLC is owned by Cargill.

NatureWorks®

NOVAMONT

Via G. Fauser 8 • 28100 Novara • Italy • www.novamont.com

LIVING CHEMISTRY FOR QUALITY OF LIFE

Objectives

The project of Novamont entails finding new ways of using vegetable raw materials, sources that are renewed, year by year, by transforming them into "bioplastics" for specific applications, that have a low environmental impact, and that have all of the properties of the traditional materials, but that can also be completely biodegradable.

Products

A number of products made out of biodegradable, compostable plastics will be shown, as well as videos/slides presenting Novamont industrial facilities and research laboratories.

About Novamont

Novamont is a company that was created by a group of researchers following in the footsteps of Giacomo Fauser. The company's ambitious project, "Living Chemistry for Quality of Life", combines agriculture, the environment and chemistry. The story of Novamont began in the Montedison school of material science, which was created after the discovery of polypropylene by the Nobel prize-winner Giulio Natta, and more generally, in the school of chemistry created at the beginning of the twentieth century, in Novara, by Giacomo Fauser. His results in the chemistry of nitrogen led to the formation of the company Montecatini, which later became Montedison. Fauser had a clear concept of scientific research. It had to be for the benefit of mankind, and therefore, had to be able to combine industry and the environment. Today, Novamont provides the best response to the demands of consumers, companies and institutions for innovative products for a "truly sustainable growth". In the development of the new generation of products derived from renewable raw materials of agricultural origin, Novamont strategically chose to adopt the very latest testing procedures, such as Life Cycle Analysis (LCA), and certifications, such as the Environmental Product Declaration (EPD). Indeed, the objective of the project "Living Chemistry for Quality of Life" is to achieve genuine environmental benefits.

NATURE BASED COMPOSITES

Objectives

NPSP is leading the way towards making composites more and more sustainable. We are working in all areas to reduce the environmental impact as much as possible. We make use of natural raw materials and innovative production techniques that go beyond current legal requirements. We make products that have a longer life cycle and that generate less waste at competitive prices.
You can recognise NPSP's environmentally friendly composites by the Nabasco® label.
The Nabasco® label guarantees that production methods are both environmentally friendly and technically and economically feasible.

- NPSP is the only company in the Netherlands that uses natural raw materials such as flax, jute, coconut and hemp in addition to glass fibres. Natural fibres can be produced using less energy and require fewer chemical adhesives.
- Natural fibres are usually lighter than glass fibre. When used in trains and cars, they save on fuel and significantly reduce CO2 emissions.
- NPSP manufactures products in double, closed moulds. This means that solvent emissions during hardening are 95% lower than normal. Carbon filters clean up any residue.
- At NPSP, our products are manufactured using 100% green energy.
- Natural fibre reinforced composites can be incinerated to produce green energy when their service life is over.

Products

- **Nature Based Composites**
- **ANWB cycle path signposts**

An environmentally friendly version of the cycle path signposts that are both better quality, more durable and more sustainable than the current ones. The new signposts are made using natural fibre. According to the Life Cycle Analysis (LCA) method, this reduces their environmental impact by 40%. Thanks to the double mould procedure the new signposts are significantly more attractive and stronger than their predecessors.

- **Charging unit electric cars**

NPSP is actively developing and producing charging unit housings out of its innovative and sustainable Nabasco material. The material consists of natural fibre reinforced bioresin, which complies to climate, vandalism and technical requirements.

- **Street name sign**

The municipality of Haarlem NL wanted to improve quality of their street name signs and stimulate sustainable innovation. NPSP produced the signs out of its Nabasco material, using bio resins as well, while meeting the goals in quality and sustainability!

About NPSP

NPSP Composites makes sustainable fibre - reinforced plastics for construction, design, transport and industry. NPSP works with clients to arrive at stunning solutions for technical problems: aesthetic, smart and sustainable.

Our ambition

- To inspire engineers and designers to develop beautiful solutions in fibre - reinforced composites.
- To make high - tech production technology available for an expanding range of new solutions in fibre - reinforced plastics for everyday use.
- To be at the forefront of efforts to create a more sustainable environment by reducing environmental impact and sharing expertise.

nabasco
nature based composites

PROVIRON
G. Gilliotstraat 60 • 2620 Hemiksem • Belgium • www.proviron.com

A CONTROLLED, SIMPLE AND CHEAP SYSTEM TO CULTIVATE ALGAE

Objectives

Today, algae are the next big thing. Why? You can find algae everywhere. They contain a wealth of proteins, fats and oil. These can be used in nutritive supplements, medication, cosmetics, biofuels and fertilizers, ... Algae are a renewable, inexhaustible source that can be harvested all year round. They convert CO_2 into oxygen. They grow in fresh and salt water, they don't need fertile land and thus don't compete with our food. They are without a doubt the feedstock of tomorrow. The downside, however, has been the price. The systems available today are too expensive and energy and labour intensive.

Why algae?

- Algae are champions in converting sunlight into biomass
- Algae can grow in fresh and salt water
- Algae do not require fertile land
- Algae are rich in proteins, fats and other interesting components

Why not?

Today the production of algae is far too expensive. More specifically:

- The investment cost to establish the system to cultivate the algae is too high;
- With current energy consumption of the systems it is impossible to achieve a positive energy balance;
- Algae grow typically in much diluted systems; more than 1000L of water for 1kg of algae. Because of this the cost for harvesting is very high.

By lowering the production cost, new applications can be activated.

Products

- Dried algae
- Paste of algae
- Feed or food products for which paste of algae are used

About Proviron

Proviron was established in 1977 as an engineering office, focusing on the development of new processes for environmental improvement. In 1983, Proviron started to construct its own process units thereby creating Proviron Industries. Today we focus on three branches of activities. Speciality chemicals, Biodiesel and Custom Manufacturing for third parties. We are market leader for most of our products and are specialised in custom manufacturing. We develop our own processes starting from the basic design to the full implementation. A team of 340 employees, operating on three sites (two in Belgium, one in the USA), is ready to get the job done.

Proviron

PURAC BIOCHEM

P.O. Box 21 • 4200 AA Gorinchem • The Netherlands • www.purac.com

Objectives

Purac is the world's largest and most experienced producer of lactic acid. It has production facilities in Spain and is currently constructing a manufacturing facility for Lactide of 75.000 tons in Thailand. These lactides are the monomers of PLA, a bio-based/ biodegradable plastics that can be used for a wide variety of applications, for instance films, foams, or fibres.

Purac has, in close collaboration with 2 other European companies (Sulzer in Switzerland and Synbra in the Netherlands), developed the production technology for Biofoam. Synbra is one of the major producers of Styrofoam and Biofoam is a PLA based and sustainable alternative for applications in horticulture, packaging and construction for Styrofoam.

Products

Exhibits include a variety of products which are manufactured downstream from these monomers by Purac partners. In particular we will show the different value-chain products and also more specifically focus on products made from Biofoam, e.g. packaging and horticultural products.

About Purac

Purac is the world's largest and most experienced producer of lactic acid through fermentation, with 5 production plants around the globe (2 in Europe: The Netherlands and Spain) with a total capacity of over 200.0000 tons; it produces lactides in its production facility in Spain and is currently constructing a manufacturing facility for Lactide of 75.000 tons in Thailand.

Purac, Synbra and Sulzer have jointly received the Frost&Sullivan Innovation Award 2008 for their Biofoam technology, while Synbra has been recently awarded with the prestigious Small/midsize company Award (no. 1 spot of Top 100). We believe this is an excellent illustration of "green" innovation, and cross-European collaboration.

purac
pure by nature

REALCO
Avenue Albert Einstein 15 • 1348 Louvain-la-Neuve • Belgium • www.realco.be

THE ENZYME IS A POWERFUL PURIFYING AGENT

Objectives

It all started with the major discovery of the properties of natural enzymes which turned out to be excellent cleaning and purifying agents. It allowed Realco to manufacture and to market a number of pioneering enzyme-based products. These products have numerous applications, both in cleaning and in the treatment of waste water.An enzyme is a molecule (a non-living natural substance) which can be found in any living organism. It concerns a protein, essential for life. In addition, it is fully (100%) biodegradable.

Based on results obtained from biotechnological research, Realco has developed a new concept integrating cleaning into the water purification process.

Basic concepts

Realco has shown that the use of enzymes in cleaning enables irreversible transformation of organic matter into water-soluble residue. It is this action that makes the enzyme into a powerful cleaning agent.

The use of enzymes in cleaning is the best method of pre-purifiying waste water:

Enzymatic action hydrolyses organic waste, which is then broken down by the micro-organisms (bacteria) into natural base elements. Therefore enzymatic cleaning has a positive impact on the environment through its use in waste water purification. The enzyme is a powerful purifying agent. “The method” has allowed us to develop and put on the market more than twenty products providing biological solutions to problems encountered in cleaning and waste water treatment.

Among the many applications

Enzymes used in cleaning surfaces, floors, machines, tools, membranes, etc. Enzymes for unblocking and maintaining pipes. Waste water treatment: the “enzyme-bacteria” combination that speeds up and completes the breakdown process in grease removal tanks, septic tanks and urban and industrial purification stations.

Advantages of enzymatic products

- Effective cleaning
- Staff’s safety (neutral pH)
- Preservation of a powerful tool (neutral pH)
- Easy-to-work procedures
- Saves water, time, energy
- Fewer nauseous odours
- Increased efficiency of purification stations

Products

Enzyme’s action in waste water treatment.
Enzyme’s action in cleaning.

About Realco

Realco is a Belgian company located in the Parc Scientifique at Louvain-La-Neuve (30km south of Brussels) and is the expert in the field of biotechnology products for cleaning, waste water treatment and animal husbandry. Since 1968, Realco has researched, developed, manufactured and marketed unique products for cleaning and waste water treatment using chemical and biochemical expertise. Realco caters for the specific needs of both individual users and professional users offering solutions that meet their expectations in terms of: product performance, compliance with health regulations, safe usage and environmental concerns.Relying on its steady and intensive research work, Realco’s objective is to continue to develop products that accommodate efficiency and environmental respect. The many patents and prices Realco has been granted over the years prove that Realco manages to pull it off, day after day.

ROQUETTE

Rue Haute Loge • 62080 Lestrem • France • www.roquette.com

Objectives

New bio-based product from starch based biorefineries. Today's starch-production plant is a good example of a bio-refinery, which uses enzymatic and/or chemical conversion to produce a broad range of products, including starch, glucose, sorbitol.

Since the mastery of catalytic systems and processes allow us to obtain very pure products in a competitive manner, and enable the development of biotechnologies, they promise to significantly broaden the range of starch-based products, in areas of application traditionally reserved to the world of petrochemicals.

The goal of the vegetal-based chemistry programs launched by ROQUETTE is to develop new channels of production for chemical products like bio-succinic acid and isosorbide based on renewable agricultural raw materials such as cereals.The first volumes of this renewable and versatile chemical building block - used in the manufacture of polymers, resins and many other products – have already been produced in a demonstration plant in Lestrem (France) that was built in 2009.

Among the new products arising from this research program are bio-based polymers, bio-solvents, bio-plasticizers and ingredients. With the vegetal-based programs, ROQUETTE expects to play a leading role in the bio-based economy.

Products

- **New bio-based building blocks:**

Isosorbide Polysorb® P
Isosorbide Diester : Polysorb® ID37
Bio-succinic Acid: Bio Succinium™

- **New plant based plastic:**

Gaïalène® products range

About Roquette

Roquette is one of Europe's largest and one of the world's most advanced starch and starch-derivatives businesses and a world leader in polyols (sugar alcohols). ROQUETTE derives over 650 products from six million tonnes of maize, wheat, peas and potatoes, and adds outstanding value to over 500,000 hectares of agricultural output. Roquette has annual sales of more than EUR 2 billion and employs a workforce of some 6,000 people worldwide.

Roquette is a private family business dedicated to long-term development. With production facilities in Europe, North America and Asia, Roquette serves customers all over the world in the food, paper/board, biochemicals, chemicals, pharmaceuticals, cosmetics and animal nutrition sectors. The company is headquartered in Lestrem (France).

ROQUETTE
Offering the best of nature

RTD SERVICES / BIOMIN

Lazarettgasse 3/4 • 1090 Vienna • Austria • www.rtd-services.com
Biomin GmbH • Industriestrasse 21 • 3130 Herzogenburg • Austria • www.biomin.net

FOOD AND FEED SAFETY AND QUALITY

Objectives

Healthy Feed for Healthy Food: KBBE Research collaboration between industry, academia and SME's. RTD Services and Biomin have co-operated for several years to successfully establish the projects SAFEWASTES and FEED-SEG and this stand will showcase results from completed and ongoing KBBE projects with the focus on feed and food safety. The main results include a Biomin poultry feed. Furthermore, this joint stand will together with the Nutrition Sciences N.V. stand exhibit two on-line databases of high interest for industry and the KBBE community at larger. These include the a feed and food contaminant database from the MoniQA project, which is currently only available to registered MoniQA stakeholders and this will be one of its first public demonstrations. As a key result from the BIOTRACER project a tool for the improvement of tracing accidental and deliberate microbial contamination of feed and food will also be demonstrated by a project member from National Food Institute Technical University of Denmark.

Products

This stand will showcase partners and results from completed and ongoing KBBE projects with the focus on feed and food safety:

- Animal (poultry) feed
- Online tools and models for the improvement of tracing accidental and deliberate microbial contamination of feed and food.
- Online database for contaminants in the food and feed chain.

About RTD Services

RTD Services (RTDS) is an SME specialised in research management with extensive Framework Programme experience in project development and as project partner for dissemination, financial and legal management in seven FP projects. As a dedicated dissemination action, RTDS will bring together and showcase results of several KBBE projects in which they been involved in various aspects. RTDS specialises in science communications and dissemination and will coordinate the design of the stand with the responsible people from BIOMIN, Nutrition Sciences N.V., BIOTRACER and MoniQA. RTD Services are currently in negotiation of two new KBBE projects: one as coordinator and the other as partner.

About Biomin

BIOMIN develop feed additives and formulate premixes, which can offer a broad range of practical solutions to current issues in the nutrition of livestock animals. They applying NutriEconomic solutions for adaptation to individual farm situations realises the importance of quality and safety in feed for animal health and performance. All products of BIOMIN are produced according to the ISO 9001:2000 standards and are distributed worldwide.

References

Moniqa Netwerk of Excellence (www.moniqa.org)
FP6 SAFEWASTES (http://www.safewastes.info)
FEED-SEG (http://www.feed-seg.net) projects
FP6 BIOTRACER project (www.biotracer.org)

RTD Services
Bringing science and business together

NUTRITION SCIENCES

Booiebos 5 • 9031 Drongen • Belgium • www.vitamex.com

FOOD AND FEED SAFETY AND QUALITY

Objectives

Healthy Feed for Healthy Food: KBBE Research collaboration between industry, academia and SMEs. Nutrition Sciences N.V. (NS) has co-operated for several years in successful projects like FP6 SAFEWASTES, FP6 FEED-SEG and FP6 BIOTRACER. This stand will showcase results from completed and ongoing KBBE projects with the focus on feed and food safety and quality. The main results include a pig feed, which was developed in the context of FP6 SAFEWASTES and FP6 FEED-SEG. Furthermore, this joint stand will together with the RTD Services stand exhibit a BIOTRACER tool for the improvement of tracing accidental and deliberate microbial contamination of feed and food and which will be demonstrated by a project member from National Food Institute Technical University of Denmark.

Products

Nutrition Sciences N.V. will show a product wherein results from completed/running FP6 and ongoing KBBE (FP7) projects are implemented. This product can be considered as one of the dissemination materials from these projects and mainly deal with improved animal feed concept and with increased animal feed and human food safety. An example of such a product is Safina, which is part of Vitamex' successful POP-concept for piglets.

Flyers and a movie will illustrate the expertise of Nutrition Sciences N.V. for participating in FP7 projects. This expertise deals with fundamental research, applied research, development, dissemination, training as well as with coordination.

About Nutrition Sciences

Nutrition Sciences N.V. (NS) is a company specialized in research & development in the field of animal nutrition with extensive Framework Programme experience in project set-up and collaboration as project partner for dissemination in several FP projects. As a dedicated dissemination action, NS will bring together and showcase results of several KBBE projects in which they been involved in various aspects. NS co-ordinates design of the stand with the responsible people from RTD Services, SAFEWASTES, FEEDSEG and BIOTRACER.

References

FP6 SAFEWASTES (www.safewastes.info)
FEED-SEG (www.feed-seg.net)
FP6 BIOTRACER project (www.biotracer.org)

TESSENDERLO GROUP

Troonstraat 130 • 1050 Brussels • Belgium • www.tessenderlo.com

HIGH QUALITY PROTEIN PRODUCTS FOR USE IN HEALTH AND BEAUTY APPLICATIONS

Objectives

PB Gelatins, a subsidiary company of Tessenderlo Group, is a leading manufacturer of collagen hydrolysates (also known as collagen peptides).

Process

PB Gelatins valorises by-products of the meat industry to produce Solugel® collagen hydrolysates. Solugel® is produced by enzymatic treatment of gelatin, which is mainly obtained from hot water extraction of animal skins, a rich source of collagen. The production is thus based on naturally-occurring raw materials. The enzymatic treatment gives a controlled hydrolysis of the parent gelatin, resulting in polypeptides of consistent molecular weight and physical properties.

Properties

Solugel® collagen hydrolysates are proteins that are edible, non-allergenic, safe and of high quality. They are easily absorbed into the body and have particularly interesting health effects, providing a useful response to the twin challenges of our aging population and our increased focus on health and well-being, and healthy eating.

Benefits

In particular, collagen hydrolysates are beneficial for:

- Reducing pain in arthritis treatment, slowing down the osteoporosis process and maintaining healthy joints;
- Supporting efforts towards a more healthy lifestyle: in sports (muscle building, joint protection) and weight management (weight loss programmes);
- Helping to improve skin elasticity.

Products

Solugel® collagen hydrolysates are of particular application in:

- sports drinks and nutrition-protein bars;
- food and dietary supplements.

About Tessenderlo Group

Tessenderlo Group is a listed, diversified international group active in many areas of the chemical industry, plastics converting, gelatin, pharmaceutical and natural derivatives. Tessenderlo Group's products form an integral part of our daily lives. These products are used in a wide range of applications, ranging from water treatment, high-quality fertilisers and animal feed through to health & beauty care products and pharmaceuticals. Tessenderlo Group products can also be found in sports drinks, plastic pipes, car dashboards, window profiles and many more everyday products. Driven by the need for green services, Tessenderlo Group is a specialist in transforming waste and by-products from other industries into valuable new products. Tessenderlo Group employs over 8,000 people distributed over more than 100 locations worldwide. The group is a world and European leader in most of its product areas, with consolidated revenue totalling 2.1 billion in 2009.


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Contact

Flemish government • Department of Economy, Science and Innovation • Koning Albert II-laan 35, box 10 • 1030 Brussels • BELGIUM
www.ewi-vlaanderen.be/en/eupresidency