FLASH NEWS

No. 44-2020 – THE BIOTECH INDUSTRY INTELLIGENCE REPORT

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1. FRACTIONATION & CONVERSION

3426 - Carbios produces the first clear plastic bottles from recycled waste, as well as textile fibres from recycled plastic waste.

The French company specialising in the enzymatic recycling of plastics announced that it had produced the first bottles containing 100% recycled Purified Terephthalic Acid (rPTA) from textile waste with a high PET content. This breakthrough stemmed from the CE-PET (Circular Economy PET) research project funded by the ADEME (French agency for the environment and energy management) and led by Carbios together with its partner TWB. It confirms that Carbios's technology can be used to recycle PET textile waste, opening up access to an additional recyclable waste stream of around 42 million tonnes per year. As part of the same project, Carbios also successfully produced PET fibres for textile applications with 100% rPTA produced from enzymatically recycled PET plastic waste.
Professor Alain Marty, chief scientific officer of Carbios, said: "*We plan to license our technology from the end of 2022 or beginning of 2023, probably to PET manufacturers so they can use post-consumer waste as a raw material, instead of petrochemicals*."

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com, Emballages Magazine.com, La Tribune.fr, Les Echos.fr

3427 - Production of a plastic cosmetics bottle formulated with industrial carbon emissions.

Lanzatech, a company specialising in carbon recycling, has captured industrial carbon emissions (carbon monoxide and CO^2) from a steelworks and converted them into ethanol using a Waste-to-Chemicals fermentation technology. Total then employed an innovative dehydration process developed with IFP Axens to convert the ethanol into ethylene before polymerizing it into polyethylene. This polyethylene has the same technical characteristics as its fossil counterpart. Lastly, L'Oréal used the polyethylene supplied by Total to manufacture packaging with exactly the same properties as conventional polyethylene. The partners, who say they look forward to working with "*all those who are ready to commit to using these new sustainable plastics*", plan to set up an industry value chain for this process in Europe. This site could open in 2024 or 2025.

More information: Press release
En savoir plus : Communiqué de presse, Industrie & Technologies.com, Formule Verte.com, L'Usine Nouvelle.com

3428 - A new enzyme cocktail can break down polyethylene terephthalate (PET) more efficiently.

Researchers at the Centre for Enzyme Innovation at the University of Portsmouth (United Kingdom) and the National Renewable Energy Laboratory (United States) developed this new cocktail by combining two enzymes – PETase and MHETase – to create one "*super-enzyme*". "*We decided to try to physically link them, like two Pac-men joined by a piece of string*", said John McGeehan, Director of the Centre for Enzyme Innovation at the University of Portsmouth and co-author of the study describing the new enzyme. The new cocktail can break down plastic up to six times faster than a standard enzyme, even at room temperature. However, for the moment John McGeehan says the compound is "*still much too slow*" to be implemented on an industrial scale. A new testing centre is being built in Portsmouth at a cost of £1 million (over €1 million) to investigate further.
John McGeehan believes that "*if we can make better, faster enzymes by linking them together and providing them to companies like Carbios, and if we work in partnership, we could start using them for industrial recycling within the next year or two*."

Publication: Characterization and engineering of a two-enzyme system for plastics depolymerization. Journal: Proceedings of the National Academy of Sciences (PNAS). DOI: 10.1073/pnas.2006753117.

More information: Press release, Sci Tech Daily.com, The Guardian.com
En savoir plus : Business Insider.fr, Emballages Magazine.com, Trust My Science.com, Journal du Geek.com

3429 - A new, efficient polymerisation system for biomass-derived hardly polymerizable monomers.

Using group-transfer polymerisation, teams from the Japanese group Nippon Shokubai and the RIKEN Center for Sustainable Resource Science (CSRS) have successfully developed high-performance polymers from biomass-derived hardly polymerizable monomers. This catalytic system could be used to process β-substituted acrylates, such as cinnamic monomers derived from lignin, or crotonic monomers obtained by breaking down 3-hydroxybutyrate (3HB) and poly(3-hydroxybutyrate) (P3HB).
The two partners are currently developing processes and working on applications for these polymers.

More information: Press release
En savoir plus : Formule Verte.com

2. RESEARCH PROJECTS & PROGRAMMES

Project launches

3430 - MetaPath project: demystifying how microbial ecosystems used by the food processing industry work in order to design healthier, tastier products that are more natural and more environmentally friendly.

The purpose of the MetaPath project – winner of the ninth call for strategic projects to drive competitiveness (part of France's PIA investments for the future programme) – is to develop effective tools and approaches to help us understand how microbial ecosystems transform food. To do so, the project will develop a set of tools including high-resolution analytical methods and in silico modelling of biochemical reactions simulating the behaviour of microbial consortia under the conditions of interest. The aim is to speed up the design of new products with properties and qualities sought after by consumers. Certified by the competitiveness clusters Vitagora, IAR and Nutrition Santé Longévité, it brings together three industrial partners – Abolis Biotechnologies, Groupe Bel and Lesaffre – and the MetaToul technology platform at the Toulouse Biotechnology Institute research laboratory, Bio & Chemical Engineering, which reports to INSA, the CNRS and INRAE.
MetaPath has a total budget of €9.4 million, €5 million of which is provided by the PIA, steered by the SGPI (French general secretariat for investment) and run by Bpifrance.

En savoir plus : Communiqué de presse

3431 - NENU2PHAR project: developing a new European value chain for the production of bioplastics from sustainably sourced polyhydroxyalkanoates (PHAs) with an end-of-life solution.

This collaborative project coordinated by the CEA (French alternative energies and atomic energy commission) has 15 European partners: Danone, Kaj Plastics, Sofradim Production, IFG Exelto, Elixance, Celabor, Bio-Mi, Biotrend, Lomartov Applied Innovation Engineering, Zero Emissions Engineering, Innovation Plasturgie Composites, Itene, Centexbel, the University of Bretagne Sud and the IAR cluster. With a total budget of €6.4 million, including a grant of €5 million received from the public-private partnership Bio-Based Industries Joint Undertaking (BBI JU), Nenu2phar will develop a production network using microalgae and a selection of bacterial strains. The partners have set themselves six goals:

- Develop competitive, biobased PHA polymers, sustainable both from an environmental and economic perspective,
- Formulate and functionalise the polymer for development of masterbatches and compounding,

- Identify PHA processes to achieve defined functional properties for the bioplastic that are better than those of conventional plastics,
- Develop eco-designed PHA products,
- Demonstrate the circularity and sustainability of the Nenu2phar value chain,
- Increase stakeholder and consumer product awareness.

The project, which was "*successfully launched online on 15 September 2020*", is expected to end in late February 2024.

More information: Press release
En savoir plus : IAR pôle.com, Formule Verte.com

3432 - New grant for a project to put fungal biodiversity to use.

An INRAE research team in Provence-Alpes-Côte d'Azur (France) has been awarded funding by the Danish foundation Novo Nordisk®. The project, worth a total of €8 million over six years, obtained together with two teams at the University of Copenhagen and the University of Cambridge, will unearth new knowledge about the fungal enzyme systems that break down plant biomass. The project funded by Novo Nordisk® will focus on two types of biomass that play an important role in carbon sequestration: peat and dead wood. The researchers will pay particularly close attention to the way microorganisms adapt to these low-oxygen environments while breaking them down.
The results of this project will be exploited so we can make the best use of natural resources in a more environmentally friendly bioeconomy.

Info: The Provence-Alpes-Côte d'Azur INRAE team, led by Jean-Guy Berrin, was previously involved in several major discoveries of enzymes that help break down plant biomass, primarily through multidisciplinary approaches combining genomics, enzymology and protein structure/function studies. Through this project, the research team, with the support of the Glycogenomics team at Aix-Marseille University, will return to these microbial breakdown processes to develop new approaches with the help of cutting-edge technologies.

En savoir plus : Communiqué de presse, Formule Verte.com

Ongoing projects

3433 - Amoéba publishes a new scientific paper on the amoeba *Willaertia magna* C2c Maky and files an application for authorisation of its biocontrol solution in the United States.

The producer of biological biocides announced that it had published an article on its latest findings about the amoeba *Willaertia magna* C2c Maky. Sandrine Demaneche, scientific manager of Amoéba, said: *"This paper, published as part of Dr Issam Hasni's thesis, complements the previously published data on* Willaertia magna *C2c Maky and gives us an overview of the proteins and lipids present in the amoeba. The information gathered will allow us to work on the composition of the culture medium in order to make our production process even more efficient."* This paper presents a comparative study of amoeba culture modes. The aim was to understand how this microorganism manages to adapt to bioreactor culture so its large-scale production can be optimised. According to Bernard La Scola, head of the team behind these results at IHU Méditerranée Infection: *"This study improves our understanding of the biology and molecular processes of* Willaertia magna *C2c Maky. It demonstrates how well these microorganisms can adapt to environmental changes. The amoeba adapts by promoting specific metabolic pathways. Everything is already present in its genetic information and according to its needs, the amoeba will favour the synthesis of the most suitable molecules."*

Publication: Proteomics and Lipidomics Investigations to Decipher the Behavior of *Willaertia magna* C2c Maky According to Different Culture Modes. Journal: Microorganisms. DOI: 10.3390/microorganisms8111791.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

Amoéba announced that it had applied for approval of its active biocontrol substance, lysate of *Willaertia magna* C2c Maky, and products containing it, from the Environmental Protection Agency (EPA). This biocontrol solution is intended for use as an agricultural fungicide. The request for approval is based partly on the studies carried out for the European application. Additional toxicity studies, required under US regulations, have been conducted and have confirmed the absence of hazard to human and animal health. The approval process is expected to last between 18 and 24 months, meaning Amoéba can expect a decision in 2022.

More information: Press release
En savoir plus : Communiqué de presse

3434 - Braskem expands its American innovation & technology (I&T) centre.

The Brazilian producer of biopolymers announced that it had completed the extension of its I&T centre in Pittsburgh (United States). The centre now has eight new R&D laboratories for the development of new proprietary technologies in the fields of catalysis, recycling and 3D printing. Braskem will use these new facilities to develop chemical processes to recycle plastic. For example, the teams can test new ways to convert a mixed post-consumer plastics stream into raw materials for the production of new plastics that are suitable for use in the automotive industry, or in food and healthcare applications. The project required an investment of $10 million (about €8.4 million).

More information: Press release
En savoir plus : Formule Verte.com, Info Chimie.fr

3435 - Carbios moves all its teams to one site provided by Michelin.

The French company specialising in the enzymatic recycling of plastics announced that all its teams would move to one site belonging to the Michelin Group, located near its own facilities in Clermont-Ferrand (France). All the company's activities, which were previously spread over several locations, will be accommodated on the premises provided, most notably the development laboratory, the pilot facility and the demonstration plant for its enzymatic recycling technology for PET plastics and fibres. This move will encourage operational synergies for project development and ensure finances and technology are optimised. The quality of the infrastructure will enable Carbios to improve the risk profile associated with the industrial demonstration phase while keeping costs and lead times down. Grouped together on one site, the operational teams will enjoy the best environment possible so they can successfully industrialise Carbios's technology. The industrial demonstrator – which was initially going to be built in Saint-Fons (Rhône) but is now part of the new site – should be operational in September 2021 instead of June 2021. This move cements Carbios's ambition to grant its first enzymatic recycling technology licenses by 2023 and build closer relationships with existing and future partners.

More information: Press release
En savoir plus : Communiqué de presse, Emballages Magazine.com, Formule Verte.com, Les Echos.fr

3436 - Global Bioenergies registers its first ingredient derived from fermentative isobutene, completes the toxicological study phase for its key ingredient, and issues an update on its projects in the aviation biofuels field.

The industrial biotechnology company announced the registration of its first ingredient with the European regulatory system REACh, which stands for Registration, Evaluation, Authorisation and restriction of CHemicals.
This ingredient – which is derived from fermentative isobutene and can be used in a large number of cosmetic formulations – can now be produced, stored and transported under European regulations.

En savoir plus : Communiqué de presse

Conducted over the space of more than a year, the toxicological evaluation of Global Bioenergies' key ingredient – which corresponds to one of the main feedstocks used in cosmetics – was divided into two phases. The first phase

was dedicated to assays, which indicated very high purity, while the second focused on functional toxicological studies. Ultimately, this evaluation confirmed that the natural-origin compound produced by Global Bioenergies was suitable for use in an initial nine cosmetics applications, corresponding to nine categories of consumer packaged goods. Studies for other product categories will be carried out at a later date. This work was conducted by several companies providing analytical and toxicological studies, under the supervision of experts in the development of cosmetic and pharmaceutical feedstocks commissioned by Global Biotechnologies. This innovative product is expected to reach the market in 2021, "*under a business model that maximises its value*".

En savoir plus : Communiqué de presse, Formule Verte.com

Global Bioenergies is coordinating two collaborative projects primarily focused on demonstrating the production of aviation biofuel using different raw materials:

- The ISOPROD project, co-funded by the French State through the PIA investment programme, based on the use of unextractable sugars (sugar beet waste);
- The REWOFUEL project, based on the use of wood sugars. This project received funding from Horizon 2020, the European Union's research and innovation programme.

So far, Global Energies has managed to produce increasing quantities of bio-isobutene in its pilot unit and its demonstration unit, primarily using wood sugars and sugar beet waste. This bio-isobutene is then converted into high-performance compounds for the formulation of jet fuel via a conversion pilot (over one thousand continuous hours, 24 hours a day, 7 days a week). The compounds obtained, which are identical to standard ones derived from oil, are known for their high energy density and excellent resistance to cold temperatures. As part of the ASTM (the international certification agency that sets the bar for the aerospace industry) certification procedure, Global Bioenergies has over the last few months presented the results of the physical and chemical analyses of its first batches to operators in the field (aircraft and engine manufacturers).

En savoir plus : Communiqué de presse, Formule Verte.com

3437 - METabolic EXplorer produces the first samples of natural-origin glycolic acid in an industrial demonstrator.

Until now, glycolic acid (GA) had been exclusively manufactured via the petrochemical route. METabolic EXplorer (METEX) has become the first company in the world to validate an alternative, patented, fermentation-based process at the industrial demonstrator stage. The characterisation of this first cosmetic-grade natural-origin GA means it can validate its performance in the formulation of skincare products. This step will also make it possible to finalise the process for the manufacture of batches that will, in the first six months of 2021, be given to companies in the market that are interested in replacing petrochemical GA with the same natural-origin active ingredient. Benjamin Gonzalez, chief executive officer and founder of METEX, said: *"Now we've crossed this milestone we can plan how we're going to scale up GA technology. We are investigating several options for how to scale up this process in our own facilities by the end of 2021*."
With this first natural-origin glycolic acid, the METEX portfolio now boasts a new pre-industrial process for a premium product in a market that is on the lookout for natural ingredients.

Info: GA is an anti-ageing active ingredient used in cosmetics, as well as a precursor of two biodegradable polymers: polyglycolic acid (PGA) and poly(lactic-co-glycolic acid) (PLGA). The polymer's biodegradability is determined by the proportion of GA it contains. This property is currently utilized in medical applications to produce absorbable sutures and will in the future be used to make 100% biobased plastics with shorter life cycles.

En savoir plus : Communiqué de presse, Formule Verte.com

3438 - Review of the collaboration between TWB and Better Nature Ltd.

As the winner of the 2019 'Pitch me your biotech start-up!' competition organised by TWB, Better Nature Ltd., which specialises in the fermentation of tempeh (a natural plant-based meat substitute), received a grant of €50,000 to access customised services on TWB's technology platforms. With the help of these services, in particular in fermentation and analytics, and expert support from TWB, the start-up quickly validated and improved its

fermentation processes, naturally increasing the vitamin content of its tempeh. This successful collaboration means it can secure its technological position by filing new patents.

En savoir plus : Communiqué de presse, Formule Verte.com

3439 - How can the yield of the plastic-eating bacteria *Ideonella sakaiensis* be improved?

A team of researchers at the Zurich University of Applied Sciences (ZHAW) is trying to increase the performance of the bacteria *Ideonella sakaiensis*, which contains enzymes that break down plastic, with the help of an automated selection system and artificial intelligence. To do so, the researchers decided to apply the directed evolution method (which won the Nobel Prize in chemistry in 2018). After having selected in the laboratory the enzyme variants that are the quickest at breaking down microplastics, the researchers integrated them into an automated platform that will make several thousand enzyme variants each week. Artificial intelligence algorithms will be put to work to support this process and propose enzyme structure optimisation based on data collected in the laboratory. This methodology should make it possible to determine which amino acids are the most important when it comes to breaking down PET.
These 'super-enzymes' could then be used to scrub drinking water of microplastics or recycle PET, for instance.

En savoir plus : Swiss Info.ch

3440 - New strategic partnership between Lesaffre and Recombia Biosciences to develop yeast strains.

The purpose of this "*collaboration between scientists and entrepreneurs*" is to advance innovative gene-editing technology to exponentially accelerate the development of projects in the health, environment and energy fields. To do so, the partners are counting on the technology of the American company Recombia Biosciences which is based on techniques that increase the efficiency of genome editing and enable engineering of yeast at very high throughput, as well as laboratory automation. This partnership of an unspecified duration aims to advance Recombia's proprietary technology to identify new yeast strains, discover novel yeast physiology of industrial relevance and optimise the production of biobased ingredients and biofuels. The products resulting from this partnership are intended for the North American non-food market (biofuels and pharmaceuticals).

Info: This partnership also signals Lesaffre's entry into the world of synthetic biology.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com, L'Usine Nouvelle.com, La Tribune.fr

3441 - INRAE and AgroParisTech sign a new partnership agreement.

Philippe Mauguin, chair and CEO of INRAE, and Gilles Trystram, managing director of AgroParisTech, signed a new framework partnership agreement covering the next five years. This agreement is based on the interaction between three pillars: research, training and innovation. It reaffirms both organisations' enthusiasm for working together to tackle major issues facing society. This stronger scientific collaboration is also part of the proactive approach of INRAE and AgroParisTech with regard to their site policies, in several different geographic areas.

En savoir plus : Communiqué de presse

3442 - Publication of the special report *Plastique : de la passion à la raison* [Falling out of love with plastic].

Available free of charge on the Exploreur website, this special report presents "*Toulouse-based research projects contributing to how we think about the shifting landscape of synthetic polymers*". The report contains six articles:

- *Droit de la pollution plastique : la partie immergée de l'iceberg* [The law and plastic pollution: beneath the tip of the iceberg],

- *Plastiques et perturbateurs endocriniens : quel impact sur notre santé ?* [Plastics and endocrine disruptors: how do they affect our health?],
- *De l'usage aux abus : les plastiques au cœur de notre modernité !* [From use to abuse: can we untangle plastics from modern life?],
- *Vous avez dit plastique ?* [What do we mean when we say 'plastic'?],
- *Recyclage des plastiques : les promesses de la voie chimique et biologique* [Recycling plastics: the potential of chemistry and biology],
- *Microplastiques, l'épopée des voyageurs-pollueurs* [Microplastics: the saga of the globe-trotting polluters].

Info: Launched by Toulouse University Group with all 31 universities, *grandes écoles* [prestigious higher education establishments] and research bodies in the education district, Exploreur groups together a set of approaches intended to bridge the gap between citizens and science, to make science and technology accessible to everyone.

En savoir plus : Exploreur.univ-toulouse.fr

3. STRATEGIC INTELLIGENCE: BUSINESSES & MARKETS

3443 - Agrauxine by Lesaffre

Lesaffre's biosolutions for plant production division announced the creation of a global marketing department to steer the international roll-out of its product portfolio (biological pest control, biostimulants and bionutrition) and strengthen consultancy services for its distributors, in order to support its growth. Agrauxine also announced that it had strengthened and structured its sales department as well as the team responsible for the market launch of its products in France.

En savoir plus : Communiqué de presse, Formule Verte.com

3444 - Association Chimie du Végétal (ACDV)

The ACDV announced three new members: industrial biotechnology company METabolic EXplorer, BioSynthis, a manufacturer of biobased and biodegradable ingredients for cosmetics, and Toulouse White Biotechnology (TWB), a platform that scales up biotechnologies to pre-industrial level. The complementary expertise of these three new members will broaden that already held by the ACDV and consolidate its regional ties.

En savoir plus : Communiqué de presse

The ACDV also welcomed new member UNIFAP**.** Since 1957, the French union of manufacturers of paints and varnishes has been helping independent manufacturers in France and abroad to become more competitive and move forward with their ecological transition. Pauline Chauvin, chair of UNIFAP, said: *"Biobased products are a very important area of research and development for the paint manufacturers in our group. UNIFAP also monitors technical and regulatory developments and provides support for new product development for the manufacturers among its members. This is why it was clear to us that we had to join the ACDV, a leading association in the biobased products sector."*

En savoir plus : Communiqué de presse, Formule Verte.com

3445 - Axioma

The French company specialising in the design of biosolutions made from natural active ingredients as alternatives to pesticides announced that it was buying a 3,500m² plant in Brive-la-Gaillarde (Corrèze, France). The future unit,

which it plans to open in January 2021, will enable it to multiply its production by 12: 1 million litres per year to start with, then 3 to 4 million further down the line. Anthony Bugeat, founder of Axioma, said: *"We expect our turnover to double from this year. Our products have sold well, despite the health crisis. We anticipate the bulk of our growth in 2021."*

En savoir plus : France Bleu.fr, La Tribune.fr

3446 - Braskem

The Brazilian producer of biopolymers and the Danish company **Haldor Topsoe**, a world leader in the supply of catalysts, technology and services for the chemical and refining industries, announced that it had achieved its first-ever demo-scale production of biobased monoethylene glycol (MEG) from sugar. As a result of their partnership, the development of the MOSAIK™ technology created by Haldor Topsoe to convert sugars into renewable MEG has been progressing according to schedule at the demonstration unit located in Lyngby, Denmark.
The next phase will involve providing samples to strategic partners for testing and validation. If the results are conclusive, the partners will deploy the technology on a commercial scale.

More information: Press release

Braskem announced that it would aim for carbon neutrality by 2050 and would step up its efforts to eliminate plastic waste in the environment by 2030. To do so, the group plans to focus on reducing, offsetting and capturing its carbon emissions. To reduce its emissions, it intends to improve the energy efficiency of its existing facilities and use renewable energies. To offset its carbon emissions, it plans to invest in chemicals and polymers made from renewable feedstocks. To capture its emissions, it will expand R&D projects focusing on solutions to convert CO^2 into high-value chemicals. The Brazilian group also intends to expand its 'I'm Green' product portfolio in order to hit its targets. This operation should enable it to include 300,000 tonnes of recycled content products by 2025 and increase these volumes to 1 million tonnes by 2030, thereby diverting 1.5 million tonnes of plastic waste from incineration, landfill or the environment.

More information: Press release
En savoir plus : Formule Verte.com

3447 - Casino

As part of an action plan named '*CAP' avec Casino Agissons pour la Planète*' (Casino takes action for the planet) – ten commitments to fight climate change, eat well and encourage community action – the large French retailer and distributor announced that 60% of its plastic packaging would be recyclable by 2022. Casino also announced that it had set up an ecodesign initiative "*to make packaging 100% reusable, recyclable or compostable*" by 2025.

En savoir plus : Communiqué de presse, Emballages Magazine.com, LSA Conso.fr, Le Journal de l'Environnement.net

3448 - Evonik

The German chemicals company announced the expansion of its portfolio of biobased active ingredients to meet growing demand for sustainable personal care products and cosmetics.

More information: Press release

3449 - Lactips

The French company specialising in the manufacture of thermoplastics formulated with milk proteins announced that construction of its new plant in Saint-Paul-en-Jarez (Loire, France) had begun. This industrial project will bring a former regional food processing plant back to life, while adding an extension. The site will ultimately cover a surface area of 12,000m² and house the production building (2,500m²) and offices (1,000m²), amounting to floor

space of 4,200m². The R&D teams will have a laboratory and new equipment, as well as a dedicated development and testing line. From its launch, planned for 2021, this new plant will be able to produce 3,000 tonnes of pellets per year (compared with 1,500 currently), while ultimately targeting 10,000 tonnes per year. Lactips will be able to gradually install up to six production lines and develop its range of solutions for the sustainable soluble packaging and single-use plastic markets, while also ensuring compliance with specific food packaging standards.
This project will receive a total investment of €36 million over several years, and brings together several industrial, financial and local stakeholders.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

3450 - LG Chem

The Korean group announced that it had developed a biodegradable material derived from corn-based glucose and crude glycerol with mechanical properties equivalent to polypropylene (PP). LG Chem hopes to begin mass production by 2025.

More information: Bioplastics Magazine.com
En savoir plus : Formule Verte.com

3451 - POET-DSM Advanced Biofuels

The American joint venture between the Dutch chemicals group DSM and the American ethanol producer POET announced that it had adapted the Liberty project facilities in Emmetsburg (United States) to produce pharmaceutical-grade ethanol. This temporary change of production direction to meet the high demand for cleaning and disinfection products during the Covid-19 pandemic received the support of the American Bioenergies Technology Office (BETO).

En savoir plus : Formule Verte.com

3452 - Total Corbion PLA

Via their joint undertaking Total Corbion PLA, Corbion and Total announced their plans to build the world's biggest PLA production plant in Europe. Located on the site of the Total refinery in Grandpuits (Seine-et-Marne, France), this future unit will have the capacity to produce 100,000 tonnes per year, making Total Corbion PLA the world's leading PLA producer, ahead of NatureWorks. The plant, which is expected to require an investment of around €200 million, is scheduled to open in 2024.

More information: Corbion's press release
En savoir plus : Formule Verte.com

3453 - UPM

The Finnish paper manufacturer announced that construction of its biorefinery on the Leuna site in Germany had begun. This new unit, which required a €550-million investment, is expected to have an annual production capacity of 200,000 tonnes of bio-monoethylene glycol (BioMEG) and lignin-based renewable functional fillers. It will also produce bio-monopropylene glycol (BioMPG) and industrial sugars obtained from beechwood. It is scheduled to open by the end of 2022.

More information: Press release, Chemical engineering on line.com
En savoir plus : Formule Verte.com

3454 - SurfactGreen

The company specialising in biobased surfactants announced that it had bolstered its equity by €4.7 million, €3.1 million of which in the form of grants, and €1.6 million via a capital increase subscribed to by its long-time shareholders, Go Capital, Finovam Gestion and Satt Ouest Valorisation.
These additional funds will enable it to accelerate the commercialization of its biobased surfactants.

En savoir plus : Communiqué de presse, Formule Verte.com, Les Echos.fr

Licensing agreements

3455 - Deinove & DSM

The French biotech firm announced the signature of an evaluation and technology development license with DSM, an international company involved in the fields of nutrition, health and sustainable living. Under the agreement, DSM will evaluate the potential of one of Deinove's microbial strains as a feed additive. This strain was selected and characterized during the Color-2B programme. The evaluation and technology development programme will be undertaken and supervised by DSM. DSM has been granted a temporary exclusive license to use Deinove's strain and access the intellectual property related to the strain and required for the collaboration activities, solely for the purposes of this collaboration. In return, Deinove will receive an upfront payment and milestone payments throughout the programme. The amount has not been disclosed. Deinove and DSM will enter into negotiations for a commercial license agreement if DSM considers that the collaboration activities have been a success.

More information: Press release
En savoir plus : Communiqué de presse

3456 - L'Oréal & Micreos

The French industrial cosmetics group announced that it had signed a licensing agreement with the Dutch biotechnology company Micreos, a world leader in targeted bacterial biotechnology, to combine their expertise in biotechnology and the skin microbiome. Under the terms of the agreement, Micreos will give L'Oréal access to its endolysin, a type of active protein used in cosmetics. For the first time, this technology makes it possible to target just the unwanted bacteria in the skin flora – responsible for many skin problems – while sparing the good ones.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

New joint ventures

3457 - Clean Beauty Collaborative

Created following a partnership between the American biotechnology company Amyris and the businesswoman Rosie Huntington-Whiteley, this new undertaking will expand Amyris's presence in the clean beauty field, beyond its Biossance and Pipette skincare brands. Clean Beauty Collaborative will develop a range of cosmetics under the Rose brand and will build on the Rose content platform. Launch of this new product line manufactured by Clean Beauty Collaborative is expected during the third quarter of 2021.

More information: Press release
En savoir plus : Formule Verte.com

Product launches

3458 - BASF

The German chemist announced that it had expanded its Lavergy® range of enzymatic detergents with the launch of the new cellulase Lavergy® C Bright 100 L. This new product delivers excellent cleaning performance, is suitable for use with many types of fabric, and has a low environmental impact. BASF also expanded its protease portfolio, eliminating the need for a preservative and boron stabilisation.

More information: Press release
En savoir plus : Formule Verte.com

3459 - Biolie

The French biotechnology company specialising in enzymatic extraction announced the launch of Biocar10, a carrot-oil extract for human and animal nutrition. Obtained from co-products of organic carrot farming via an enzymatic extraction process, this ingredient, which is rich in beta-carotene, can be used to colour margarine, sauces and even sweets. It can also be used as a food supplement, as a precursor to vitamin A.

En savoir plus : Formule Verte.com

3460 - Carbiolice

The Carbios subsidiary announced the launch of Evanesto®, an enzymatic additive which, when added to plant-origin plastic packaging formulated with polylactic acid (PLA), makes these plastics 100% compostable even in domestic conditions, within a maximum of 180 days. The addition of this additive means films containing 33% PLA can be certified 'OK compost HOME' by the TÜV AUSTRIA Group. More specifically, finished products containing Evanesto® can be certified if they contain a minimum concentration of 5% Evanesto® in a film containing 33% PLA and a maximum thickness of 60 µm for monolayer films and 30 µm for multilayer films. Previously compostable only under industrial conditions, Carbiolice's innovation increases the possibilities of recycling PLA plastic waste, as PLA-based plastic products (packaging films, lids, and soon yoghurt cups, trays and cups, among others) that are currently difficult to recycle will fully biodegrade in an industrial or home compost unit.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

3461 - Minasolve

The Minafin group subsidiary specialising in cosmetics solutions announced the launch of E-Leen 8, P8 and GC 8, three natural solutions with antimicrobial properties. Developed with biobased caprylyl glycol, made from ethanol, these new ingredients can be used in cosmetics as a skin moisturiser and antimicrobial stabiliser. According to Emmanuel Peulens, managing director of Minasolve, "*these new products are among the most versatile and cost-efficient solutions to protect natural and eco-certified personal care formulations*."

More information: Press release
En savoir plus : Formule Verte.com

New partnerships

3462 - APC Microbiome Ireland (APC) & Kraft Heinz Company (KHC)

The microbiome research centre and the American agri-food group announced a new collaboration to develop innovative natural cultures for food fermentations. This collaboration plans to focus on a variety of these bioactive end-products and their applications in food systems. The initial duration of the APC-KHC collaboration is 12 months.

More information: Press release

3463 - Givaudan & Novozymes

The Swiss manufacturer specialising in fragrances and perfumes and the Danish biotechnology company specialising in enzymes announced the signature of a strategic research partnership for the development of overlapping innovative ingredients and technologies for customers. The two companies will work together on the research and development of innovative sustainable solutions in the areas of food and cleaning. According to the terms of the agreement, Givaudan will contribute the lion's share of the investment while Novozymes will contribute the ideas, with its extensive expertise in enzymes and microorganisms. The Danish company is also expected to make substantial investments in R&D and technology. The financial particulars have not been released.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

Takeovers

3464 - Danimer Scientific & Live Oak Acquisition

The American producer of biodegradable materials, specialising in the production of 100% biobased and biodegradable polyhydroxyalkanoate (PHA), and the public/private special purpose acquisition company signed a definitive merger agreement. Danimer will become a public company upon closing of the transaction. It will be led by Stephen E. Croskrey and keep the same name.
In addition to the gross amount of $200 million (around €169 million) held in Live Oak's trust account, investors agreed to buy $210 million in common shares. The new entity, which is expected to have around $385 million in unrestricted cash on the balance sheet, is expected to use the funds to increase its production capacities tenfold and hit 91,000 tonnes per year by 2025.

More information: Press release
En savoir plus : Formule Verte.com

Human resources

3465 - Afyren

The biotechnology company, which produces biobased molecules and ingredients for markets including cosmetics, food, feed and fine chemicals, announced the appointment of Stefan Borgas as chairman of the board. Mr Borgas holds an MBA from the University of Saint Gallen (Switzerland). He began his career at BASF then became CEO of ICL, an Israeli company specialising in the production of speciality mineral fertilisers, and Lonza Group, a Swiss biotech firm specialising in the production of ingredients for the health, nutrition and life sciences markets. He has been the CEO of RHI Magnesita, a listed Austrian company specialising in the manufacture of high-heat resistant materials, since 2016. He has also served as a board member on several occasions, including for Syngenta (Switzerland), Sibelco (Belgium), and Yunnan Yuntianhua (China).
Mr Borgas's role will be to bring a complementary industrial vision to the Board and to management, both in terms of strategy and international development.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

3466 - Global Bioenergies

The industrial biotechnology company announced that John Pierce, chairman of the company's board of directors since 2015, had resigned from his position as chairman, although he would be staying on as a director. He will be replaced by Corinne Granger, executive director of R&D and Medical Affairs for a pharmaceuticals group specialising in dermocosmetics and director of Global Bioenergies since March 2020.

En savoir plus : Communiqué de presse, Formule Verte.com

3467 - INRAE

Philippe Mauguin was reappointed as chief executive officer of INRAE for a four-year term. This appointment by decree follows a vote by French deputies and senators after hearings before each of the two chambers' Economic Affairs Committees. As part of the selection process, Mr Mauguin outlined his professional achievements, including the merger between INRA and IRSTEA that came into effect on 1 January 2020, and discussed the new institute's research priorities to tackle the major changes facing the world today.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

3468 - Lesaffre

At the most recent annual general meeting, Lesaffre's board of directors appointed Thibaut de Ladoucette – director of the group since 2006 and member of the family through marriage – chairman of the board of directors. He replaces Lucien Lesaffre, who had held the position since 2012 and had reached the statutory age limit. The group's shareholders reaffirmed their attachment to the family-run aspect of the company and their commitment to supporting the growth of a group with promising prospects as part of a sustainable and responsible development approach.

More information: Press release
En savoir plus : Communiqué de presse

3469 - L'Oréal

The French manufacturing group formalised the departure of its chairman and chief executive officer Jean-Paul Agon and announced the appointment of Nicolas Hieronimus as chief executive officer (the positions of chair and chief executive officer are now separate). Mr Hieronimus joined L'Oréal 33 years ago and has spent his entire career with the group, in many countries and divisions. He has been deputy CEO in charge of Divisions since 2017. L'Oréal has chosen Barbara Lavernos to replace him in this capacity. She will also take over Research, Innovation and Technology in February 2021.
Mr Agon will stay on as chairman of the board of directors, a role he has held since 2011.
These changes will take effect on 1 May 2021.

More information: Press release
En savoir plus : Communiqué de presse, Formule Verte.com

MARKETS

In Europe

3470 - Are bioplastics really safer than conventional plastics?

Although a study conducted by the University of Frankfurt (Germany) has concluded that *"chemicals contained in bioplastics are not safer than those contained in conventional plastics",* Hasso von Pogrell, managing director of European Bioplastics (an association that represents the bioplastic industry in Europe) believes that *"the claim that products made from biobased plastics contain harmful chemicals is untenable because of the numerous tests required to ensure they comply with the strict rules of the European Union (EU).*" He says that "*products made of bioplastics are subject to more tests than conventional plastic products to ensure they do not pose a health risk to the consumer*." According to the association, "*the study methodology is highly questionable as it differs significantly from the methodology of EU testing procedures*."

More information: Press release

En savoir plus : Formule Verte.com

3471 - Launch of the European Circular Bioeconomy Fund (ECBF), the first venture-capital fund dedicated to the bioeconomy and the circular bioeconomy in Europe.

The main aim of ECBF is to stimulate additional public and private capital investment to scale up innovative companies and projects in the biotechnology field. More specifically, ECBF provides equity investment to growth-stage bioeconomy and circular bioeconomy companies with high potential for innovation, favourable returns, and sustainable impact. With a target budget of €250 million, to which the European Investment Bank (EIB) has committed €100 million, ECBF will be an important financial instrument in achieving the European Green Deal goals, which aim to make Europe climate neutral by 2050.
ECBF completed its first round of funding for €82 million on 1 October 2020 through its cornerstone investor EIB and three private investors: PreZero International GmbH, which operates in waste and recycling; Corbion NV, a global market leader in biobased chemicals and polymers; and Hettich Beteiligungen GmbH, a successful investor in sustainable businesses and services.
ECBF is based in Luxembourg and managed by Hauck & Aufhäuser Fund Services S.A.

More information: ECBF's press release, EIB's press release
En savoir plus : Communiqué de presse, Formule Verte.com

Outside Europe

3472 - Demand falls for biofuels for the first time in 20 years.

According to the International Energy Agency's annual report, production of biofuels for transport in 2020 is set to fall by 11.6% on 2019 on account of the dramatic drop in the oil price in recent months. According to the IAE, "*of all renewable energy sources, biofuels have suffered the most because of the health crisis*."

More information: Press release
En savoir plus : BFM TV.com

4. PUBLIC POLICIES & REGULATIONS

In France

3473 - France publishes its national biological pest control deployment strategy for 2020-2025.

This document sets out France's biological pest control deployment strategy for the next five years, under application of the law of 30 October 2018. The aim is to achieve a balance between commercial relations in the food and farming sector and healthy, sustainable and affordable food (known as the EGAlim law). A working group comprised of all the stakeholders committed to the transition of France's agricultural sector contributed to the document. The group was steered by the ministry for agriculture and food and the ministry for the ecological transition. The strategy is fully in keeping with the principles of the European Commission's European Green Deal and the 'farm to fork' strategy, the aims of which include reducing the use of chemical pesticides and the associated risks by 50% and lowering the use of the most hazardous pesticides by 50% by 2030.

En savoir plus : Communiqué de presse, Actu Environnement.com

3474 - Announcement of measures of the economic recovery plan to promote the circular economy and a proposed decree to increase plastic recycling and reuse.

At a meeting of France's 'Transforming and recycling waste' sector-specific strategy committee, Minister of Ecological Transition Barbara Pompili set out the measures of the recovery plan to promote the circular economy in terms of recycling and the reduction of single-use plastics. She also explained some of the targets of the decree of the *Antigaspillage pour une économie circulaire* (AGEC - preventing waste for a circular economy) law which sets goals for the reduction, reuse and recycling of plastic packaging by 2025. Some of the recovery plan announcements include:

- The increase of bonuses for the incorporation of recycled plastic into packaging;
- The proposal by producer responsibility organisations of a standard range of reusable packing for fresh products and drinks by the end of 2021;
- Financial support worth €500 million over two years, allocated to the circular economy measures of the France Relance recovery plan, investments to improve reuse and recycling and the modernisation of ways to collect, sort and recycle waste.

As for the 2021-2025 decree of the AGEC law, the French government is proposing to:

- Set a target for a 20% reduction in single-use plastic packaging by the end of 2025;
- Set a target for a 100 % reduction in 'unnecessary' single-use plastic packaging by the end of 2025;
- Ensure that 100% of single-use plastic packaging that reaches the market can in fact be recycled by 1 January 2025.

En savoir plus : Process Alimentaire.com, Actu Environnement.com

3475 - Is the end in sight for palm oil and soybean oil in biofuels?

As part of the proposed 2021 budget act, France's members of parliament voted in favour of several identical amendments to exclude palm oil waste and products formulated with soybean oil from the list of biofuels that can receive tax incentives. This vote at first reading must still be examined by the Senate and make its way through parliament.

En savoir plus : Actu Environnement.com, BFM TV.com, Formule Verte.com

Outside Europe

3476 - CANADA: list published of single-use plastic products to be banned in 2021.

Under the Canadian government's plan to achieve zero plastic waste by 2030, Minister of Environment Jonathan Wilkinson announced that plastic bags, straws, stir sticks, six-pack rings, cutlery, and food containers made from hard-to-recycle plastics would be banned at the end of next year. These items have been chosen "*because they are harmful, they are not recycled, they end up in our environment and alternative solutions are readily available.*"
The government plan also provides for improvements in processes to recover and recycle plastic. It is proposing to establish recycled content requirements for products and packaging.
The government will accept comments on these announcements until 9 December 2020 and intends to finalise the regulations by the end of 2021.

More information: Press release
En savoir plus : Communiqué de presse, Ici Radio Canada.ca, La Presse.ca

5. AWARDS & EVENTS

AWARDS

3477 - Fermentalg

The French microalgae specialist announced that it had won the prize for 'Responsible and sustainable' SME in France's south-west region at the 11th 'PME RMC, Bougeons-nous' prize-giving event. The prize recognises the company's activities and non-financial performance.

En savoir plus : Formule Verte.com

EVENTS

DECEMBER 2020

9th Biofit

7-8 December 2020. Online.

More information: Website

JANUARY 2021

7th NutrEvent

26-27 January 2021. Online.

More information: Website

FEBRUARY 2021

TWB START-UP DAY

2-3 February 2021. Online.

More information: Website

CLIB international biotechnology conference

4-5 February 2021. Düsseldorf (Germany).

More information: Website

Lignofuels

10-11 February 2021. Helsinki (Finland).

More information: Website

1st International Bioenergy and Environment Congress (I-BE-C): From Photosynthesis to Biotechnology

16-18 February 2021. Online.

More information: Website

5th European Chemistry Partnering

24-26 February 2021. Online.

More information: Website

MARCH 2021

Bioket

16-18 March 2021. Online.

More information: Website

BIO-Europe Spring

22-25 March 2021. Online.

More information: Website

World Bio Markets

29-31 March 2021. Online.

More information: Website

MAY 2021

European Congress on Biotechnology

9-12 May 2021. Maastricht (the Netherlands).

More information: Website

14th Bio-Based Materials Conference

18-20 May 2021. Cologne (Germany) and online.

More information: Website

JUNE 2021

Plant Based Summit

2-4 June 2021. Reims (France).

More information: Website