



Press Release
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Sectors: Industry/Household Packaging/Green Technologies/Mass-Market Retail
Distribution/Wholesalers/Distributors/Small Retail/Food Retail

WHAT ARE THE SOLUTIONS TO REDUCE THE ENVIRONMENTAL IMPACT OF PLASTICS POLLUTION?

*Three internationally renowned scientific experts have co-drafted an information REPORT on
BIODEGRADABLE AND COMPOSTABLE BIOPLASTICS.*

*This status report presents an overview, identifies the level of development of the bioplastics sector in Europe
and worldwide, and highlights the advantages, the stumbling blocks and the levers surrounding its
deployment.*

On the eve of the presentation of draft legislation for the fight against waste and the circular economy in the Council of Ministers on Wednesday 10 July, Nathalie Gontard (Director of Research at INRA), **Stéphane Bruzaud** (Professor at the University of Bretagne-Sud and researcher at the Institut de Recherche Dupuy de Lôme (IRDL), and **Jean-François Ghiglione** (Research Director at the CNRS) have shared input to produce an information REPORT on **BIODEGRADABLE AND COMPOSTABLE BIOPLASTICS.**

An initiative launched by two companies - the French group SPHERE and the Japanese KANEKA BELGIUM - this information report sets out to take stock of scientific knowledge and explain how these new biodegradable and compostable materials represent an alternative solution to conventional plastics, one that is more environmentally friendly and significantly improves our waste management.

As summed up by Stéphane Bruzaud, "*the idea is to manufacture plastics with a resource other than oil... plants for example... which at the end of their life will be able to decompose naturally without littering the environment for years or decades.*"

"*Today, research is working on polymers that already exist in their natural state, synthesized either by plants (starch, cellulose, etc.) or by micro-organisms (PHA), and which biodegrade rapidly under natural conditions¹. They can be made from agricultural or agricultural food residues, so as not to compete with farmland intended to grow food for humans and animals",* says Nathalie Gontard.

"*We test many plastics in our laboratories to assess their biodegradability and toxicity in the natural environment. We have shown that some polymers, such as PHAs, are biodegradable and non-toxic in the marine environment. They present a very promising alternative to conventional plastics. New formulations are already being studied to extend their scope of application",* emphasizes Jean-François Ghiglione.

¹ In less than one year in accordance with NF T51800 standard in terrestrial environments (soil and ambient temperature)

Explained John Persenda, SPHERE Group CEO: *"Obviously, biodegradable and compostable plastics are not going to solve all the issues linked to the negative external effects of plastics in one magic swoop. Neither will they replace all the polymers we use today. Likewise, they are not a single solution that would rule out all others. But it would be a pity to step away, for all the wrong reasons, from an attractive solution of organic recycling complementary to the recycling of materials, which makes a lot of sense when it comes to recovering bio-waste, a sector whose development is key and now a matter of urgency."*

Extracts [...]

Compostable bioplastics, circular by nature

Compostable bioplastics are all part of a waste disappearance process. Nathalie Gontard, INRA research director, explains: *"To meet environmental challenges, there is not just the one solution, but solutions, of which compostable bioplastics are one. They are naturally located in the biological cycle of organic matter, which ensures their unlimited renewal (provided that the rate of consumption remains compatible with the rate of production). It's perfectly circular."*

Compostable bioplastics support the development of the collection of biowaste

Packaging made from these materials can be a valuable asset for the implementation of bio-waste collection encouraged by the Energy Transition for Green Growth Act. Thus, *"in concrete terms, meal packaging delivered at home can be thrown away with the remains of the meal in a bio-waste bin for industrial composting by a local authority"* explains Nathalie Gontard. Another example is that a compostable bioplastic bag can be used to collect kitchen and vegetable waste and be recovered by industrial or domestic composting, depending on the collection system set up by the local authority.

Compostable bioplastics, an organic end of life

"The challenge is to eliminate what nature takes decades or centuries to eliminate," says Stéphane Bruzaud.

"Biodegradable materials are opening up new end-of-life options such as biodegradability, compostability or anaerobic digestion (methanization)," adds Nathalie Gontard. *"Biosourced and biodegradable polymers under natural conditions (starch, PHA, etc.) are materials that guarantee, from the moment they are designed (eco-design) that they will be biodegraded as organic matter in a time frame compatible with human activities".*

The organic recovery of biosourced and biodegradable bioplastics is therefore a solution that can be perfectly integrated, alongside recycling and reuse, into the new end-of-life plastics economy that the Ellen MacArthur Foundation, for example, is calling for.

About the Scientific Committee

This information report was designed with the expertise of three independent scientists. The documents have been produced with the institutional support of the SPHERE Group and the KANEKA BELGIUM.

- **Nathalie Gontard** is Director of INRA Research at the "Engineering of Agropolymers and Emerging Technologies" unit in Montpellier. She is also a specialist in food and packaging sciences. She is currently coordinating the European project "No Agro-Waste" (NOAW 2020), "zero waste in agriculture", a project supported by the European Union and involving 32 countries, including China, which aims to redevelop agro-waste into bioenergy, biofertilizers and biodegradable bioplastics (PHA).
- **Stéphane Bruzaud** is a professor at the University of Bretagne Sud (South Brittany) and a researcher at the Institut de Recherche Dupuy de Lôme (IRDLD), specializing in materials engineering. Based in Lorient, he coordinates research into biopolymer engineering and the manufacture of bioplastics from biotechnological processes. He also develops research on the assessment of environmental pollution by

plastics and has participated in the scientific study of Tara Méditerranée, aimed at better understanding the impacts of plastics on the Mediterranean ecosystem. Elsewhere, he is leading the BlueEcoPHA project, supported by the ADEME and involving industrialists from the West of France, which aims to produce a bio-based and biodegradable bioplastic (PHA) on a local scale using co-products from the agricultural food industries and marine bacteria.

- **Jean-François Ghiglione** is Research Director at the CNRS and deputy director of the Banyuls Oceanological Observatory. He coordinates the Ecotoxicology and Marine Microbial Metabolic Engineering team in the Microbial Oceanography Laboratory (UMR 7621). He is a member of the Executive Committee of GDR Polymers and Oceans and co-founder of Plastic@Sea. He is also the coordinator of several scientific programmes on the fate, biodegradation and toxicity of plastics in the marine environment and is the scientific head of the Tara Europe mission.

About SPHERE

SPHERE is a French family group founded in 1976. It is the European leader in household packaging and operates in three markets: consumer, professional and local authorities.

The group is also one of the world's largest producers of biodegradable and compostable resins.

From the outset, SPHERE has tirelessly pursued the objectives of:

- Reducing the volume of virgin plastics used in its products and replacing them with recycled materials from the circular economy
- Using biosourced raw materials
- Developing new biodegradable and compostable materials

With 15 production sites in Europe, of which 8 are located in France, the Group has an annual production of 150,000 metric tons. In 2019, the SPHERE Group is forecasting revenue of around 600 million euros with 1,450 employees.

The SPHERE Group commercializes and produces bin liners, bags for fruit and vegetables, freezer bags, film and paper for food products, aluminium trays and rolls, etc.

About KANEKA BELGIUM NV

Kaneka Belgium NV is a subsidiary of Kaneka Corporation, a leading technology-driven chemical company, with headquarters in Osaka and Tokyo, Japan. Kaneka offers a wide range of products and has its own worldwide manufacturing and marketing organization. Business activities span a broad spectrum of markets, from chemicals, functional plastics, food products, life science, synthetic fibres to electrical and electronic materials.

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