

TV-Service – Seeing is believing

BASF in motion

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Biopolymers

Our customers and society are increasingly looking for sustainable innovative solutions. And innovations based on chemistry are often the key to solve the challenges like climate change, scarce resources and to enable a circular economy. Effective and efficient R&D is a prerequisite for innovation. With approximately 10,000 research and development employees around the globe and R&D hubs in Europe, Asia and the US, BASF develops sustainable solutions for its customers every day.

Finding and developing the materials of the future is one of BASF's main research goals. For example, we have been developing biodegradable and bio-based polymers for around 25 years. To find the most suitable material for each application, we need to examine the environmental, social and economic impacts over a product's entire life cycle. International co-operations with world leading academic institutes as well as digital tools like our own supercomputer used for advanced Predictive Biodegradation Modeling are now speeding up R&D processes significantly – helping us to develop more sustainable materials that contribute to a circular economy.

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(01) From biodegradability to sustainable products

Investigation of the biological degradation of foils in different soils
(15.11.2022 / 2'40 / ATMO / Footage)



At an early stage of product development, it is important to understand if and how biodegradation happens. BASF develops a range of certified biodegradable products which are used in numerous applications including soil biodegradable agricultural mulch films, compostable bags and home & personal care products. There are a number of methods which can be used to measure the biodegradation of a material in different habitats.

For compostable and soil biodegradable products, it is important to ensure that these products not only biodegrade but also to assess how the final item disintegration under standardized end-of-life conditions takes place. Typically for films products, slide frames are used which hold the film in a specific environment for a number of days, which allows good retrieval of the test sample.

The extent of disintegration is then analyzed using automatic analysis algorithms. Constanze Risse, lab digitalization specialist, analyses samples from a soil disintegration experiment on a light box.

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(02) From biodegradability to sustainable products

Pipetting different culture solutions

(15.11.2022 / 2'15 / ATMO / Footage)



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Plate based assays are being developed to create high throughput methods to test biodegradability using fluorescence.

(03) From biodegradability to sustainable products

Digital evaluation of the long-term tests

(15.11.2022 / 1'25 / ATMO / Footage)



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The use of digital tools supports all work which is done in the labs, from app development and data structuring, to predictive modelling and automation. By having a direct data upload from biodegradation experiments to online applications, we can minimize data errors and quickly visualize the progress of biodegradation experiments.

(04) From biodegradability to sustainable products

Different product applications of biodegradable plastics
(15.11.2022 / 1'19 / ATMO / Footage)



BASF develops a range of certified biodegradable products which are used in specific applications including soil biodegradable agricultural mulch films, compostable bags and food trays.

Intensive studies are carried out in the research labs and field trials to understand how certified biodegradable materials developed by BASF, such as ecovio, biodegrade in home and industrial composting conditions.

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(05) From biodegradability to sustainable products

Investigation of the biological degradation of foils in salt water
(15.11.2022 / 1'35 / ATMO / Footage)



BASF develops certified biodegradable products, for example, compostable bags, for specific intended end-of-life options, like composting.

To understand how these products will biodegrade in non-intended end-of-life environments, extensive testing is undergone in marine environments. BASF works with cooperation partners to conduct field trials in a range of marine zones and in parallel develops the corresponding lab methods which are transferred into standards.

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