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Biodegradable

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Limited life – The compostable waste bags rot down with the organic waste.

Biodegradable

Disposing of organic waste, with its odors and residues, is one of the most unpleasant tasks in separating waste. Or rather it was. A compostable plastic from BASF aims to make disposing of organic waste in bags easier in the future. The pilot project was very successful

Dr. Jens Hamprecht and Georg Kosak

If it were up to the residents of the Bad Dürkheim district, organic waste will also in future be disposed of in bags made of BASF's compostable plastic Ecovio FS. They, together with the local disposal authorities, have been trialing the bags for three months. Following the pilot project, a survey shows that people in the Bad Dürkheim district are very happy with the new waste bags. The people in charge at the GML Abfallwirtschaftsgesellschaft mbH organic composting plant in Grünstadt, too, are seeing a positive outcome. The Ecovio FS bags had degraded completely and did not compromise the quality of the compost. "It was a key factor for us that the compost quality is right and that the bags make it easier for residents to separate, collect and dispose of organic waste. As a result, we are now approving continuing the use of Ecovio bags", explains Erhard Freunscht, First District Councilor of the Bad Dürkheim district.

Organic waste can be disposed of more cleanly, more hygienically and more easily with Ecovio bags than with paper bags or old newspapers. There are no odor or vermin problems, and cleaning organic waste containers in the kitchen is no longer a chore.

65,000 households take part

"Along with Veolia Umweltservice West GmbH and GML Abfallwirtschaftsgesellschaft, we had shown back in 2009 at the Grünstadt organic composting plant that the bags are in fact degraded", says Jürgen Keck, head of the global biodegradable plastics business at BASF. The three-month pilot project looked at whether residents are happy with the Ecovio bags. It was also important to ensure that the very high compost quality in the Bad Dürkheim district is maintained if residents use the Ecovio bags.

At the start of the project at the beginning of April, around 65,000 households in the Bad Dürkheim district were each given ten organic waste bags made of the compostable plastic Ecovio FS. Residents were then asked to collect their organic waste in the bags and dispose of the entire bag in the organic waste bin. The independent consultants IBK-Solutions tracked the pilot project and examined the compost at the Grünstadt organic composting plant. Residents were also asked about their experience with the bags.

Compost quality unchanged

Analysis shows that the biodegradable organic waste bags did not compro-

No residues – BASF's Ecovio is completely compostable.

mise the quality of the compost; the plastic degraded completely. The Ecovio FS organic waste bags do not affect the composition of the compost; the density, water and salt contents, pH, nutrients, percentage of organic matter and other components in the compost remained unchanged, nor did the appearance of the compost change. These are important criteria because the organic composting plant sells the humus to customers including winegrowers, fruit farmers and asparagus growers who use it to improve their soil. "After just three weeks, there was no trace of residues of the Ecovio film in the compost", says Frank Schwarz of Veolia Umweltservice.

Nor was there any need to change the method normally used at the Grünstadt organic composting plant; the composting process was not affected by the bags. The temperature profile and moisture content in the so-called "trial clamps", the piles of compost, corresponded to the normal values in the organic composting plant.

Satisfied residents

The survey revealed that just under 90% of the residents were happy with the Ecovio bags, and over half of them said that the bags are very helpful in collecting organic waste. They particularly liked the fact that it was easier to separate organic waste without wet bags or unpleasant odors. The analysis conducted by IBK-Solutions showed that the filled bags can be stored for at least two weeks after collection in the kitchen without any liquids leaking out.

More biomass

EA major benefit for waste recovery is that the disposal companies do not need to spend time separating the or-

Plastic based on sustainable raw materials

Ecovio is a biodegradable plastic made from sustainable raw materials and Ecoflex, a biodegradable petrochemical-based plastic from BASF. It is composed mainly of PLA (polylactic acid) which is produced from the sustainable raw material corn and purchased by BASF. The primary application is flexible films, such as for carrier bags. he main benefit of Ecovio is that as a finished product, in other words direct and without further processing, the material can be used for the extrusion of biodegradable films. Properties of Ecovio in overview include:

- ▶ it is biodegradable
- ▶ a large percentage is composed of sustainable raw materials
- ▶ it can be used with or without processing
- ▶ it can be processed in conventional blown film plants
- ▶ its high melt and thermal resistance
- ▶ it is weldable and
- ▶ its dielectric strength and tear resistance.

Pictures: BASF

Unchanged – There was no need to change the normal process at the Grünstadt organic composting plant for Ecovio.

ganic bags. They are converted along with the other organic waste into valuable compost, carbon dioxide and water and so can make it easier for residents to collect organic waste. If more composting is carried out nationally, this will also reduce the amount of organic waste in general waste.

The level of impurities, in other words the percentage of unwanted conventional plastics, did not change as a result of the use of the biodegradable plastic bags. During the trial, the compost did not contain a larger number of bags made of conventional, non-biodegradable plastics.

Biodegradable plastics – Ecovio and Ecoflex

Ecovio FS is a new biodegradable plastic developed by BASF. It is made of the partially bio-based plastic (polyester) Ecoflex FS and PLA (polylactic acid) which is obtained from corn starch (see also information box). This combination produces the bags used in the Bad Dürkheim pilot project which contain more than 50% renewable raw materials. Like the organic waste itself, Ecovio is broken down by microorganisms with the help of enzymes. The key factor in this degradation process is quite simply the structure of the molecules, not the origin of the raw materials. At the end of the composting process, the microorganisms have completely converted the bags into carbon dioxide, water and biomass.

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