



ecovio[®] PS 1606

Innovating solutions
for functional
paper packaging

 **BASF**

We create chemistry

The biopolymer

ecovio® PS

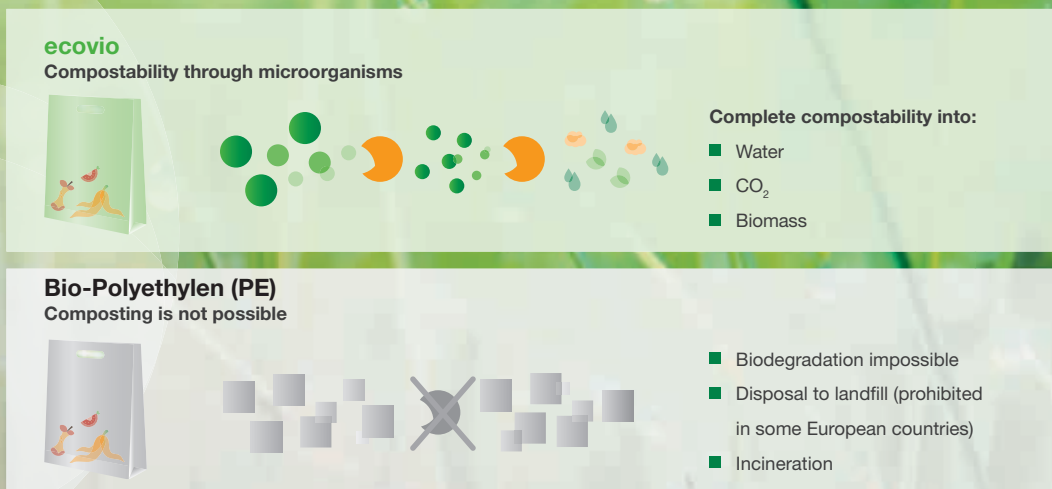


Fig. 1: ecovio as enabler for biodegradable applications

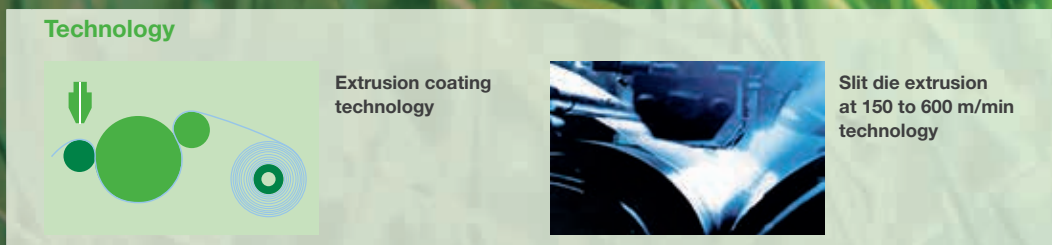


Fig. 2: Extrusion coating of ecovio PS on paper or board for flexible or rigid packaging



Compostable packaging

ecovio® PS 1606

WITH ecovio PS 1606, BASF IS OFFERING A FULLY COMPOSTABLE BIOPOLYMER. IT IS COMPOSED OF ecoflex® AND PLA (POLY-LACTIC ACID) AND CONSISTS OF MORE THAN 70% RENEWABLES (FIG. 1).

ecovio can be supplied as a finished product suitable for extrusion coating and the production of compostable films (Fig. 2). ecovio provides compostable packaging solutions with unique properties (Fig. 3):

- composed of ecoflex® and polylactic acid (PLA)
- certified compostable
- water-tight and highly tear-resistant
- complies with food safety requirements
- processable on conventional blown film plants for polyethylene
- printable and sealable
- high melt strength

ecovio PS has been developed for coating paper and paper board. This fully compostable and mostly bio-based biopolymer offers a number of advantages required for food packaging.

The excellent barrier properties provided by this product can be used to address future needs like barriers against liquids, grease, aroma and also saturated and aromatic Hydrocarbons (MOSH = Mineral Oil Saturated Hydrocarbons, MOAH = Mineral Oil Aromatic Hydrocarbons) and combined with compostability.



Fig. 3: Life cycle of ecoflex® and ecovio

01



Barriers against fat and grease

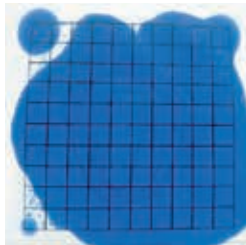
IN THE CASE OF GREASE RESISTANCE, THE MARKET IS LOOKING FOR ALTERNATIVES TO FLUOROCARBON PRODUCTS. *ecovio*[®] PS 1606 SHOWS ITS SUPERIOR EFFECTS AND STARTS TO PENETRATE THE MARKET FOR PAPER WRAPS.

Recent regulations and cultural trends have seen fluorocarbons increasingly being replaced by more environmentally friendly or even compostable materials.

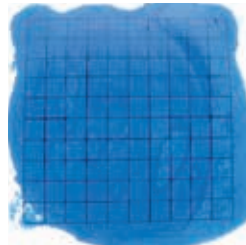
BASF's latest paper-coating innovation, *ecovio* PS 1606, takes this a major step further.

Applied to both paper and board packaging elements by coextrusion, this unique product enables the manufacture of 100 % wax and fluorocarbon free wrappers and clamshells that can be fully recycled and even composted.

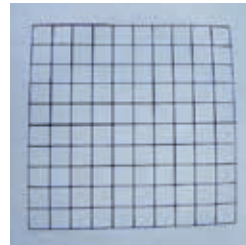
Uncoated
after 1 h at 60 °C



Uncoated
after 18h at 60 °C



ecovio coated
after 1 h at 60 °C



ecovio coated
after 18h at 60 °C

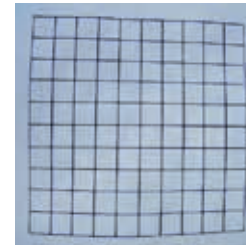


Fig. 4: BASF grease test on paper wrap

Fig. 5: *ecovio* coated 10 µm





02

Barriers against aroma

LONG-LIFE FRESHNESS IS ALL DOWN TO PACKAGING MATERIALS THAT HAVE BEEN DESIGNED WITH INTEGRATED AROMA BARRIERS TO KEEP THE DESIRED FLAVOR SAFELY INSIDE.

BASF's multi-talented ecovio® PS product can be applied to both paper and board packaging materials and provides excellent aroma barrier properties.

Our ecovio PS solutions are completely compostable. Meaning that long-lasting freshness doesn't need to mean long-lasting negative environmental impact.





03



Barriers against mineral oil



ecovio® PS 1606 – THE FUNCTIONAL BARRIER

Packaging that provides a functional barrier against the migration of undesired substances like mineral oils or benzophenone is an effective and efficient way of reducing or even eradicating the transfer of such residues from paper and cardboard packaging into food.

BASF's unique range of extrudable bio-based, fully compostable barrier coatings for aqueous dispersion for coating and printing enables you to create effective food protection in packaging.

The efficiency of the products has been proved numerous times and is confirmed by renowned institutes.

Substance	ecovio PS (15 µm)	Bad barrier product
Naphtalene	0.140	1,885
1-Methylnaphtalene	0.127	1,339
1-Ethylnaphtalene	0.108	1,323
TXIB	0.024	665
Benzophenone	0.069	80.4
2,7-Diisopropylnaphtalene	0.039	209
4-Methylbenzophenone	0.045	34.9
Phenantren	0.065	36.9
C12	0.080	8,644
C14	0.126	5,169
C16	0.055	769
C18	0.046	131
C20	0.023	18.4
C22	0.022	2.44

Fig. 6: ecovio coated 15 µm



Barriers against liquids

ecovio® PS 1606 –
THE BIO-BASED PAPER COATING

Coated board also provides an excellent barrier against liquids, which allows the product to be used for hot and cold drink cups. Here, the excellent sealing properties play an important role and result in a new generation of fully compostable paper cups (Fig. 7).

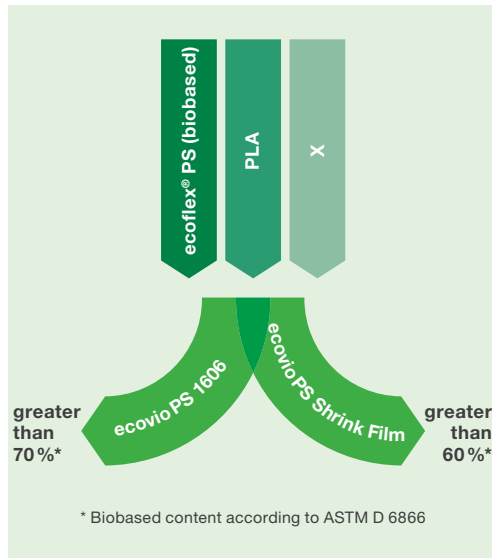


Fig. 7: Compostable specialty compounds for specific applications with high content of renewable raw materials



Moisture content

Aeration (availability of oxygen)

Carbon/nitrogen ratio

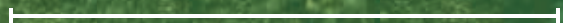
High temperatures

COMPOSTABILITY OF BIOPOLYMERS IN INDUSTRIAL COMPOSTING SITES



Week 1

Week 4*



Optimal process conditions
according to DIN EN 13432*

* Composting phases can differ according to different technologies and processes



Tested and certified

THE COMPOSTABILITY OF ecovio® HAS BEEN PROVED BY RECOGNIZED, INDEPENDENT TESTING INSTITUTES.

Independent institutes use special certification methods to test bioplastics for full compostability, compost quality and plant compatibility.

According to the requirements of European Standard EN 13432, plastics such as ecovio are fully compostable and can be converted into water, CO₂ and biomass.

The ecovio PS 1606 fully conforms to international standards for industrial composting.

Suitable for foodstuffs

In addition, ecovio is one of the few compostable biopolymers whose composition meets the requirements of the European Regulation on Plastic Food Contact Materials¹ and of US foodstuff regulations².

ecovio offers various product grades that meet the following international standards for industrial composting:



European Standard
EN 13432
Australian Standard
AS 4736



American Standard
ASTM 6400



Japanese
Standard
GreenPla

¹ COMMISSION REGULATION (EU) No. 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food.

² According to Food Contact Substance Notification No. 178, 475 and 907 of the FDA



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Note

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