ecovio® PS 1606
Innovating solutions for sustainable paper packaging
The new polymer
ecovio® PS

**ecovio®**
Biodegradation through microorganisms in compost

Complete biodegradation into:
- Water
- CO₂
- Biomass

**Bio-Polyethylen (PE)**
Composting is not possible

- Biodegradation impossible
- Disposal to landfill (prohibited in some European countries)
- Incineration

Fig. 1: ecovio® as enabler for biodegradable applications

**Technology**
- Extrusion coating technology
- Slit die extrusion at 150 to 600 m/min technology

Fig. 2: Extrusion coating of ecovio® PS on paper or board for flexible or rigid packaging
WITH ecovio® PS 1606, BASF IS OFFERING A FULLY BIODEGRADABLE AND COMPOSTABLE NEW POLYMER. IT IS COMPOSED OF ecoflex® AND PLA (POLYLACTIC 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 biodegradable 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 polymer 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 biodegradability and compostability.

Fig. 3: Life cycle of ecoflex® and ecovio®
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 biodegradable 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.
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 new 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 biodegradable and compostable. Meaning that long-lasting freshness doesn’t need to mean long-lasting negative environmental impact.
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, biodegradable and 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.

<table>
<thead>
<tr>
<th>Substance</th>
<th>ecovio® PS (15 µm)</th>
<th>Bad barrier product</th>
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<tbody>
<tr>
<td>Naphtalene</td>
<td>0.140</td>
<td>1,885</td>
</tr>
<tr>
<td>1-Methylnaphtalene</td>
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<td>1,339</td>
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<td>1-Ethynaphtalene</td>
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<tr>
<td>TXIB</td>
<td>0.024</td>
<td>665</td>
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<tr>
<td>Benzophenone</td>
<td>0.069</td>
<td>80.4</td>
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<tr>
<td>2,7-Diisopropynaphtalene</td>
<td>0.039</td>
<td>209</td>
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<tr>
<td>4-Methylbenzophenone</td>
<td>0.045</td>
<td>34.9</td>
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<tr>
<td>Phenantren</td>
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<tr>
<td>C22</td>
<td>0.022</td>
<td>2.44</td>
</tr>
</tbody>
</table>

Fig. 6: ecovio® coated 15 µm
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: Biodegradable specialty compounds for specific applications with high content of renewable raw materials
Composting phases can differ according to different technologies and processes.

**High temperatures**

**Moisture content**

**Aeration (availability of oxygen)**

**Carbon/nitrogen ratio**

Compostability of biodegradable polymers in industrial composting sites

Optimal process conditions according to DIN EN 13432*

* Composting phases can differ according to different technologies and processes
THE COMPOSTABILITY OF ecovio® HAS BEEN PROVED BY RECOGNIZED, INDEPENDENT TESTING INSTITUTES.

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

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

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

**Suitable for foodstuffs**

In addition, ecovio® is one of the few compostable polymers 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
Note
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