



**Biodegradable Polymers**

**Product Information**

**Version 1.0**

April 2016

G-PM/PB

# ecovio<sup>®</sup> M2351

## Biodegradable Compound for Agricultural Film

® = ecovio and ecoflex are registered trademarks of BASF SE

### Product Description

ecovio<sup>®</sup> M2351 is our new biodegradable compound for film extrusion based on our biodegradable copolyester ecoflex<sup>®</sup> F Blend and polylactic acid (PLA). Due to its outstanding mechanical strength ecovio<sup>®</sup> M2351 offers a great down gauging potential needed for thin agricultural or horticultural film applications like mulch film, cover film, silage film and others. ecovio<sup>®</sup> M2351 already contains antiblocking agents required for easy processing on film extrusion and film conversion equipment. ecoflex<sup>®</sup> F Blend is the continuous phase in the structure of ecovio<sup>®</sup> M2351 transferring the beneficial film properties of ecoflex<sup>®</sup> F Blend into the new product.

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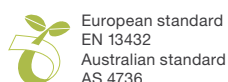
Our new ecovio® M2351 exhibits the following properties compared to PE-LD:

- Translucent, semi-crystalline structure with DSC melting point in two ranges: 140- 155 °C (PLA) and 110-120 °C (ecoflex® F Blend)
- High strength, stiffness and failure energy (dart drop)
- Good thermostability up to 230°C
- High melt strength
- Excellent processability on conventional LDPE blown film lines
- Down gauging to 8 µm possible, typical thicknesses: 10 -120 µm
- Good mechanical properties

The processing of ecovio® M2351 on extrusion lines depends on the formulation, the extrusion technology and processing conditions. Trials are always recommended to assess the quality of the final product. ecoflex® masterbatches are available to tailor properties of the final product as well as the barrier to water vapour. Detailed information concerning our ecoflex® masterbatches will be sent upon request.

### Certification of Compostability and Biodegradability

ecovio® M2351 fulfils the requirements of the existing standards for compostable and biodegradable polymers, because it can be degraded by microorganisms. Available Certificates:



American standard  
ASTM 6400



European standard  
EN 13432

| Certification body        | DIN Certco | Vinçotte   |                 |                       | BPI         |
|---------------------------|------------|------------|-----------------|-----------------------|-------------|
| Norm Certification scheme | EN 13432   | EN 13432   | OK COMPOST Home | OK BIODEGRADABLE SOIL | ASTM D 6400 |
| Certification Number      | 7W0169     | O13-1177-B | O13-1094-C      | O14-1416-A            | J-00114715  |

The biodegradation process in soil depends on the specific environment (climate, soil quality, population of microorganisms).

### Food Regulatory Status

ecovio® M2351 is one of the few compostable polymers, which complies in its composition with the European food stuff legislation for food contact, EU Directive 2002/72/EC (as amended) and US food contact notification for the main components: e. g. FCN 178, 475 and 907. Specific limitations and more details are given on request. The converter or packer has to check the suitability of the article for the application.

### Form Supplied and Storage

ecovio® M2351 is supplied as lenticular pellets in 1 t Octabins. Temperatures during transportation and storage may not exceed 70°C at any time. Storage time in an unopened bag may not surpass 12 month at room temperature (23°C).

### Quality Control

ecovio® M2351 is produced as a standard material in a continuous production process according to DIN EN ISO 9001:2008. The melt volume rate, MVR, at 190°C, 5 kg, according to ISO 1133 has been defined as specified parameter for quality control. A certificate of the MVR value can be provided with each lot number upon request. Other data given in our literature are typical values, which are not part of our product specification for ecovio® M2351.

## Applications

ecovio® M2351 has been developed for the conversion to flexible films using a blown film process. Typical applications are agricultural film. In view of numerous factors influencing functionality and shelf life of ecovio® films and finished articles made thereof the production parameters have to be tested by the converters before utilisation. Additionally sufficient field tests are required to ensure the right functionality of the articles made from ecovio® M2351.

We supply technical service information concerning the blown film process with ecovio® M2351 on demand.

### Typical Basic Material Properties of ecovio® M2351

\*see Quality Control

| Property                            | Unit              | Test Method   | ecovio® M2351 |
|-------------------------------------|-------------------|---------------|---------------|
| Mass Density                        | g/cm <sup>3</sup> | ISO 1183      | 1.37-1.40     |
| Bulk Density                        | kg/m <sup>3</sup> | DIN EN ISO 60 | 800           |
| Melt Volume Rate<br>MVR 190°C, 5kg* | ml/10 min.        | ISO 1133      | 5.0-11.0      |
| Melting Points                      | °C                | DSC           | 110 - 120     |
|                                     | °C                | DSC           | 140 - 155     |

### Typical Properties\* of ecovio® M2351 Blown Film, 12µm

\*not to be construed as specifications

| Property                          | Unit                  | Test Method                | ecovio® M2351 |
|-----------------------------------|-----------------------|----------------------------|---------------|
| Tensile Modulus<br>MD/TD          | MPa                   | ISO 527                    | 260 / 130     |
| Tensile Strength<br>MD/TD         | MPa                   | ISO 527                    | 25 / 20       |
| Ultimate Elongation<br>MD/TD      | %                     | ISO 527                    | 180 / 380     |
| Dart Drop                         | g                     | ASTM D 1709-04<br>Method A | 200           |
| <b>Permeation Rates:</b>          |                       |                            |               |
| Water Vapour<br>(38°C, 90% r. h.) | g/(m <sup>2</sup> ·d) | ASTM F-1249                | 1500          |

## Note

The information submitted in this document is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors of the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance for a special purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed. (April 2016)