

ecovio[®] M2351

Biodegradable Compound for Agricultural Film

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Product Description

ecovio[®] M2351 is our biodegradable compound for film extrusion based on our biodegradable copolyester ecoflex[®] F Blend and polylactic acid (PLA). Due to its outstanding mechanical strength ecovio[®] 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[®] M2351 already contains antiblocking agents required for easy processing on film extrusion and film conversion equipment. ecoflex[®] F Blend is the continuous phase in the structure of ecovio[®] M2351 transferring the beneficial film properties of ecoflex[®] F Blend into the new product.

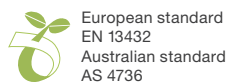
Our ecovio® M2351 exhibits the following properties compared to PE-LD:

- 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		
Norm Certification scheme	EN 13432	ok biodegradable soil as granule	ok biodegradable soil as film
Certification Number	7W0169	9X0001	9Y0001

Certification body	TÜV Austria			BPI
Norm Certification scheme	OK COMPOST (EN 13432)	OK COMPOST Home	OK BIODEGRAD-ABLE soil	ASTM D 6400
Certification Number	TA8011702346	TA8021802479	TA8031400946	J-00114715

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

Food Regulatory Status

Food Contact Compliance:
ecovio® M2351 is one of the few compostable polymers whose composition complies with the requirements of the Commission Regulation (EU) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food as well as with the requirements of the Federal Food, Drug and Cosmetic Act, 21 CFR for the use in single use polyester films. Specific limitations and further details concerning the food contact compliance of this product can be obtained upon request. The suitability of the article for the application concerned must be ensured in each case by the person who places any finished food contact article on the market.

Form Supplied and Storage

ecovio® M2351 is supplied as lenticular pellets in 1t Octabins. Temperatures during transportation and storage may not exceed 60 °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. 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 ³	ISO 1183	1.37-1.40
Bulk Density	kg/m ³	DIN EN ISO 60	800
Melt Volume Rate MVR 190 °C, 5 kg*	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, 12 µm

*not to be construed as specifications

Property	Unit	Test Method	ecovio® M2351
Tensile Modulus MD/TD	MPa	ISO 527	260 / 130
Tensile Strength MD/TD	MPa	ISO 527	25 / 20
Ultimate Elongation MD/TD	%	ISO 527	180 / 380
Dart Drop	g	ASTM D 1709-04 Method A	200
Permeation Rates:			
Water Vapour (38 °C, 90% r. h.)	g/(m ² ·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. (January 2021)