Biodegradable Polymers

Product Information

Version 2.1
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G-PM/PB

ecovio® IS1335

Biodegradable compound for injection molding with high biobased content

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Product Description

ecovio® IS1335 is a mineral filled injection molding grade, biodegradable according to DIN EN 13432, e. g. for stiff packaging applications. BASF ecovio® IS (Injection Specialty) grades are plastics for articles intended to come into contact with food.

ecovio® IS1335 exhibits the following properties:

- Opaque, semi-crystalline structure with DSC melting points for ecoflex® and PLA
- High strength and stiffness
- High, but controllable water vapor transmission rate (WVTR)
- Medium oxgen barrier (OTR)
- Good thermostability up to 205 °C in processing
- Good processability on conventional injection molding machines, e. g. for PP
- Printable
- Sealable

Because of the moisture sensitivity of PLA at melt temperatures in the order of 180-205 °C we have to assure a maximum moisture content of below 600 ppm prior to injection molding. Trials are always recommended to assess the quality of the final product. ecovio® IS1335 fulfills the requirements of the European standard DIN EN 13432 for compostable and biodegradable polymers up to 1.1 mm sheet thickness. Depending on the application, higher wall thicknesses are possible upon extra testing. The biodegradation process in soil depends on the specific environment because it can be degraded by microorganisms (climate, soil quality, population of micro-organisms).

Certification of Compostability and Biodegradability

ecovio® IS1335 is a biodegradable & compostable compound. Available Certificates:

European standard EN 13432
Australian standard AS 4736

American standard ASTM 6400

European standard EN 13432

Norm	EN 13432 (EU)		ASTM D 6400 (USA)
Certification Body	DIN Certco	TÜV Austria	BPI
Certification Number	7W0168	017-2588-A	J-00161470

Food Regulatory Status

ecovio® IS1335 is one of the few compostable polymers, which complies in its composition with the European food stuff legislation for food contact as well as with the regulations of the US food and drug administration for food packaging. A specific food law status is given in our specific certificates which are send on request via a local BASF representative or Plastic Safety (plastics.safety@basf.com). The converter or packer has to check the suitability of the article for the application.

Form Supplied and Storage

ecovio® IS1335 is supplied dry and ready to use in moisture-proof tight bags, in the form of cylindrical or flat pellets. Its bulk density is about 0.9 g/cm³. Standard packs are the special 25 kg bag. Subject to agreement other forms of packaging are also possible. All containers are tightly sealed and should be opened only immediately prior to processing. To ensure that the perfectly dry material delivered cannot absorb moisture from the air the containers must be stored in dry rooms and always carefully sealed again after portions of material have been withdrawn. ecovio® IS can be kept 12 months at 23 °C in the undamaged bags. Containers stored in cold rooms should be allowed to equilibrate to normal temperature (min. 20 °C) so that no condensation forms on the pellets.

Quality Control

ecovio® IS1335 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, 2.16 kg, according to ISO 1133 has been definded 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® IS1335.

Applications

Injection-moldable products made from ecovio® IS benefit from an optimum balance of rigidity and toughness. ecovio® IS1335 is very versatile in its range of application by injection molding. They also enable customers to produce biodegradable plastic components on conventional injection-molding machines. With our innovative ecovio® IS grade, it is possible not only to fill filigree thin-walled molds but also to achieve cycle times comparable with standard materials in the packaging industry. Furthermore, ecovio® IS1335 exhibit a noticeably increased flowability relative to comparable biodegradable injection-molding grades.

Typical Basic Material Properties of ecovio® IS1335 at 23 °C

Property	Unit	Test Method	values
Density	kg/m³	ISO 1183	1470
Melt volume rate	MVR (190°C/2.16 kg)	ISO 1133	9.0 [cm³/10min]
E-modulus	MPa	ISO 527-2	3600
Strain at break (v = 50 mm/min)	%	ISO 527-2	4
Drying:			
Moisture uptake, max.	ppm	-	800
Moisture, to process	ppm	-	300 - 600
Drying temperature	°C	-	70
Drying time	h	-	6

Typical Basic Material Properties of ecovio® IS1335 at 23 °C

Property	Unit	Test Method	values
Processing:			
Melt temperature range	°C	-	180 - 205
Melt temperature, ideal	°C	-	195
Tool temperature range	°C	-	10 - 40
Tool temperature, ideal	°C	-	30
Residence time, max.	min.	-	2
Machine settings:			
Temperature flange (hopper)	°C	-	25
Barrel temperature 1 (feeding zone)	°C	-	180
Barrel temperature 2 (compression zone)	°C	-	185
Barrel temperature 3 (metering zone)	°C	-	190
Barrel temperature 4 (nozzle)	°C	-	195
Shrinkage:			
Processing shrinkage, parallel	%	ISO 2577, 294-4	0.1
Processing shrinkage, vertical	%	ISO 2577, 294-4	0.2
Processing shrinkage, test box, 1 mm	%	-	0.14
Thermal properties:			
HDT B (0.45 MPa)	°C	ISO 75-1/-2	55

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. (February 2019)

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