



**Biodegradable Polymers**

**Product Information**

**Version 1.0**

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G-PMF/SB

# ecovio<sup>®</sup> IA1652

**Biodegradable heat stable and partly biobased compound  
for injection molding**

® = ecovio and ecoflex are registered trademarks of BASF SE

**Product Description**

ecovio<sup>®</sup> IA1652 is a mineral filled injection molding grade for biodegradable packaging applications in food contact. BASF's ecovio<sup>®</sup> IA grade is resistant to higher temperatures than injection molding grades which are mainly based on PLA. A certain type of ecoflex<sup>®</sup> grade transfers the beneficial properties of ecoflex<sup>®</sup> into this heat resistant product.

For more information please visit us at [www.ecovio.com](http://www.ecovio.com)

 **BASF**  
We create chemistry

ecovio® IA1652 exhibits the following properties:

- Semi-crystalline structure with DSC melting points for ecoflex®
- High strength and stiffness
- High, but controllable water vapor transmission rate (WVTR)
- Good processability on conventional injection molding machines, e. g. for PP
- Printable
- Sealable
- Easy to colour

Because of the moisture sensitivity of PLA at melt temperatures in the order of approx. 200 °C, we have to assure a maximum moisture content of below 1,000 ppm prior to injection molding. Trials are always recommended to assess the quality of the final product. ecovio® IA1652 fulfills the requirements of the European standard DIN EN 13432 for compostable and biodegradable polymers up to 0.447 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 microorganisms).

**Certification of Compostability and Biodegradability**

ecovio® IA1652 fulfills the requirements of existing standards for compostable and biodegradable polymers, because it can be degraded by microorganisms. Available Certificates:



Norm	EN 13432 (EU)		ASTM D 6400 (USA)
Certification Body	DIN Certco	Vinçotte	BPI
Certification Number	7W0260	O 16-1901-A	pending

**Food Regulatory Status**

ecovio® IA1652 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 sent 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® IA1652 is supplied dry and ready to use in moisture-tight in the form of cylindrical or flat pellets. Its bulk density is 0,9g/cm³. Standard pack is 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® IA 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® IA1652 is produced as a standard material in a continuous production process according to DIN EN ISO 9001 : 2000. The melt volume rate, MVR, at 190 °C, 2.16 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® IA1652.

**Application**

Injection-moldable products made from ecovio® IA benefit from an optimum balance of rigidity and toughness. ecovio® IA is very versatile in its range of application by injection molding. It also enables customers to produce biodegradable plastic components on conventional injection-molding machines. With our innovative ecovio® IA 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® IA1652 exhibit a noticeably increased flowability relative to comparable biodegradable injection-molding grades.

**Typical Basic Material Properties of ecovio® IA1652 at 23 °C**

Property	Unit	Test Method	values
Density Melt volume rate	kg/m³	ISO 1183	1380
	MVR (190 °C/2.16 kg)	ISO 1133	17.0 [cm³/10 min]
E-modulus Strain at break (v = 50 mm/min)	MPa	ISO 527-2	2100
	%	ISO 527-2	8
<b>Drying:</b>			
Moisture uptake, max.	ppm	-	800
Moisture, to process	ppm	-	300-600
Drying temperature	°C	-	70
Drying time	h	-	6
<b>Processing:</b>			
Melt temperature range	°C	-	180 - 225
Melt temperature, ideal	°C	-	195
Tool temperature range	°C	-	10-40
Tool temperature, ideal	°C	-	25
Residence time, max.	min.	-	2

### Typical Basic Material Properties of ecovio® IA1652 at 23 °C

Property	Unit	Test Method	values
<b>Machine settings:</b>			
Temperature flange (hopper)	°C	-	40
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
<b>Shrinkage:</b>			
Processing shrinkage, parallel	%	ISO 2577, 294-4	0.4
Processing shrinkage, vertical	%	ISO 2577, 294-4	0.5
Processing shrinkage, test box, 1 mm	%	-	0.6
<b>Thermal properties:</b>			
HDT B (0.45MPa)	°C	ISO 75-1/-2	93

#### 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. (May 2017)