

## TECHNICAL DATA SHEET: EBM.12

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Language: English

### Product Description

EBM.12 (PLA 85%) is a biodegradable compound, composed primarily from PLA-biodegradable resin with 85% of product formulation. After crystallization, EBM.06 has excellent heat resistance. Shelf life of EBM.06 is 12 months.

### Advantages

- ① EBM.12 is printable, weldable and can be mechanically recycled
- ② When incinerated, EBM.12 does not generate any noxious side-products and hazardous gases.
- ③ With high MI, EBM.12 can be used in an injection on conventional machine
- ④ EBM.12 has excellent heat resistance
- ⑤ EBM.12 has short injection molding cycle times and, by consequence, low production costs
- ⑥ Can be tailored to a grade that satisfies customer's requirements

### Applications

With high MI, EBM.12 is designed for injection molding processing. EBM.06 can be processed on conventional injection molding machine. The material is stable in the molten state, provided that proper drying procedures are followed.

**Main applications:** cutlery (knives, forks, spoons), cup, box, tray, and baby toys.



## Processing Information

### Guide for Injection:

Item	Location	Unit	Value
Drying temp.	-	°C	< 70
Drying time	-	hour	5 ~ 8
Cylinder temperature	Rear	°C	165
	Middle	°C	170~180
	Front	°C	180~195
Nozzle temp.	-	°C	205
Crystallization (mold temp.)	-	°C	85~100
Crystallization (mold time)	-	s	20~40

In-line drying is recommended for EBM.12 resins. A moisture content of less than 0.25% (25 ppm) is recommended to prevent viscosity degradation. Polymer is supplied in foil lined boxes or bags dried to <0.25% when packaged. The resin should not be exposed to atmospheric conditions after drying. Keep the package sealed until ready to use and promptly dry and reseal any unused material. The drying curves for both amorphous and crystalline resins are shown to the right. It is important to consider accurate initial moisture, when calculating necessary drying time.

Nucleating agents used in EBM.12 have a function in accelerating the crystallization rate, decreasing the spherulite size and transforming the crystal form. So mechanical properties like flexural modulus, strength, heat distortion temperature and hardness of EBM.06 will increase after crystallization process. BG4400 be crystallized at 80-100°C within 20-40s.

## Average Physical and Mechanical Properties

Item	Conditions	Method	Unit	Value
Density	-	ASTM D792	g/ml	1.38
MFI	190°C/2.16kg	ASTM D1238	g/10min	5 ~ 12
HDT	-	ASTM D648	°C	100 ~ 120
Tensile Yield Strength	-	ASTM D638	Kgf/cm2	300 ~ 400
Tensile Elongation	-	ASTM D882	%	< 20

## Food Packaging Status

On 07 August 2020, EBM.06 passed the **European Food Contact Standard - Commission Regulation (EU) No 10/2011** for a) Plastic- Overall Migration and b) Plastic- Specific Migration of Heavy Metals. It also passed the **European Regulation (EC) No. 1907/2006 (REACH)** Annex XVII and its amendments for Polycyclic Aromatic Hydrocarbons (PAHs) content as well as the **European Directive 94/62/EC** (Pb, Cd, Hg, Cr VI).

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No specific migration limit (SML) for the above referenced grade exists following the amended **Plastics Regulation 10/2011** requirements. Emamou would like to draw your attention to the fact that the European Plastics Regulation 10/2011, which applies to all European Member States, includes a limit of 10 mg/dm<sup>2</sup> of the overall migration from finished plastic articles



into food. In accordance with the Plastics Regulation 10/2011 the migration should be measured on finished articles placed into contact with the foodstuff or appropriate food simulants for a period and at a temperature which are chosen by reference to the contact conditions in actual use, according to the rules laid down in Plastics Regulation 10/2011.

## Composability Status

EBM.12 fulfils the requirements of the **European Standard EN 13432**, the US standard ASTM D 6400 for compostable and biodegradable polymers, because it can be degraded by micro-organisms. The biodegradation process in soil depends on the specific environment (climate, soil quality, population of micro-organisms).

## Bulk Storage Recommendations

The resin silos should be designed to maintain dry air in the silos and for materials to be isolated from the outside air. This design should be in contrast to an open, vented to atmosphere system that is typical for polystyrene resin silos. Key features that are added to a typical (example: polystyrene) resin silo to achieve this objective include a cyclone and rotary valve loading system and pressure vessel relief valves. The dry air put to the system is sized to the resin flow rate out of the silo. Not too much dry air would be needed and there may be excess instrument air (-30°F dew point) available in the plant to meet the needs for dry air. Our estimate is 10 scfm for a 20,000 lb/hour rate resin usage. Typically, resin manufacturers specify aluminum or stainless steel silos for their own use and avoid epoxy-lined steel.



## Certification



Equivalent to EN 13432



EN 13432



EU REACH Compliance

## Our services

- Provide in-depth consultation on how to process or use specific materials and products
- Design and deliver products to your specific requirements

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