

## BG5000M - TECHNICAL DATA SHEET

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### PRODUCT DESCRIPTION

BG5000M is our biodegradable statistical aliphatic polyester based on the monomers, 1,4-Butanediol, Adipic acid and Succinic acid for compostable series.

A biodegradable plastic resin is a plastic that maintains the same properties as a conventional plastic with regard to its use, but which can be completely degraded into the water and carbon dioxide by naturally occurring microorganisms such as bacteria fungi and algae when disposed of in the natural environment.

BG5000M characteristics are as below.

- High molecular weight substance
- Semi-crystalline structure
- Melting point: 115~118°C
- Great processability (at general extrusion machinery)
- M.F.I. (190°C 2.16kg/10min.): 2.0 ~ 5.0
- Good printability without pretreatment & Good weldability

### APPLICATION:

- BG5000M is designed for hard feeling polymer resin.
- The main applications for BG5000M are “Extrusion uses” like Mono- filament, Multi-filaments and T-die sheet etc. like various of disposable products.
- BG5000M can be used for fishing net, fishing strings, fabrics, rope, sheet, containers, paper coating.
- BG5000M is physically similar to PP, so it can be used in houseware, electronic device, decoration....
- BG5000M is compatible with another biodegradable polymers like PLA, PBAT...

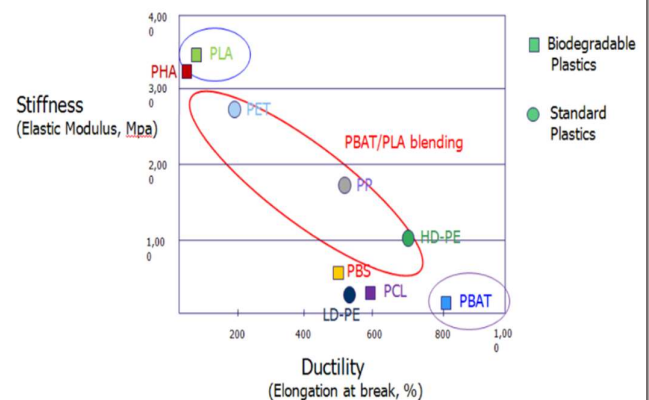


Figure 1 : Blending PBAT & PBS with other polymer

### STRENGTH OF BG5000M

- ① BG-5000M is printable, weldable and can be mechanically recycled
- ② When incinerated, BG5000M does not generate any noxious side-products and hazardous gases.

- ③ BG5000M is highly compatible with natural materials
- ④ BG5000M is easy to make an extrusion and injecting.
- ⑤ We can supply to a customer grade that satisfies the individual customer's need
- ⑥ Shelf life: 12 months

### PROCESSING INFORMATION:

In-line drying is recommended for BG5000M 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.

Item	Unit	Value
Drying temp.	-	<80°C
Drying time	-	7~8hrs
Cylinder	°C	170~190
Head	°C	190~200
Dies	°C	200~210
Cooling Bath temp.	°C	2~6
Stretching bath temp.	°C	80~85

### AVERAGE PHYSICAL AND MECHANICAL PROPERTIES

Item	Conditions	Method	Unit	Value
Density	-	ASTM D792	g/ml	1.25~1.27
MFI	190°C/2.16kg	ASTM D1238	g/10min	2~5
Melt Temperature	-	ASTM 3418	°C	115~118
Tensile Strength	-	ASTM D638	kgf/cm <sup>2</sup>	>370
Elongation	-	ASTM D638	%	>100
HDT	-	JIS K7207	°C	93

### FOOD PACKAGING STATUS

**US status:** On 2020 August 07, BG5000M is passed US FDA CFR 175.300 (Resinous and Polymeric Coatings) – Determination of Amount of Extractives

SGS Test report No: *VNHL2004006031HG*

Extractants	Test Condition	Result (mg/inch <sup>2</sup> )	Reporting Limit (mg/inch <sup>2</sup> )	Permissible Limit (mg/inch <sup>2</sup> )
		1		
Distilled Water	150°F for 2 hours	ND	0.1	0.5
8% Alcohol	150°F for 2 hours	ND	0.1	0.5
n-Heptane	100°F for 30 minutes	ND	0.1	0.5
<b>Comment</b>	--	<b>PASS</b>	--	--

Figure 2: US FDA CFR 175.300



BG5000M is safely used as the food-contact surface of articles intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food

**European Status:** On 2020 August 07, BG5000M is passed Eu food contact standard:

Commission Regulation (EU) No 10/2011

- a) Plastic- Overall Migration
- b) Plastic- Specific Migration of Heavy Metals

And European Regulation (EC) No. 1907/2006 (REACH) Annex XVII and its amendments:

Polycyclic Aromatic Hydrocarbons (PAHs) content

European Directive 94/62/EC (Pb, Cd, Hg, Cr VI)

Test report No: *VNHL2004006036HG*

No SML's for the above referenced grade exist in Plastics Regulation 10/2011 as amended. Anbio would like to draw your attention to the fact that the EU- Plastics Regulation 10/2011, which applies to all EU-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 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.

### **COMPOSTIBILITY STATUS:**

BG5000M is fulfils the requirements of the European standard DIN 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 recommended and used by Anbio are designed to maintain dry air in the silo and to be isolated from the outside air. This design would be in contrast to an open, vented to atmosphere system that we understand to be a typical polystyrene resin silo. 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/hr rate resin usage. Typically, resin manufacturers specify aluminum or stainless steel silos for their own use and avoid epoxy-lined steel.