Bayer MaterialScience

Product Information

BAYBLEND® LGX300

Polycarbonate/ ABS Blend

New Low Gloss, High-Performance Automotive Grade

Description

Bayblend LGX300 is a polycarbonate (PC) blend specifically developed for automotive interior applications requiring a material that is inherently low in gloss with extra flowability, good weathering and scratch and mar resistance. Another attribute of Bayblend LGX300 is its low-emission characteristic. Because LGX300 resin is a high-flow polycarbonate blend with good heat and impact performance, thin-wall part design can be achieved.

Applications

Bayblend LGX300 resin combines a balance of mechanical performance, enhanced low gloss surface quality, scratch and mar resistance, and flow characteristics, which allows it to accurately replicate different types of surface finishes and grains specified for automotive interior applications such as glove box doors, cup holders, door trim, knee bolsters, console bin doors and overhead trim. In contrast to conventional polycarbonate blends that have high gloss levels even when textured for interior automotive applications, Bayblend LGX300 resin offers an inherently low gloss performance and may reduce or eliminate the need for painting. This PC blend also offers comparable gloss, higher heat performance, and better impact, scratch and mar resistance compared with Polyolefin (PP/TPO) materials. High flow grades help improve overall productivity. Parts molded in tools with low gloss or textured surfaces can be produced in a variety of colors. As with any product, use of Bayblend LGX300 resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Drying

Bayblend LGX300 is a hygroscopic material that must be thoroughly dried prior to processing. The residual moisture in the pellets must be less than 0.02% to obtain optimal properties and prevent processing defects. For high appearance parts, a moisture level of 0.01% or less may be required.

A desiccant dehumidifying hopper dryer is recommended with a supply temperature of 210°F (100°C), and an inlet air dew point of less than -20°F (-29°C). Typically a 0.02% or less residual moisture level can be achieved in 2 to 4 hours. If a measurement of the moisture content is not possible, a 4 hour dry time is recommended. Other drying systems can be used as long as they are capable of achieving similar results to a desiccant dehumidifying drying system. Additional information on drying procedures is available in the Bayer brochure *General Drying Guide*.

Processing

Bayblend LGX300 resins may be easily processed on conventional injection molding equipment. Typical processing parameters are noted below. Actual processing conditions will depend on machine size, mold design, material residence time, shot size, etc.

Typical Injection Molding Conditions

Barrel Temperature:	
Rear	410 – 460°F (210 - 235°C)
Middle	440 – 490°F (225 - 255°C)
Front	460 – 510°F (235 - 265°C)
Nozzle	470 – 520°F (245 - 270°C)
Melt Temperature	470 – 520°F (245 - 270°C)
Mold Temperature	120 – 180°F (50 - 85°C)
Injection Pressure	10, 000 - 20,000 psi
Hold Pressure	50 - 80 % Injection Pressure
Back Pressure	75 – 125 psi
Screw Speed	50 – 75 rpm
Shot to Cylinder Size	30 - 70%
Injection Speed	Moderate
Cushion	.250 - .500 in
Clamp	3 - 5 ton/in ^{2}

Additional information on processing may be obtained by consulting the Bayer publication, *Bayblend Polycarbonate/ABS Blend — Injection Molding Guidelines*, or by contacting a Bayer MaterialScience technical service representative.

Regrind Usage

Where end-use requirements permit, up to 20% Bayblend resin regrind may be used with virgin material, provided that the material is kept free of contamination and is properly dried (see section on Drying). Any regrind used must be generated from properly molded parts, sprues, and/or runners. All regrind used must be clean, uncontaminated, and thoroughly blended with virgin resin prior to drying and processing. Under no circumstances should degraded, discolored, or contaminated material be used for regrind. Materials of this type should be properly discarded. Improperly mixed and/or dried regrind may diminish the desired properties of Bayblend resin. It is critical that you test finished parts produced with any amount of regrind to ensure that your end-use performance requirements are fully met. Regulatory or testing organizations (e.g., Underwriter's Laboratories) may have specific requirements limiting the allowable amount of regrind. Because third party regrind generally does not have a traceable heat history, or offer any assurance that proper temperatures, conditions, and/or materials were used in processing, extreme caution must be exercised in buying and using regrind from third parties.

The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity, and/or load-bearing performance.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Bayblend LGX300. Before working with this product, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your Bayer MaterialScience representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

Typical Properties* For Natural Resin	ASTM Method(Other)	Bayblend®LGX300 Resin U.S. Conventional	SI Metric
General			
Specific Gravity	D 792	1.14	
Density	D 792	0.042 lb/in³	1.14 g/cm³
Specific Volume	D 792	23.8 in³/lb	0.88 cm³/g
Mold Shrinkage, parallel	D 955	0.005 – 0.007 in/in	0.005 – 0.007 mm/mm
Mold Shrinkage, normal	D 955	0.005 – 0.007 in/in	0.005 – 0.007 mm/mm
Water Absorption, Immersion at 73ºF to Saturation	D 570	0.70 %	
Humidity Absorption,at 73ºF/50% r.h., to saturation	D 570	0.20 %	
Melt Flow Rate, 260°C/5kg	D 1238	13.5 g/10 min	
Melt Volume Rate, 260°C/5kg	(ISO 1133)	12.0 cm³/10 min	
Spiral Flow Length: 0.1-in.Thickness 490°F Melt Temperature	(Bayer)	22 in	559 mm
Mechanical			
Tensile Stress at Yield	D 638	7,685 PSI	53 MPa
Tensile Stress at Break	D 638	7,975 PSI	55 MPa
Tensile Elongation at Yield	D 638	5 %	
Tensile Elongation at Break	D 638	> 50 %	
Tensile Modulus	D 638	317, 550 PSI	2,190 MPa
Flexural Stress at 5% Strain	D 790	13,340 PSI	92 MPa
Flexural Modulus	D 790	347,275 PSI	2,395 MPa
Impact Strength, Unnotched Izod	D 4812	no break	
Impact Strength, Notched Izod 73°F at 0.125-in Thickness	D 256	13 ft•lb/in	694 J/m
Instrumented Impact[a], Total Energy: 73°F at 0.125 in thickness	D 3763	33 ft•lb	45 J
Gardner Gloss 60 degree	D 523	< 25 %	
Thermal			
HDT, Unannealed, 0.25 in	D 648		
264-psi Load		208°F	98°C
66-psi (0.46-MPa) Load		241°F	116°C
Vicat Softening Temperature, B/120	D 1525	243°F	117°C
Flammability**			
UL94 Flame Class	(Bayer Test)		
1.5-mm Thickness		HB	
3.0-mm Thickness		HB	
Electrical			
Volume Resistivity	(IEC60112)	1 E+ 14 Ohm.m	
Surface Resistivity	(IEC60093)	1 E+ 16 Ohm	
Dielectric Strength	(IEC60243)	35 kV/mm	
Relative Permittivity: 100 Hz	(IEC60250)	3.1	
1 MHz		3	

** These items are provided as general information only. They are approximate values and are not part of the product specification. Type and quantity of pigments or additives used to obtain opaque colors and special effects can affect material properties.*

*** Flammability results are based on small-scale laboratory tests for purposes of relative comparison and are not intended to reflect the hazards presented by this or any other material under actual fire conditions.*

[a] *0.5-in dart, 3-in clamp, 15 mph.*

Note: The information contained in this bulletin is current as of May 2011. Please contact Bayer MaterialScience to determine whether this publication has been revised.