

LUSTRAN[®] ABS LGM

ABS

General-Purpose Injection Molding Grade

Description

Lustran ABS LGM is a low-gloss, easy-flow grade of ABS (Acrylonitrile Butadiene Styrene). This general-purpose injection molding grade offers an excellent balance of rigidity, impact strength, and abuse resistance.

Applications

Lustran ABS LGM resin is designed for applications requiring stringent physical properties and a high-tech, low-gloss appearance. Typical applications include power tool housings; lawn and garden equipment; telecommunications equipment; and business machine applications, such as keyboard housings, keypads, and keycaps. As with any product, use of Lustran ABS LGM resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Drying

Drying prior to processing is recommended in a desiccant dehumidifying hopper dryer. An inlet air dew point of -20°F (-29°C) or below is recommended to achieve a moisture content ≤0.1%. Typical drying conditions are 2 hours at 180°-190°F (82°-88°C). Drying for 4 hours at 160°-170°F (71°-77°C) is also adequate.

Processing

A reciprocating screw injection molding machine is preferred. A general-purpose screw with a 2.5:1 compression ratio is suggested. A minimum L/D ratio of 20:1 will ensure melt homogeneity.

Lustran ABS LGM resin can be molded over a wide range of melt temperatures and maintain its low-gloss performance. For best part quality, use the lower range of the recommended melt temperature with minimum barrel residence time. To avoid excessive residence time in the barrel, volume and weight of the shot should be balanced against barrel capacity and injection stroke. A shot weight-to-machine capacity ratio of 0.5 to 0.75 is recommended.

Mold temperatures of 110°-150°F (45°-65°C) are recommended for minimum gloss development, with the lower end of this range preferred for smooth tools. A higher mold temperature is preferred for replication of the tool surface in textured tools.

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 Temperatures:	
Rear.....	455° – 480°F (235° – 255°C)
Middle.....	465° – 490°F (240° – 255°C)
Front.....	475° – 500°F (245° – 260°C)
Nozzle.....	475° – 500°F (245° – 260°C)
Melt Temperature.....	475° – 510°F (245° – 265°C)
Mold Temperature.....	110° – 150°F (45° – 65°C)
Injection Pressure.....	10,000 – 16,000 psi
Hold Pressure.....	.50 – 75% of Injection Pressure
Back Pressure.....	.50 – 100 psi
Screw Speed.....	Moderate
Injection Speed.....	High
Cushion	1/4 in max
Clamp.....	.2 – 4 ton/in ²

Achieving uniform surface appearance on a molded part requires proper tool design, properly prepared and conditioned tool cavity surfaces, and preventive maintenance. Tool design should include adequate, properly sized, and properly designed vents. Preventive maintenance for tooling requires, but is not limited to, periodic inspection and cleaning of tool surfaces, actual cavity surfaces, and cavity vents.

Additional information on processing may be obtained by contacting an INEOS ABS technical service representative.

Typical Properties* for Natural Resin	ASTM Test Method (Other)	Units		Lustran® LGM ABS Resin	
		U.S. Conventional	SI Metric	U.S.	SI
General					
Specific Gravity	D 792			1.05	
Density	D 792	lb/in ³	g/cm ³	0.038	1.05
Specific Volume	D 792	in ³ /lb	cm ³ /g	26.4	0.95
Mold Shrinkage	D 955	in/in	mm/mm	0.004–0.007	
Melt Flow Rate: 220°C/10-kg Load	D 1238		g/10 min	21	
230°C/3.8-kg Load			g/10 min	7	
Mechanical					
Tensile Stress at Yield	D 638	lb/in ²	MPa	5,200	36
Tensile Modulus	D 638	lb/in ²	GPa	320,000	2.2
Flexural Stress at Yield	D 790	lb/in ²	MPa	10,500	72
Flexural Modulus	D 790	lb/in ²	GPa	360,000	2.5
Impact Strength, Notched Izod: 0.125-in (3.2-mm) Thickness 73°F (23°C)	D 256	ft-lb/in	J/m	3.2	171
Rockwell Hardness	D 785	R Scale		105	
Thermal					
Deflection Temperature Under Load: Unannealed	D 648				
0.125-in (3.2-mm) Thickness, 264 psi		°F	°C	168	75
0.125-in (3.2-mm) Thickness, 66 psi		°F	°C	192	89
0.5-in (12.7-mm) Thickness, 264 psi		°F	°C	189	87
0.5-in (12.7-mm) Thickness, 66 psi		°F	°C	198	92
Annealed					
0.125-in (3.2-mm) Thickness, 264 psi		°F	°C	203	95
0.125-in (3.2-mm) Thickness, 66 psi		°F	°C	212	100
0.5-in (12.7-mm) Thickness, 264 psi		°F	°C	212	100
0.5-in (12.7-mm) Thickness, 66 psi		°F	°C	216	102
Coefficient of Linear Thermal Expansion: -22° to 86°F (-30° to 30°C)	D 696	in/in/°F	mm/mm/°C	5.0 E-05	9.0 E-05
Relative Temperature Index: 0.062-in (1.57-mm) Thickness	(UL746B)				
Electrical		°F	°C	140	60
Mechanical with Impact		°F	°C	140	60
Mechanical without Impact		°F	°C	140	60
Vicat Softening Temperature, Rate B	D 1525	°F	°C	223	106
Flammability**					
UL94 Flame Class:	(UL94)				
0.062-in (1.57-mm) Thickness		Rating		HB	
0.125-in (3.17-mm) Thickness		Rating		HB	

* These items are provided as general information only. They are approximate values and are not part of the product specifications.

** 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.

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INEOS ABS (USA) Corporation