

LUSTRAN[®] ABS 488

ABS

Injection Molding Grade

Description

Lustran ABS 488 resin is a general-purpose injection molding grade of ABS (acrylonitrile butadiene styrene). It is a medium-to-high impact ABS with very high gloss. In addition to a good balance of physical properties, it provides very good moldability and improved surface aesthetics versus Lustran ABS 448.

Applications

Lustran ABS 488 is used in applications requiring greater toughness than Lustran ABS 248 and better aesthetics than Lustran ABS 448. It is used in home appliances (vacuum cleaners); musical equipment; and office products requiring high gloss, such as keyboard keys and pen barrels. It is also used in swimming pool filter pump housings. Per the restrictions of the Consumer Product Safety Improvement Act (CPSIA) that went into effect on February 10, 2009, Lustran ABS 488 can not be used to manufacture children's toys or child care articles. As with any product, use of Lustran ABS 488 resin in a given application must be tested (including field testing, etc.) 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°F-190°F (82°C-88°C). Drying for 4 hours at 160°F-170°F (71°C-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.

Use minimum melt temperature with minimum barrel residence time, consistent with good part quality. 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 0.5-0.75 is recommended. A mold temperature of 110°-150°F (45°-65°C) is recommended for development of maximum gloss and strength, with the hotter end of this range preferred.

Typical processing parameters are noted below. Actual processing conditions will depend on machine size, mold design, material residence time, and shot size.

Typical Injection Molding Conditions	
Barrel Temperatures:	
Rear.....	455° – 480°F (235° – 250°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° – 500°F (245° – 260°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.....	.0 – 25 psi
Screw Speed.....	Moderate
Injection Speed.....	High
Cushion	1/4 in max
Clamp.....	.2 – 4 ton/in ²

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

Typical Physical Properties* for Natural Resin	ASTM Test Method (Other)	Units		Lustran® 488 Resin	
		U.S. Conventional	SI Metric	U.S. Conventional	SI Metric
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	0.004–0.006	
Melt Flow Rate at 230°C/3.8-kg Load	D 1238	g/10 min		6	
Mechanical					
Tensile Stress at Yield	D 638	lb/in ²	MPa	6,100	42
Tensile Modulus	D 638	lb/in ²	GPa	365,000	2.5
Flexural Stress at Yield	D 790	lb/in ²	MPa	10,200	70
Flexural Modulus	D 790	lb/in ²	GPa	370,000	2.6
Impact Strength, Notched Izod:	D 256				
0.125-in (3.2-mm) Thickness					
73°F (23°C)		ft-lb/in	J/m	5.5	294
-40°F (-40°C)		ft-lb/in	J/m	1.1	59
Rockwell Hardness	D 785	R Scale		105	
Thermal					
Deflection Temperature, Unannealed:	D 648				
0.5-in (12.7-mm) Thickness					
264-psi (1.82-MPa) Load		°F	°C	184	84
66-psi (0.46-MPa) Load		°F	°C	203	95
Coefficient of Linear Thermal Expansion	D 696 (UL746B)	in/in/°F	mm/mm/°C	5.0 E-05	9.0 E-05
Relative Temperature Index:					
0.062-in (1.57-mm) Thickness					
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	214	101
Flammability**					
UL94 Flame Class:	(UL94)				
0.062-in (1.57-mm) Thickness			Rating		HB
0.130-in (3.30-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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