LUSTRAN® Elite HH 1827

ABS *(SAE J1685: ABS0131)*
Automotive Grade

Description

Lustran Elite HH 1827 resin is an injection molding grade of ABS (acrylonitrile butadiene styrene) for high-heat applications in the automotive market. With a Vicat softening temperature of 233°F (112°C)*, Elite HH 1827 provides high heat resistance, low gloss, toughness, and easy flow for processing molded-in color parts. The resin is available in natural and black colors only. Its consistent, clean, natural color makes it ideally suitable for use with color concentrates. Color concentrates for automotive color matches are available from several concentrate suppliers.

Applications

Lustran Elite HH 1827 resin offers the right balance of properties for a variety of above-the-belt-line automotive applications. It is used for parts in the sun-load area where low-gloss, molded-in color is desired. Typical applications include A & B pillars, door panels, sail panels, consoles and console trim, cowl vents, and lamp housings. As with any product, use of Lustran Elite HH 1827 ABS 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°–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 of 20:1 will ensure melt homogeneity.

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. A mold temperature of 120°–160°F (50°–70°C) is 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	460°–490°F (240°–255°C)
Middle	470°–500°F (245°–260°C)
Front	480°–510°F (250°–265°C)
Nozzle	480°–510°F (250°–265°C)
Melt Temperature	480°–520°F (250°–270°C)
Mold Temperature	120°–160°F (50°–70°C)
Injection Pressure	13,000–20,000 psi
Hold Pressure	50–75% of Injection Pressure
Back Pressure	25–100 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 and tooling may be obtained by contacting your Bayer Corporation technical service representative.

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

Regrind Information

Where end-use requirements permit, up to 20% Lustran ABS 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 discarded.

Improperly mixed and/or dried regrind may diminish the desired properties of Lustran ABS 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., UL) 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.

Federal Motor Vehicle Safety Standard 302

The Federal Motor Vehicle Safety Standard (FMVSS) 302 applies to automotive components and not materials. Bayer does not certify against this standard since it is a component test and test results are dependent on part geometry as well as material. However, Bayer does test its materials according to the flammability test procedure SAE J369 set forth by the Society of Automotive Engineers Standard SAE J1685. This test is for materials and relates to FMVSS 302. Flammability testing of actual parts and components manufactured with Bayer materials must be performed by the part fabricator/assembler and the OEM.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Lustran Elite HH 1827 resin. Before working with this product, you must read and become familiar with the available information on its 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 Corporation representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, Pa.

Typical Properties* for Natural Resin	ASTM Test Method (Other)[a]	Units U.S. Conventional	Units SI Metric	Lustran® Elite HH 1827 ABS Resin U.S.	Lustran® Elite HH 1827 ABS Resin SI
General					
Specific Gravity	D 792			1.05	
Density	D 792	lb/in³	g/cm³	0.038	1.05
Specific Volume	D 792	in³/lb	cm³/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		13	
230°C/3.8-kg Load		g/10 min		4	
Mechanical					
Tensile Stress at Yield	D 638	lb/in²	MPa	5,700	39
	(ISO 527)		MPa		42
Tensile Elongation at Break	D 638	%		50	
Flexural Stress at Yield	D 790	lb/in²	MPa	10,100	70
Flexural Modulus	D 790	lb/in²	MPa	340,000	2,340
	(ISO 178)		MPa		2,350
Impact Strength, Notched Izod:					
73°F (23°C)					
0.125-in (3.2-mm) Thickness	D 256	ft·lb/in	J/m	3.4	181
0.250-in (6.4-mm) Thickness	D 256	ft·lb/in	J/m	2.5	133
0.5-in (12.7-mm) Thickness	D 256	ft·lb/in	J/m	2.3	123
4 x 10-mm Bar	(ISO 180/1A)		kJ/m²		17.3
-40°F (-40°C)					
4 x 10-mm Bar	(ISO 180/1A)		kJ/m²		7.7
Thermal					
Deflection Temperature, Unannealed:	D 648				
0.125-in (3.2-mm) Thickness					
264-psi (1.82-MPa) Load		°F	°C	181	83
66-psi (0.46-MPa) Load		°F	°C	203	95
0.250-in (6.4-mm) Thickness					
264-psi (1.82-MPa) Load		°F	°C	199	93
0.5-in (12.7-mm) Thickness					
264-psi (1.82-MPa) Load		°F	°C	205	96
Coefficient of Linear Thermal Expansion:	D 696				
-22° to 86°F (-30° to 30°C)		in/in/°F	mm/mm/°C	4.6 E-05	8.2 E-05
Relative Temperature Index:	(UL746B)				
0.059-in (1.5-mm) Thickness					
Electrical		°F	°C	140	60
Mechanical with Impact		°F	°C	140	60
Mechanical without Impact		°F	°C	140	60
Vicat Softening Temperature:					
1-kg Load, 120°C/Hour	D 1525	°F	°C	233	112
50-N Load, 50°C/Hour	(ISO 306)		°C		101
Flammability**					
UL94 Flame Class:	(UL94)				
0.059-in (1.5-mm) Thickness		Rating		HB	
0.126-in (3.2-mm) Thickness		Rating		HB	
Plaque Burn Rate:	(SAE J1685)				
0.079 x 4 x 14 in (2 x 100 x 355 mm)		in/min	mm/min	2.0	51

** 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.*

[a] Conditions for testing ABS under ISO standards are specified in ISO 2580-2.

Note: The information contained in this bulletin is current as of September 1998. Please contact Bayer Corporation to determine whether this publication has been revised.

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