

LUSTRAN[®] ABS 433

ABS

General-Purpose Injection Molding Grade

Description

Lustran[®] ABS 433 is a general-purpose injection molding grade of ABS (Acrylonitrile Butadiene Styrene). It is a high-impact, high-gloss ABS, available only in natural (000000) and black (904000). In its natural color (000000), Lustran ABS 433 meets FDA requirements for food contact.**

Applications

Typical applications include housings, toys, small appliances, and consumer goods. As with any product, use of Lustran ABS 433 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.

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 110° - 150°F (43° - 66°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, shot size, etc.

Typical Injection Molding Conditions	
Barrel Temperatures:	
Rear.....	455°– 480°F (235°– 249°C)
Middle.....	465°– 490°F (241°– 254°C)
Front.....	475°– 500°F (246°– 260°C)
Nozzle.....	475°– 500°F (246°– 260°C)
Melt Temperature.....	475°– 525°F (246°– 274°C)
Mold Temperature.....	110°– 150°F (43°– 66 °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

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)	Lustran® ABS 433 Resin	
		U.S. Conventional	SI Metric
General Specific Gravity Mold Shrinkage Melt Flow Rate at 230°C/3.8-kg Load Melt Flow Index at 220°C/10-kg Load	D 792 D 955 D 1238	1.05 0.004 – 0.006 in/in 3.6 g/10 min 12 g/10 min	0.004 – 0.006 mm/mm
Mechanical Tensile Stress at Yield Tensile Modulus Tensile Elongation at Break Flexural Stress at Yield Flexural Modulus Impact Strength, Notched Izod: 0.125-in Thickness 73°F (23°C) -40°F (-40°C) 0.500-in Thickness 73°F (23°C) Rockwell Hardness, R Scale	D 638 D 638 D638 D 790 D 790 D 256 D 785	6,100 lb/in ² 370,000 lb/in ² 30% 10,500 lb/in ² 380,000 lb/in ² 7.0 ft·lb/in 1.2 ft·lb/in 3.9 ft·lb/in	42 MPa 2.55 GPa 72 MPa 2.6 GPa 375 J/m 64 J/m 208 J/m
Thermal Deflection Temperature Under Load: 0.5-in (12.7-mm) Thickness Unannealed 264 psi (1.82 MPa) 66 psi (0.46 MPa) Annealed 264 psi (1.82 MPa) 66 psi (0.46 MPa) Annealed, Compression Molded 264 psi (1.82 MPa) Coefficient of Linear Thermal Expansion Vicat Softening Temperature, Rate B	D 648 D 696 D 1525	185°F 197°F 202°F 211°F 215°F 5.0 E-05 in/in/°F 223°F	85°C 92°C 94°C 99°C 102°C 9.0 E-05 mm/mm/°C 106°C
Flammability** UL94 Flame Class: 1.5-mm (0.059-in) Thickness 3.0-mm (0.118-in) Thickness	(UL94)	HB Rating HB Rating	

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