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INEOS ABS

LUSTRAN® SAN Sparkle

SAN

Highest-Clarity Grade

Description

Lustran SAN Sparkle resin is an injection molding grade of transparent SAN (styrene acrylonitrile) thermoplastic. The base resin used in the Lustran SAN Sparkle product is in chemical compliance with 21 CFR 181.32 (acrylonitrile copolymers and resins) for use in the manufacture of repeated-use houseware articles. Lustran SAN Sparkle is also in compliance with FDA modified ISO 10993-1**, and it meets U.S. Pharmacopeia 23 Class 6 test requirements. Water-clear Lustran SAN Sparkle resin is the clearest, most colorless, and most transparent grade in the Lustran SAN product line. Lustran SAN Sparkle resin combines glass-like clarity, like an acrylic, with superior processing characteristics. It is available in water-clear (552190) tint.

Applications

Lustran SAN Sparkle resin is used in applications where improved optical clarity is desired. Typical applications include housewares, cosmetic packaging, personal care items, and medical devices.

Lustran SAN Sparkle performs exceptionally well in applications that are subject to demanding environments. Finished products are resistant to heat deformation, scratching, and chemicals, such as foodstuffs, oils, greases, acids, alkalies, and petroleum products. Common solvents, such as MEK and THF, can be used for bonding Lustran SAN Sparkle. Parts molded out of Lustran SAN Sparkle resin also accept various methods of printing. As with any product, use of Lustran SAN Sparkle 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 in a desiccant dehumidifying hopper dryer is recommended. An inlet air dew point of -20°F (-29°C) or below is recommended to achieve a moisture content of ≤0.2%. 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.

Use minimum melt temperature with minimum barrel residence time, consistent with good part quality. To avoid excessive residence time, volume and weight of the shot should be balanced against barrel capacity and injection stroke. A shot weight-to-machine ratio capacity of 0.5–0.7 is recommended. A mold temperature of 120-180°F (50-80°C) is recommended for development of maximum gloss and strength.

Undercuts must be avoided when processing SAN. To avoid mold release problems, a minimum draft of 1° should be specified.

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	330° – 355°F (165° – 180°C)
Middle	365° – 380°F (185° – 195°C)
Front	380° – 400°F (195° – 205°C)
Nozzle	380° – 400°F (195° – 205°C)
Melt Temperature	400° – 500°F (205° – 260°C)
Mold Temperature	100° – 180°F (40° – 80°C)
Injection Pressure	10,000 – 20,000 psi
Hold Pressure	40 – 80% of Injection Pressure
Back Pressure	0 – 25 psi
Screw Speed	Moderate
Injection Speed	Moderate to High
Cushion	1/8 in max
Clamp	2 – 4 ton/in^2

**Extended barrel soak time at start-up or short-term shutdown (up to 6 hours) will change color of material in barrel.*

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

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Typical Physical Properties* for 2090 Tint Resin	ASTM Test Method (Other)	Units U.S. Conventional	Units SI Metric	Lustran® Sparkle SAN Resin U.S.	Lustran® Sparkle SAN Resin SI
General					
Specific Gravity	D 792			1.07	
Density	D 792	lb/in³	g/cm³	0.039	1.07
Specific Volume	D 792	in³/lb	cm³/g	25.9	0.93
Mold Shrinkage	D 955	in/in	mm/mm	0.003–0.004	
Melt Flow Rate at 230°C/3.8-kg Load	D 1238	g/10 min		12	
Optical					
Transmittance at 0.125-in (3.2-mm) Thickness	D 1003	%		89–90	
Haze at 0.125-in (3.2-mm) Thickness	D 1003	%		0.7	
Refractive Index	D 542			1.57	
Mechanical					
Tensile Stress at Break	D 638	lb/in²	MPa	9,000	62
Tensile Modulus	D 638	lb/in²	GPa	470,000	3.2
Flexural Stress at Yield	D 790	lb/in²	MPa	14,000	96.5
Flexural Modulus	D 790	lb/in²	GPa	500,000	3.4
Impact Strength:					
0.125-in (3.2-mm) Thickness					
Notched Izod	D 256	ft·lb/in	J/m	0.4	21
Unnotched	D 4812	ft·lb/in	J/m	3.0	160
Deformation Under Load:	D 621				
4,000 psi (28 MPa), 122°F (50°C), 24 Hr		%		1.5	
Rockwell Hardness	D 785	M Scale		75	
Thermal					
Deflection Temperature Under Load:	D 648				
0.5-in (12.7-mm) Thickness					
Unannealed, 264 psi (1.82 MPa)		°F	°C	200	93
Annealed, 264 psi (1.82 MPa)		°F	°C	216	102
Coefficient of Linear Thermal Expansion	D 696	in/in/°F	mm/mm/°C	3.8 E-05	6.8 E-05
Relative Temperature Index:	(UL746B)				
0.062-in (1.57-mm) Thickness					
Electrical		°F	°C	122	50
Mechanical with Impact		°F	°C	122	50
Mechanical without Impact		°F	°C	122	50
Vicat Softening Temperature, Rate B	D 1525	°F	°C	226	108
Flammability**					
UL94 Flame Class:	(UL94)				
0.062-in (1.57-mm) Thickness		Rating		HB[a]	

* *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] *Clear color.*

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INEOS ABS (USA) Corporation