INEOS ABS

LUSTRAN® SAN LK 273

SAN

General Purpose Grade

Description

Lustran SAN LK 273 resin is an injection molding grade of transparent SAN (styrene acrylonitrile) thermoplastic. The base resin used in the Lustran SAN LK 273 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 LK 273 has a large molding window and is easy to process. The resin is available in natural (000000) or crystal (552160) tint

Applications

Lustran SAN LK 273 resin is a general-purpose grade with a unique balance of cost/performance properties among thermoplastic resins. It is used in a wide variety of applications requiring clarity, heat and chemical resistance, strength and rigidity. Typical applications include beverage tumblers and mugs and cosmetic packaging.

Lustran SAN LK 273 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 LK 273. Parts molded out of Lustran SAN LK 273 resin also accept various methods of printing. As with any product, use of Lustran SAN LK 273 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	340° – 365°F (170° – 185°C)
Middle	365° – 390°F (185° – 200°C)
Front	395° – 420°F (200° – 215°C)
Nozzle	395° – 420°F (200° – 215°C)
Melt Temperature	425° – 500°F (220° – 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.

Regrind Usage

For Lustran SAN resin, up to 20% regrind may be used with virgin material, depending upon the end-use requirements of the molded part and 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 SAN 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, nor 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.

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Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the INEOS ABS products mentioned in this publication. For materials mentioned which are not INEOS ABS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their 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 INEOS ABS representative or contact the Product Safety and Regulatory Affairs Department at INEOS ABS.

Typical Properties* for Crystal Tint (552160) Resin	ASTM Test Method (Other)	Lustran® SAN LK 273 Resin	
		U.S. Conventional	SI Metric
General			
Specific Gravity	D 792	1.07	
Density	D 792	0.039 lb/in^3	1.07 g/cm^3
Specific Volume	D 792	25.9 in^3/lb	0.93 cm^3/g
Mold Shrinkage	D 955	0.003 - 0.004 in/in (mm/mm)	
Melt Flow Rate at 230°C/3.8-kg Load	D 1238	7.5 g/10 min	
Optical			
Transmittance at 0.125-in (3.2-mm) Thickness	D 1003	87 - 88%	
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	10,500 lb/in^2	72 MPa
Tensile Modulus	D 638	475,000 lb/in^2	3.3 GPa
Flexural Stress at Yield	D 790	16,700 lb/in^2	115 MPa
Flexural Modulus	D 790	500,000 lb/in^2	3.4 GPa
Impact Strength, Notched Izod:	D 256		
0.125-in (3.2-mm) Thickness		0.4 ft-lbs/in	21 J/m
Rockwell Hardness	D 785	83 (M Scale)	
Thermal			
Deflection Temperature Under Load:	D 648		
0.5-in (12.7-mm) Thickness			
Unannealed, 264 psi (1.82 MPa)		205°F	96°C
Annealed, 264 psi (1.82 MPa)		218°F	103°C
Coefficient of Linear Thermal Expansion	D 696	3.8 E-05 in/in/°F	6.8 E-05 mm/mm/°C

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

Note: The information contained in this publication is current as of October 2013. Please contact INEOS ABS to determine whether this publication has been revised.

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