

## LUSTRAN<sup>®</sup> 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 <sup>2</sup>

\*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.

Typical Properties* for Crystal Tint (552160) Resin	ASTM Test Method (Other)	Lustran® SAN LK 273 Resin	
		U.S. Conventional	SI Metric
<b>General</b>			
Specific Gravity	D 792		1.07
Density	D 792	0.039 lb/in <sup>3</sup>	1.07 g/cm <sup>3</sup>
Specific Volume	D 792	25.9 in <sup>3</sup> /lb	0.93 cm <sup>3</sup> /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	
<b>Optical</b>			
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	
<b>Mechanical</b>			
Tensile Stress at Break	D 638	10,500 lb/in <sup>2</sup>	72 MPa
Tensile Modulus	D 638	475,000 lb/in <sup>2</sup>	3.3 GPa
Flexural Stress at Yield	D 790	16,700 lb/in <sup>2</sup>	115 MPa
Flexural Modulus	D 790	500,000 lb/in <sup>2</sup>	3.4 GPa
Impact Strength, Notched Izod: 0.125-in (3.2-mm) Thickness	D 256	0.4 ft-lbs/in	21 J/m
Rockwell Hardness	D 785	83 (M Scale)	
<b>Thermal</b>			
Deflection Temperature Under Load: 0.5-in (12.7-mm) Thickness Unannealed, 264 psi (1.82 MPa)	D 648	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.

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