

TOTAL Polystyrene Crystal 1160

General Purpose Polystyrene

TOTAL Refining & Chemicals

Message:

POLYSTYRENE CRYSTAL 1160 is a high heat resistance, high molecular weight crystal polystyrene mainly for the extrusion industry. Most notably for the production of bi-oriented polystyrene (BOPS). It is particularly useful in the production of sheet for food packaging and insulation board made by direct gassing, where it gives expanded sheets with high mechanical properties.

POLYSTYRENE CRYSTAL 1160 can be used pure for the production of transparent cups or in dilution with POLYSTYRENE IMPACT 7240 for the extrusion of sheet for hot-fill thermoforming applications.

General Information	
Features	Food Contact Acceptable
	High Heat Resistance
	High Molecular Weight
Uses	Cups
	Food Packaging
	Sheet
Agency Ratings	EC 1907/2006 (REACH)
Forms	Pellets
Processing Method	Extrusion
	Thermoforming
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)
	Secant Modulus vs. Strain (ISO 11403-1)
	Specific Volume vs Temperature (ISO 11403-2)
	Viscosity vs. Shear Rate (ISO 11403-2)

Physical	Nominal Value	Unit	Test Method
Density			
--	1.05	g/cm ³	ISO 1183
--	1050	kg/m ³	ISO 1183 ¹
Apparent Density	0.60	g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	2.4	g/10 min	ISO 1133
Melt volume-flow rate (200°C/5.0 kg)	2.50	cm ³ /10min	ISO 1133 ²
Molding Shrinkage	0.40 to 0.70	%	ISO 294-4
Water Absorption			
23°C, 24 hr	< 0.10	%	ISO 62
Saturation	0.10	%	ISO 62 ³
Hardness	Nominal Value	Unit	Test Method

Rockwell Hardness (L-Scale)	70		ISO 2039-2
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
--	3200	MPa	ISO 527-2
--	3000	MPa	ISO 527-2 ⁴
Tensile Stress			
Break	48.0	MPa	ISO 527-2
Break	50.0	MPa	ISO 527-2 ⁵
Tensile Strain			
Break	3.0	%	ISO 527-2
Break	2.0	%	ISO 527-2 ⁶
Tensile Creep Modulus (1 hr)	3150	MPa	ISO 899-1 ⁷
Flexural Modulus	2900	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength			
--	8.0	kJ/m ²	ISO 179/1eU
23°C	16.0	kJ/m ²	ISO 179/1eU ⁸
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
1.8 MPa, Unannealed	83.0	°C	ISO 75-2/A
1.8 MPa, Annealed	97.0	°C	ISO 75-2/A
1.8 MPa	97.0	°C	ISO 75-2 ⁹
Vicat Softening Temperature			
--	105	°C	ISO 306/A50
--	101	°C	ISO 306/B50
50°C/h, B (50N)	98.0	°C	ISO 306 ¹⁰
CLTE			
Flow	7.1E-5	cm/cm/°C	ISO 11359-2
Transverse	7.0E-5	cm/cm/°C	ISO 11359-2 ¹¹
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity			
--	> 1.0E+15	ohms	IEC 60093
--	1.0E+14	ohms	IEC 60093 ¹²
Electric Strength	140	kV/mm	IEC 60243-1
Flammability	Nominal Value	Unit	Test Method
Burning Behav. at 1.6mm nom. thickn. (1.60 mm)	HB		ISO 1210 ¹³
NOTE			

1.

Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

2.

Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

3.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
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11.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
12.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
13.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

