

STYRON A-TECH™ 1110

Polystyrene Resin

Trinseo

Message:

STYRON A-TECH™ 1110 advanced technology polystyrene resin is a high-gloss, high-impact resin for injection molding applications.

Main Characteristics:

Excellent toughness

High gloss

Applications:

Small appliances

Toys

Printers

Remote controls

Complies with:

U.S. FDA 21 CFR 177.1640

Consult the regulation for complete details.

General Information			
UL YellowCard	E73656-249604		
Features	Good Toughness		
	High Gloss		
	High Impact Resistance		
Uses	Appliances		
	Business Equipment		
	Toys		
Agency Ratings	FDA 21 CFR 177.1640		
Forms	Pellets		
Processing Method	Compression Molding		
	Injection Molding		
	Sheet Extrusion		

Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.04	g/cm ³	ASTM D792
--	1030	kg/m ³	ISO 1183 ¹
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	3.0	g/10 min	ASTM D1238
Melt volume-flow rate (200°C/5.0 kg)	4.00	cm ³ /10min	ISO 1133 ²
Molding Shrinkage - Flow	0.40 to 0.70	%	ASTM D955

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
Compression Molded	1750	MPa	ASTM D638
Injection Molded	1860	MPa	ASTM D638

--	1770	MPa	ISO 527-2 ³
Tensile Strength			
Yield, Compression Molded	20.7	MPa	ASTM D638
Yield, Injection Molded	22.8	MPa	ASTM D638
Yield	25.0	MPa	ISO 527-2 ⁴
Break, Compression Molded	14.5	MPa	ASTM D638
Break, Injection Molded	19.3	MPa	ASTM D638
Tensile Strain			
Yield	1.5	%	ISO 527-2 ⁵
Break, Compression Molded	30	%	ASTM D638
Break, Injection Molded	50	%	ASTM D638
Nominal strain at break	> 50	%	ISO 527-2 ⁶
Flexural Modulus			ASTM D790
Compression Molded	1900	MPa	
Injection Molded	2140	MPa	
Flexural Strength			ASTM D790
Compression Molded	38.3	MPa	
Injection Molded	44.8	MPa	
Impact	Nominal Value	Unit	Test Method
Charpy notched impact strength			ISO 179/1eA ⁷
-30°C	4.00	kJ/m ²	
23°C	18.0	kJ/m ²	
Charpy impact strength			ISO 179/1eU ⁸
-30°C	60.0	kJ/m ²	
23°C	125	kJ/m ²	
Notched Izod Impact			ASTM D256
23°C, Compression Molded	130	J/m	
23°C, Injection Molded	240	J/m	
Gardner Impact (23°C)	33.9	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa	87.0	°C	ISO 75-2 ⁹
1.8 MPa, Unannealed	72.8	°C	ASTM D648
1.8 MPa, Annealed	92.8	°C	ASTM D648
1.8 MPa	76.0	°C	ISO 75-2 ¹⁰
Vicat Softening Temperature			
--	102	°C	ASTM D1525
50°C/h, B (50N)	88.0	°C	ISO 306 ¹¹
CLTE - Flow			
--	7.6E-5	cm/cm/°C	ASTM D696
--	8.6E-5	cm/cm/°C	ISO 11359-2 ¹²
Flammability	Nominal Value		Test Method

Flame Rating ¹³ (1.50 mm)	HB	UL 94
Burning Behav. at thickness h (3.10 mm, UL)	HB	ISO 1210 ¹⁴
Optical	Nominal Value	Test Method
Gardner Gloss (60°)	92	ASTM D523
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.	
4.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
5.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
6.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
7.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
8.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
9.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
10.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	
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.	This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.	
14.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.	

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