



STYRON High Impact Polystyrene Resin
A-TECH 1170

STYRON™ A-TECH™ 1170 advanced technology polystyrene resin is a high impact, environmental stress crack resistant (ESCR) resin for extrusion thermoforming applications. The improved durability of this resin allows potential down-gauging and scrap reduction, as well as overall improvements in process efficiency.

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|----------------------|---|---|
| Main Characteristics | <ul style="list-style-type: none"> • Easy Processing • Outstanding thermoformability • High impact | <ul style="list-style-type: none"> • ESCR resistant • Complies with U.S. FDA 21 CFR 177.1640
CAN. HPB NO OBJECTION
(WITH LIMITATIONS) |
| Applications | <ul style="list-style-type: none"> • Appliances/refrigerator liners • Printing applications | <p>Consult Regulations for details</p> <ul style="list-style-type: none"> • Other deep draw extrusion thermoforming applications |

Properties ⁽¹⁾	Test Method		S.I.		English		Metric	
	ISO	ASTM	Value	Unit	Value	Unit	Value	Unit
Physical								
Melt flow rate (200°C / 5 kg)	1133	D 1238	2.1	g/10 min	2.1	g/10 min	2.1	g/10 min
Specific Gravity	1183	D 792	1.04		1.04		1.04	
Linear Thermal Expansion (10 ⁻⁵)	1135	D 696	7.6	cm/cm /°C	4.2	in/in/°F	7.6	cm/cm/°C
Mold Shrinkage		D 955	0.004 - 0.007	cm/cm	0.004 - 0.007	in/in	0.004 - 0.007	cm/cm
Optical								
60° Gardner Gloss Thermoformed		D 523	20	%	20	%	20	%
Thermal								
Vicat Softening Temperature (120°C/hr, 1 kg)	306A	D 1525-B	103	°C	218	°F	103	°C
Deflection Temperature Under Load (Injection molded)	75A	D 648						
@ 0.45 MPa (66 psi), Unannealed			86	°C	186	°F	86	°C
@ 1.8 MPa (264 psi), Unannealed			71	°C	160	°F	71	°C
Injection Molded Mechanical Properties								
Impact Strength:								
Notched Izod specimen @ 23°C (73°F)	12.7x3.2 mm (0.5x.125 in)	180/4A	D 256					
			90.7	J/m	1.7	ft-lb/in	9.2	kg-cm/cm
Gardner Impact @ 23°C (73°F)		D 3029	15.8	J	140	in-lb	162	cm-kg
Tensile Properties 12.7x3.2 mm (0.5x0.125 in) specimen:								
Yield Tensile Strength (0.2 in/min) rate	5 mm/min	527	D 638	17.2	MPa	2490	psi	123
Ultimate Tensile Strength (0.2 in/min) rate	5 mm/min	527	D 638	27.4	MPa	3970	psi	284
Ultimate Elongation mm/min (0.2 in/min) rate	5	527	D 638	58.0	%	58.0	%	58.0

Technical Information



Tensile Modulus	5	527	D 638	1325	MPa	192,000	psi	13740	kg/cm ²
mm/min (0.2 in/min) rate									
Flexural Properties	1.3 mm/min (0.05 in/min) rate								
Flexural Strength (3-point)	178	D 790	41	MPa	5920	psi	425	kg/cm ²	
Flexural Modulus (3-point)	178	D 790	1628	MPa	236,000	psi	16080	kg/cm ²	
Flammability Properties ⁽²⁾									
UL 94 Classification:									
@1.5 mm (0.06 in) thickness									
			HB			HB			HB

(1) Typical properties, not to be considered as specification limits.

(2) This numerical flame-spread rating is not intended to reflect hazards presented by material under actual fire conditions.

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Americas Styrenics has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Americas Styrenics products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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- c. use as a critical component in medical devices that support or sustain human life; or
- d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

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Additional Information

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