



STYRON™ 693

Americas Styrenics LLC - General Purpose Polystyrene

Tuesday, November 5, 2019

General Information

General

Material Status	• Commercial: Active		
Availability	• North America		
Features	• Food Contact Acceptable	• High Stiffness	
	• High Heat Resistance	• High Tensile Strength	
Uses	• Electrical/Electronic Applications	• Foam	• Packaging
Agency Ratings	• FDA 21 CFR 177.1640		
UL File Number	• E326906		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties¹

	Nominal Value	Unit	Test Method
Physical			
Density / Specific Gravity	1.04		ASTM D792
Melt Mass-Flow Rate (200°C/5.0 kg)	3.5	g/10 min	ASTM D1238
Molding Shrinkage - Flow	4.0E-3 to 8.0E-3	in/in	ASTM D955
Mechanical			
Tensile Modulus (Injection Molded)	450000	psi	ASTM D638
Tensile Strength (Yield, Injection Molded)	6820	psi	ASTM D638
Tensile Strength (Break, Injection Molded)	6820	psi	ASTM D638
Tensile Elongation (Break, Injection Molded)	3.0	%	ASTM D638
Flexural Modulus (Injection Molded)	485000	psi	ASTM D790
Flexural Strength (Injection Molded)	8560	psi	ASTM D790
Impact			
Notched Izod Impact (73°F, Injection Molded)	0.39	ft·lb/in	ASTM D256
Hardness			
Rockwell Hardness (L-Scale)	109		ASTM D785
Thermal			
Deflection Temperature Under Load (66 psi, Unannealed)	189	°F	ASTM D648
Deflection Temperature Under Load 264 psi, Unannealed	178	°F	ASTM D648
Vicat Softening Temperature	208	°F	ASTM D1525
CLTE - Flow	5.0E-5	in/in/°F	ASTM D696
Flammability			
Flame Rating	HB		UL 94

Processing Information

	Nominal Value	Unit
Injection		
Rear Temperature	446 to 473	°F
Middle Temperature	419 to 446	°F
Front Temperature	392 to 419	°F
Nozzle Temperature	446 to 473	°F
Mold Temperature	60 to 150	°F

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Injection	Nominal	Value	Unit
Injection Rate		Fast	
Back Pressure		29.0 to 218	psi
Cushion		0.250	in
Extrusion	Nominal	Value	Unit
Cylinder Zone 1 Temp.		351 to 379	°F
Cylinder Zone 2 Temp.		360 to 399	°F
Cylinder Zone 3 Temp.		370 to 410	°F
Cylinder Zone 4 Temp.		390 to 421	°F
Cylinder Zone 5 Temp.		399 to 430	°F
Adapter Temperature		379 to 450	°F
Melt Temperature		379 to 450	°F
Die Temperature		390 to 450	°F

Extrusion Notes

Zone 6 Temperature: 204 to 221°C

Melt Pump, Pipes, Screen Changer Temperature: 193 to 232°C

Polish Rolls Temperature: 66 to 104°C

Head Pressure: 10 to 21 MPa

Notes

¹ Typical properties: these are not to be construed as specifications.