



STYRON™ 686E

Americas Styrenics LLC - General Purpose Polystyrene

Tuesday, November 5, 2019

General Information

General

Material Status	• Commercial: Active		
Availability	• Latin America		
Features	• Food Contact Acceptable	• Good Flow	• High Clarity
	• Good Dimensional Stability	• Good Toughness	• High Heat Resistance
Uses	• Foam		
Agency Ratings	• FDA 21 CFR 177.1640		
UL File Number	• E326906		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.04		ASTM D792
Melt Mass-Flow Rate (200°C/5.0 kg)	2.4	g/10 min	ASTM D1238
Molding Shrinkage - Flow	4.0E-3 to 8.0E-3	in/in	ASTM D955
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (Injection Molded)	445000	psi	ASTM D638
Tensile Strength (Yield, Injection Molded)	6960	psi	ASTM D638
Tensile Strength (Break, Injection Molded)	6960	psi	ASTM D638
Tensile Elongation (Break, Injection Molded)	3.0	%	ASTM D638
Flexural Modulus (Injection Molded)	460000	psi	ASTM D790
Flexural Strength (Injection Molded)	12000	psi	ASTM D790
Tensile Rupture	6962	psi	ASTM D638
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (73°F, Injection Molded)	0.39	ft·lb/in	ASTM D256
Hardness	Nominal Value	Unit	
Rockwell Hardness (L-Scale)	107		
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	208	°F	ASTM D648
Deflection Temperature Under Load 264 psi, Unannealed	192	°F	ASTM D648
Vicat Softening Temperature	226	°F	ASTM D1525
CLTE - Flow	5.0E-5	in/in/°F	ASTM D696

Processing Information

Injection	Nominal Value	Unit
Rear Temperature	392 to 419	°F
Middle Temperature	419 to 446	°F
Front Temperature	446 to 473	°F
Nozzle Temperature	446 to 473	°F
Back Pressure	29.0 to 218	psi

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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

Polish Rolls: 66 - 104 °C

Head Pressure: 10 - 21 MPa

Notes

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