



STYRON™ 685D

Americas Styrenics LLC - General Purpose Polystyrene

Tuesday, November 5, 2019

General Information

General

Material Status	• Commercial: Active		
Availability	• Latin America	• North America	
Features	• Food Contact Acceptable • Good Melt Strength	• High Heat Resistance • High Stiffness	• High Tensile Strength
Uses	• Foam	• Medical/Healthcare Applications	• Sheet
Agency Ratings	• FDA 21 CFR 177.1640	• USP Class VI	
UL File Number	• E326906		
Appearance	• Clear - Blue Tint		
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)	1.5	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)	460000	psi	ASTM D638
Tensile Strength (Yield, Injection Molded)	7540	psi	ASTM D638
Tensile Strength (Break, Injection Molded)	7540	psi	ASTM D638
Tensile Elongation (Break, Injection Molded)	3.0	%	ASTM D638
Flexural Modulus (Injection Molded)	470000	psi	ASTM D790
Flexural Strength (Injection Molded)	13100	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (73°F, Injection Molded)	0.40	ft-lb/in	ASTM D256
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (L-Scale)	107		ASTM D785
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	208	°F	ASTM D648
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	192	°F	
Vicat Softening Temperature	226	°F	ASTM D1525
CLTE - Flow	5.0E-5	in/in/°F	ASTM D696
Flammability	Nominal Value	Unit	Test Method
Flame Rating	HB		UL 94

Processing Information

Injection	Nominal Value	Unit
Rear Temperature	424 to 480	°F
Middle Temperature	424 to 480	°F
Front Temperature	390 to 415	°F
Nozzle Temperature	415 to 469	°F

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	Nominal	Value	Unit
Injection			
Mold Temperature	60 to 150	°F	
Injection Rate	Fast		
Back Pressure	29.0 to 174	psi	
Cushion	0.250	in	
Extrusion			
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.