

DuPont Performance Polymers Zytel® ST811HS NC010 Nylon 6 (Unverified Data**)

Category : Polymer , Thermoplastic , Nylon , Nylon 6

Material Notes:

Zytel® ST811HS is a flexible, heat stabilized Super Tough polyamide 6 resin developed for extrusion and injection molding applications such as cable and rope jacketing, hose inner cores and fasteners and ski binding parts. Information provided by DuPont

Order this product through the following link:

http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Zytel-ST811HS-NC010-Nylon-6-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.04 g/cc	1.04 g/cc	DAM; ASTM D792
Density	1.04 g/cc	0.0376 lb/in ³	DAM; ISO 1183
Water Absorption	1.5 %	1.5 %	DAM; Immersion 24h; ASTM D570
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	2.3 %	2.3 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	DAM; Equilibrium 50%RH; ISO 62, Similar to
	6.8 %	6.8 %	DAM; Saturation, immersed; ISO 62, Similar to
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Linear Mold Shrinkage, Flow	0.018 cm/cm	0.018 in/in	DAM
	@Thickness 3.20 mm	@Thickness 0.126 in	
	0.018 cm/cm	0.018 in/in	DAM; ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	
Linear Mold Shrinkage, Transverse	0.018 cm/cm	0.018 in/in	DAM
	@Thickness 3.20 mm	@Thickness 0.126 in	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	57	57	50%RH; ASTM D785
Hardness, Rockwell R	70	70	50%RH; ASTM D785
Hardness, Shore D	57	57	50%RH; ASTM D2240
	70	70	DAM; ASTM D2240
Tensile Strength	41.0 MPa	5950 psi	50%RH; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	48.0 MPa Metric	6960 psi English	Comments DAM; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	31.0 MPa	4500 psi	DAM; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	>= 50 %	>= 50 %	50%RH; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	>= 50 %	>= 50 %	DAM; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	>= 225 %	>= 225 %	50%RH; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	>= 225 %	>= 225 %	DAM; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Yield	29 %	29 %	DAM; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Modulus	0.400 GPa	58.0 ksi	50%RH; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.900 GPa	131 ksi	DAM; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Modulus	0.297 GPa	43.1 ksi	50%RH; ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.524 GPa	76.0 ksi	DAM; ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Unnotched	6.93 J/cm	13.0 ft-lb/in	DAM; ASTM D256
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	8.00 J/cm	15.0 ft-lb/in	DAM; ASTM D256
	@Temperature -20.0 °C	@Temperature -4.00 °F	
	11.7 J/cm	21.9 ft-lb/in	DAM; ASTM D256
	@Temperature 0.000 °C	@Temperature 32.0 °F	
	NB	NB	DAM; ASTM D256
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	NB	NB	

Charpy Impact Unnotched Mechanical Properties	Metric @Temperature -30.0 °C	English @Temperature -22.0 °F	50%RH; ISO 179/1eU Comments
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	50%RH; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	DAM; ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	DAM; ISO 179/1eU
Charpy Impact, Notched	1.30 J/cm ² @Temperature -30.0 °C	6.19 ft-lb/in ² @Temperature -22.0 °F	50%RH; ISO 179/1eA
	1.40 J/cm ² @Temperature -30.0 °C	6.66 ft-lb/in ² @Temperature -22.0 °F	DAM; ISO 179/1eA
	7.10 J/cm ² @Temperature 23.0 °C	33.8 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 179/1eA
	12.9 J/cm ² @Temperature 23.0 °C	61.4 ft-lb/in ² @Temperature 73.4 °F	50%RH; ISO 179/1eA
Tensile Impact Strength	1310 kJ/m ² @Temperature 23.0 °C	623 ft-lb/in ² @Temperature 73.4 °F	DAM; Long specimen; ASTM D1822
	1363 kJ/m ² @Temperature 23.0 °C	648.6 ft-lb/in ² @Temperature 73.4 °F	50%RH; Long specimen; ASTM D1822

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	130 µm/m-°C @Temperature 23.0 - 55.0 °C	72.2 µin/in-°F @Temperature 73.4 - 131 °F	DAM; ASTM D696
	200 µm/m-°C @Temperature 23.0 - 55.0 °C	111 µin/in-°F @Temperature 73.4 - 131 °F	DAM; ASTM E 831
	200 µm/m-°C @Temperature 23.0 - 55.0 °C	111 µin/in-°F @Temperature 73.4 - 131 °F	DAM; ISO 11359-1/-2
CTE, linear, Transverse to Flow	180 µm/m-°C @Temperature 23.0 - 55.0 °C	100 µin/in-°F @Temperature 73.4 - 131 °F	DAM; ASTM E 831
	180 µm/m-°C	100 µin/in-°F	

Thermal Properties	Metric @ Temperature 23.0 - 55.0 °C	English @ Temperature 73.4 - 131 °F	Comments DAM; ISO 11359-1/-2
Melting Point	216 °C	421 °F	DAM; ASTM D3418
	218 °C	424 °F	DAM; 10°C/min; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	170 °C	338 °F	DAM; ISO 75-1/-2
	170 °C	338 °F	DAM; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	47.0 °C	117 °F	DAM; ISO 75-1/-2
	52.0 °C	126 °F	DAM; ASTM D648
UL RTI, Electrical	130 °C @Thickness 0.750 mm	266 °F @Thickness 0.0295 in	DAM; UL 746B
	130 °C @Thickness 1.50 mm	266 °F @Thickness 0.0591 in	DAM; UL 746B
	130 °C @Thickness 3.00 mm	266 °F @Thickness 0.118 in	DAM; UL 746B
UL RTI, Mechanical with Impact	65.0 °C @Thickness 0.750 mm	149 °F @Thickness 0.0295 in	DAM; UL 746B
	105 °C @Thickness 1.50 mm	221 °F @Thickness 0.0591 in	DAM; UL 746B
	105 °C @Thickness 3.00 mm	221 °F @Thickness 0.118 in	DAM; UL 746B
UL RTI, Mechanical without Impact	95.0 °C @Thickness 0.750 mm	203 °F @Thickness 0.0295 in	DAM; UL 746B
	100 °C @Thickness 1.50 mm	212 °F @Thickness 0.0591 in	DAM; UL 746B
	110 °C @Thickness 3.00 mm	230 °F @Thickness 0.118 in	DAM; UL 746B
Flammability, UL94	HB @Thickness 0.750 mm	HB @Thickness 0.0295 in	DAM; IEC 60695-11-10
	HB @Thickness 0.750 mm	HB @Thickness 0.0295 in	DAM; UL94

Thermal Properties	Metric	English	Comments
	@Thickness 1.50 mm	@Thickness 0.0591 in	DAM; IEC 60695-11-10
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	DAM; IEC 60695-11-10
	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	DAM; UL94
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	DAM; UL94

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	>= 600 V @Temperature 23.0 °C	>= 600 V @Temperature 73.4 °F	DAM; UL 746A

Processing Properties	Metric	English	Comments
Melt Temperature	240 °C	464 °F	DAM; optimum; Extrusion
	235 - 250 °C	455 - 482 °F	DAM; Extrusion
	260 - 280 °C	500 - 536 °F	DAM; Injection Molding
	270 °C	518 °F	DAM; optimum; Injection Molding
Mold Temperature	70.0 °C	158 °F	DAM; Optimum; Injection Molding

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