Product Information

Zytel®

nylon resin

Zytel® 101L NC010

Nylon Resin

Zytel® 101L NC010 is a lubricated PA 66 resin for injection molding.

Property	Test Method	Units	Value	
			DAM	50%RH
Mechanical				
Tensile Strength	ASTM D 638	MPa (kpsi)		
-40°C (-40°F)			114 (16.5)	110 (16.0)
23°C (73°F)			83 (12.0)	77 (11.2)
77°C (170°F)			62 (9.0)	41 (5.9)
121°C (250°F)			43 (6.2)	38 (5.5)
Tensile Strength at Yield	ASTM D 638	MPa (kpsi)		
-40°C (-40°F)			114 (16.5)	110 (16.0)
23°C (73°F)			83 (12.0)	58 (8.5)
77°C (170°F)			45 (6.5)	34 (5.0)
121°C (250°F)			33 (4.8)	28 (4.0)
Yield Stress	ISO 527-1/-2	MPa (kpsi)	83 (12.0)	53 (7.7)
Elongation at Yield	ASTM D 638	%		
-40°C (-40°F)			4	
23°C (73°F)			5	25
77°C (170°F)			30	30
121°C (250°F)			45	40
Yield Strain	ISO 527-1/-2	%	4.5	25

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.
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			DAM	50%RH
Mechanical				
Elongation at Break	ASTM D 638	%		
-40°C (-40°F)			15	20
23°C (73°F)			60	>300
77°C (170°F)			>300	>300
121°C (250°F)			>300	>300
Nominal Strain at Break	ISO 527-1/-2	%	22	>100
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	3100 (450)	1200 (174)
Shear Strength	ASTM D 732	MPa (kpsi)	66 (9.6)	
Poisson's Ratio			0.41	
Flexural Modulus	ASTM D 790	MPa (kpsi)		
-40°C (-40°F)			3240 (470)	3450 (500)
23°C (73°F)			2830 (410)	1210 (175)
77°C (170°F)			690 (100)	565 (82)
121°C (250°F)			538 (78)	414 (60)
Flexural Modulus	ISO 178	MPa (kpsi)	2700 (392)	1200 (174)
Hardness, Rockwell	ASTM D 785			
Scale M			79	59
Scale R			121	108
Deformation Under Load	ASTM D 621	%		
50°C (122°F), 13.8MPa (2000psi)			1.4	
Tensile Impact Strength	ASTM D 1822	kJ/m^2 (ft lb/in^2)		
Long specimen			504 (240)	1470 (700)
Short specimen			157 (75)	232 (110)
Izod Impact	ASTM D 256	J/m (ft lb/in)		
-40°C (-40°F)			32 (0.6)	27 (0.5)
23°C (73°F)			53 (1.0)	112 (2.1)
Notched Izod Impact	ISO 180/1A	kJ/m^2		
-30°C (-22°F)			5	4
23°C (73°F)			5	13

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Mechanical				
Notched Charpy Impact	ISO 179/1eA	kJ/m^2		
-30°C (-22°F)			4	4
23°C (73°F)			5	15
Unnotched Charpy Impact	ISO 179/1eU	kJ/m^2		
-30°C (-22°F)			NB	NB
23°C (73°F)			NB	NB
Thermal				
Heat Deflection Temperature	ASTM D 648	°C (°F)		
0.45MPa (66psi)			210 (410)	
1.8MPa (264psi)			65 (149)	
Deflection Temperature	ISO 75-1/-2	°C (°F)		
0.45MPa			200 (392)	
1.80MPa			70 (158)	
Melting Temperature	ISO 3146C	°C (°F)	263 (505)	
CLTE, Parallel	ASTM E 831	E-4/C (E-4/F)		
23 - 55°C (73 - 130°F)			1.0 (0.56)	
CLTE, Normal	ASTM E 831	E-4/C (E-4/F)		
23 - 55°C (73 - 130°F)			1.1 (0.61)	
Thermal Conductivity	ASTM C 177	W/m K (Btu in/h ft^2 F)		
Conco-Fitch apparatus			0.25 (1.7)	
Electrical				
Surface Resistivity	IEC 60093	ohm	1 E12	
Relative Permittivity	IEC 60250			
1E2 Hz			3.8	10.9
1E6 Hz			3.5	4
Volume Resistivity	IEC 60093	ohm m	1E12	1E10
Dielectric Constant	ASTM D 150			
1E2 Hz			4.0	8.0
1E3 Hz			3.9	7.0
1E6 Hz			3.6	4.6

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Electrical				
Dissipation Factor	ASTM D 150			
1E2 Hz			0.01	0.20
1E3 Hz			0.02	0.20
1E6 Hz			0.02	0.10
Dissipation Factor	IEC 60250	E-4		
1E2 Hz			80	2100
1E6 Hz			180	750
Electric Strength	IEC 60243-1	kV/mm (V/mil)		
1.0mm			31.5 (800)	
CTI	IEC 60112	V		
1.0mm			600	
Flammability				
Flammability Classification	UL94			
0.71mm			V-2	
Oxygen Index	ASTM D 2863	%	28	31
Oxygen Index	ISO 4589	%	28	
High Amperage Arc Ignition Resistance	UL 746A	arcs	186	
High Voltage Arc Tracking Rate	UL 746A	mm/min (in/min)	5.10 (0.2)	
Hot Wire Ignition	UL 746A	s	15	
Temperature Index				
RTI, Electrical	UL 746B	°C		
0.71mm			130	
RTI, Mechanical with Impact	UL 746B	°C		
0.71mm			75	
RTI, Mechanical without Impact	UL 746B	°C		
0.71mm			85	

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Other				
Specific Gravity	ASTM D 792		1.14	
Density	ISO 1183	kg/m^3 (g/cm^3)	1140 (1.14)	
Taber Abrasion	ASTM D 1044	mg		
CS-17 Wheel, 1kg, 1000 cycles				7
Humidity Absorption	ISO 62, Similar to	%		
Equilibrium 50%RH			2.7	
Water Absorption	ASTM D 570	%		
Immersion 24h			1.2	
Saturation			8.5	
Water Absorption	ISO 62, Similar to	%		
Saturation, immersed			8.5	
Mold Shrinkage		%		
Flow, 3.2mm (0.126in)			1.5	
Molding Shrinkage	ISO 294-4	%		
Normal			1.3	
Parallel			1.3	
Brittleness Temperature	ASTM D 746	°C (°F)	-80 (-112)	-65 (-85)
Processing				
Melt Temperature Range		°C (°F)	280-300 (535-570)	
Mold Temperature Range		°C (°F)	50-90 (120-190)	
Drying Time, Dehumidified Dryer		h	2-4	
Drying Temperature		°C (°F)	80 (175)	
Processing Moisture Content		%	<0.20	

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