

Ascend Performance Materials VYDYNE® 21SP Nylon, General Purpose

Category : Polymer , Thermoplastic , Nylon , Nylon 66 , Nylon 66, Unreinforced, Flame Retardant

Material Notes:

1.4% Deformation under 14 MPa (2000 psi) load. Typical property data. VYDYNE is a registered trademark of Solutia Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Ascend-Performance-Materials-VYDYNE-21SP-Nylon-General-Purpose.php

Physical Properties	Metric	English	Comments
Density	1.14 g/cc	0.0412 lb/in ³	ASTM D792
Water Absorption	1.3 %	1.3 %	24 hours; ASTM D570
Water Absorption at Saturation	8.0 %	8.0 %	ASTM D570
Linear Mold Shrinkage	0.015 - 0.020 cm/cm	0.015 - 0.020 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	85	85	ASTM D785
Hardness, Rockwell R	120	120	ASTM D785
Tensile Strength, Yield	83.0 MPa	12000 psi	ASTM D638
	62.0 MPa	8990 psi	ASTM D638
	@Temperature 77.0 °C	@Temperature 171 °F	
	107 MPa	15500 psi	ASTM D638
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Elongation at Break	70 %	70 %	ASTM D638
	20 %	20 %	ASTM D638
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	300 %	300 %	ASTM D638
	@Temperature 77.0 °C	@Temperature 171 °F	
Elongation at Yield	10 %	10 %	ASTM D638
	5.0 %	5.0 %	ASTM D638
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	30 %	30 %	ASTM D638
	@Temperature 77.0 °C	@Temperature 171 °F	

Tensile Modulus Mechanical Properties	Metric	English	Comments
Flexural Yield Strength	90.0 MPa	13100 psi	ASTM D790
Flexural Modulus	3.00 GPa	435 ksi	ASTM D790
Compressive Yield Strength	34.0 MPa	4930 psi	at 1% deformation; ASTM D695
Shear Strength	69.0 MPa	10000 psi	ASTM D732
Izod Impact, Notched	0.500 J/cm	0.937 ft-lb/in	ASTM D256
	@Thickness 3.17 mm	@Thickness 0.125 in	
	0.300 J/cm	0.562 ft-lb/in	ASTM D256
	@Thickness 3.17 mm, Temperature -40.0 °C	@Thickness 0.125 in, Temperature -40.0 °F	
Tensile Impact Strength	170 kJ/m²	80.9 ft-lb/in²	Type S specimen; ASTM D1822

Thermal Properties	Metric	English	Comments
CTE, linear	81.0 µm/m-°C	45.0 µin/in-°F	
	@Temperature -40.0 - 82.0 °C	@Temperature -40.0 - 180 °F	
Specific Heat Capacity	1.70 J/g-°C	0.406 BTU/lb-°F	Mfr. internal test
Thermal Conductivity	0.240 W/m-K	1.67 BTU-in/hr-ft²-°F	Mfr. internal test
Melting Point	260 °C	500 °F	ASTM D789
Deflection Temperature at 0.46 MPa (66 psi)	232 °C	450 °F	Unannealed; ASTM D648
	@Thickness 3.17 mm	@Thickness 0.125 in	
Deflection Temperature at 1.8 MPa (264 psi)	82.0 °C	180 °F	Unannealed; ASTM D648
	@Thickness 3.17 mm	@Thickness 0.125 in	
Brittleness Temperature	-79.0 °C	-110 °F	
Flammability, UL94	V-2	V-2	
Oxygen Index	30 %	30 %	ASTM D2863

Electrical Properties	Metric	English	Comments
Electrical Resistivity	6.00e+15 ohm-cm	6.00e+15 ohm-cm	ASTM D257
Dielectric Constant	3.1	3.1	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
	3.6	3.6	

Electrical Properties	Metric @Frequency 1000 Hz	English @Frequency 1000 Hz	ASTM D150 Comments
	3.7	3.7	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
Dielectric Strength	21.3 kV/mm	541 kV/in	Step by step; ASTM D149
	22.4 kV/mm	569 kV/in	
Dissipation Factor	0.020	0.020	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.020	0.020	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.030	0.030	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

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