Vydyne® 21SPC

polyamide 66

Vydyne 21SPC is a general-purpose, unfilled, lubricated, PA66 resin. Designed principally for injection-molding fabrication, this product offers a combination of engineering properties characterized by high strength; rigidity; good toughness; high melt point; good surface lubricity; abrasion resistance; and resistance to many chemicals, machine and motor oils, solvents and gasoline.

21SPC permits production of molded parts with good initial color plus good property and color retention when using regrind.

21SPC is intended for use in high-productivity applications. In many applications, the molding cycle can be reduced because parts may be removed from the cavity at higher temperatures. In difficult molds where parts have a tendency to stick in the cavity, 21SPC can reduce or eliminate the need for mold release sprays. Critical molded-part dimensions should be checked against specifications before implementing shorter molding cycles on a routine production basis.

General

Additive	• Lubricant		
Features	• Abrasion Resistance	• Chemical Resistant	• Fast Molding Cycle
	• Gasoline Resistant	• General Purpose	• Good Mold Release
	• Good Toughness	• High Rigidity	• High Strength
	• Lubricated	• Oil Resistant	• Solvent Resistant
Agency Rating	• ASTM, D4066 PA0111	• ASTM, D6779 PA0111	• EC, 1935/2004
	• EU, 10/2011	• EU, 2023/2006	• FDA, 21 CFR 177.1500
	• FED, L-P-410A	• MIL, M-20693B	• NSF, STD-51
	• RoHS Compliant	• SAE, J1639 PA0121 Z6	
Automotive Specifications	• Aisin TO20141124 - P-PA66-N-011	• Renault UB15b	• Toyota TSM5516G, Class 2, Rev 9 (compliance)
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	dry	cond.	Unit	Test Standard
Density	1.14	-	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	1.7	*	%	
Flow : 23°C, 2.00 mm	1.8	*	%	
Water Absorption				ISO 62
23°C, 24 hr	1.2	*	%	
Equilibrium, 23°C, 50% RH	2.4	*	%	
Outdoor Suitability	f2			UL 746C

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Mechanical	dry	cond.	Unit	Test Standard
Tensile Modulus (23°C)	2800	1800	MPa	ISO 527-2
Tensile Stress (Yield, 23°C)	86	56	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	56	46	MPa	ISO 527-2
Tensile Strain (Yield, 23°C)	4.8	22	%	ISO 527-2
Tensile Strain (Break, 23°C)	23	87	%	ISO 527-2
Flexural Modulus (23°C)	2900	1500	MPa	ISO 178
Flexural Strength (23°C)	80	50	MPa	ISO 178
Poisson's Ratio (23°C)	0.4			ISO 527-2

Impact	dry	cond.	Unit	Test Standard
Charpy Notched Impact Strength				ISO 179/1eA
+23°C	6	20	kJ/m²	
-30°C	5	7	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
+23°C	N	N	kJ/m²	
-30°C	N	N	kJ/m²	
Notched Izod Impact Strength				ISO 180/1A
+23°C	6	20	kJ/m²	
-30°C	5	7	kJ/m²	

Thermal	dry	cond.	Unit	Test Standard
Heat Deflection Temperature				ISO 75-2/A
1.80 MPa, Unannealed	70	-	°C	
0.45 MPa, Unannealed	200	-	°C	
Melting Temperature	260	*	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	100	*	E-6/K	
Transverse : 23 to 55°C, 2.00 mm	100	*	E-6/K	
RTI Elec				UL 746
0.400 mm	130		°C	
0.710 mm	130		°C	
1.50 mm	130		°C	
3.00 mm	130		°C	
RTI Imp				UL 746
0.400 mm	75		°C	
0.710 mm	75		°C	
1.50mm	75		°C	

3.00 mm	75		°C	
RTI Str				UL 746
0.400 mm	75		°C	
0.710 mm	85		°C	
1.50 mm	85		°C	
3.00 mm	85		°C	

Electrical	dry	cond.	Unit	Test Standard
Volume Resistivity (1.00 mm)	1E11	-	Ohm*m	IEC 60093
Dielectric Strength (1.00 mm)	26	-	kV/mm	IEC 60243
Arc Resistance (3.00 mm)	5			ASTM D 495
High Amp Arc Ignition (HAI)				UL 746
0.400 mm	PLC 1			
0.710 mm	PLC 0			
1.50 mm	PLC 0			
3.00 mm	PLC 0			
High Voltage Arc Tracking Rate (HVTR), 3.00 mm	PLC 0			UL 746
Hot-wire Ignition (HWI)				UL 746
0.400 mm	PLC 4			
0.710 mm	PLC 4			
1.50 mm	PLC 3			
3.00 mm	PLC 2			

Flammability	dry	cond.	Unit	Test Standard
Flammability				UL 94
0.400 mm	V-2			
0.710 mm	V-2			
1.50 mm	V-2			
3.00 mm	V-2			
Glow Wire Flammability Index				IEC 60695-2-12
0.400 mm	960		°C	
0.710 mm	960		°C	
1.50 mm	960		°C	
3.00 mm	960		°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.400 mm	825		°C	
0.710 mm	850		°C	
1.50 mm	850		°C	
3.00 mm	850		°C	

Oxygen index	25	*	%	EN ISO 4589-2

Railway Application	dry	cond.	Unit	Test Standard
Oxygen index	25	-	%	EN ISO 4589-2

Injection	Value	Unit
Drying Temperature	70	°C
Drying Time	1 - 3	h
Rear Temperature	260 - 280	°C
Middle Temperature	270 - 285	°C
Front Temperature	280 - 290	°C
Nozzle temperature	280 - 300	°C
Processing (Melt) Temperature	285 - 300	°C
Mold Temperature	65 - 95	°C

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