

**Product Texts**

Vydyne 21SPF1 is a general-purpose, unfilled, lubricated PA66 resin with an enhanced crystallization temperature, and enhanced processing. Designed principally to further decrease cycle time, with a 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.

Processing/Physical Characteristics	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Molding shrinkage, parallel	2.0 / *	%	ISO 294-4, 2577
<sup>[C]</sup> Molding shrinkage, normal	2.0 / *	%	ISO 294-4, 2577

[C]: CAMPUS

Mechanical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Tensile Modulus	3300 / 1600	MPa	ISO 527
<sup>[C]</sup> Yield stress	88 / 55	MPa	ISO 527
<sup>[C]</sup> Yield strain	5 / 20	%	ISO 527
Flexural modulus, 23°C	3300 / 1050	MPa	ISO 178
Flexural strength	105 / 30	MPa	ISO 178
<sup>[C]</sup> Charpy impact strength, +23°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy impact strength, -30°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy notched impact strength, +23°C	6 / 23	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Charpy notched impact strength, -30°C	5 / 7	kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, +23°C	6 / 23	kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength	5 / 7	kJ/m <sup>2</sup>	ISO 180/1A
Temperature	-30	°C	-

[C]: CAMPUS

Thermal properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melting temperature, 10°C/min	260 / *	°C	ISO 11357-1/-3
<sup>[C]</sup> Temp. of deflection under load, 1.80 MPa	72 / *	°C	ISO 75-1/-2
<sup>[C]</sup> Temp. of deflection under load, 0.45 MPa	210 / *	°C	ISO 75-1/-2
<sup>[C]</sup> Coeff. of linear therm. expansion, parallel	100 / *	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Coeff. of linear therm. expansion, normal	100 / *	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Burning Behav. at 1.5 mm nom. thickn.	V-2 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	-
<sup>[C]</sup> Burning Behav. at thickness h	V-2 / *	class	IEC 60695-11-10
Thickness tested	0.7 / *	mm	-
<sup>[C]</sup> Oxygen index	26 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested (1)	0.71	mm	-
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested (2)	1.5	mm	-
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested (3)	3	mm	-
Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13
GWIT - thickness tested (1)	0.71	mm	-
Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13
GWIT - thickness tested (2)	1.5	mm	-
Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13
GWIT - thickness tested (3)	3	mm	-
<b>ASTM Data</b>			
UL 94 Flame rating	V-2	-	UL 94
Thickness tested	0.71	mm	-

[C]: CAMPUS

Electrical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Volume resistivity	1E11 / -	Ohm*m	IEC 62631-3-1
<sup>[C]</sup> Electric strength	26 / -	kV/mm	IEC 60243-1
<sup>[C]</sup> Comparative tracking index	600 / -	-	IEC 60112
<b>ASTM Data</b>			
Arc Resistance	150 / -	s	ASTM D 495

[C]: CAMPUS

Other properties	dry / cond	Unit	Test Standard
<sup>[C]</sup> Water absorption	1.2 / *	%	Sim. to ISO 62
<sup>[C]</sup> Humidity absorption	2.4 / *	%	Sim. to ISO 62
<sup>[C]</sup> Density	1140 / -	kg/m <sup>3</sup>	ISO 1183

[C]: CAMPUS

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	70	°C	-
Pre-drying - Time	1 - 3	h	-
Melt temperature	285 - 300	°C	-
Mold temperature	65 - 95	°C	-
Zone 1	260 - 280	°C	-
Zone 2	270 - 285	°C	-
Zone 3	280 - 290	°C	-
Nozzle temperature	280 - 300	°C	-

**Characteristics**

**Processing**

Injection Molding

**Delivery form**

Pellets, Natural Color

**Additives**

Lubricants, Release agent

**Features**

Color Stability

**Chemical Resistance**

General Chemical Resistance, Solvent Resistance, Oil Resistance

**Certifications**

Food contact, Food approval 10/2011, Food approval FDA 21 CFR

**Applications**

Automotive, Electrical and Electronical, General Purpose

**Regional Availability**

North America, Europe, Asia Pacific