+135-3858-6433 (GuangDong)
+188-1699-6168 (ShangHai)
+852-6957-5415 (HongKong)

Vydyne® 21X1

polyamide 66

Vydyne 21X1 is a general-purpose, unfilled, PA66 resin. Designed principally for injection-molding applications with the added benefit of improved flow during the molding process. 21X1 offers the same well-balanced 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.

General

Regional Availability	• North America	• Europe	• Asia Pacific
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
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	2.0	*	%	
Flow : 23°C, 2.00 mm	2.0	*	%	
Water Absorption				ISO 62
23°C, 24 hr	1.2	*	%	
Equilibrium, 23°C, 50% RH	2.4	*	%	
Outdoor Suitability	f2		-	UL 746C

Mechanical	dry	cond.	Unit	Test Standard
Tensile Modulus (23°C)	3300	1600	MPa	ISO 527-2
Tensile Stress (Yield, 23°C)	88	55	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	60	45	MPa	ISO 527-2
Tensile Strain (Yield, 23°C)	5	20	%	ISO 527-2
Tensile Strain (Break, 23°C)	20	>50	%	ISO 527-2
Flexural Modulus (23°C)	3300	1050	MPa	ISO 178
Flexural Strength (23°C)	105	30	MPa	ISO 178
Poisson's Ratio (23°C)	0.4		-	ISO 527-2

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Impact	dry	cond.	Unit	Test Standard
Charpy Notched Impact Strength				ISO 179/1eA
+23°C	6	23	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	23	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	72	-	°C	
0.45 MPa, Unannealed	210	-	°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
0.750 mm	130		°C	
1.50 mm	130		°C	
3.00 mm	130		°C	
RTI Imp				UL 746
0.750 mm	75		°C	
1.50mm	75		°C	
3.00 mm	75		°C	
RTI Str				UL 746
0.750 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
Comparative Tracking Index (3.00 mm)	600		V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746

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0.750 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
0.750 mm	PLC 4		-	
1.50 mm	PLC 3		-	
3.00 mm	PLC 2		-	

Flammability	dry	cond.	Unit	Test Standard
Flammability				UL 94
0.750 mm	V-2		-	
1.50 mm	V-2		-	
3.00 mm	V-2		-	
Glow Wire Flammability Index				IEC 60695-2-12
0.750 mm	960		°C	
1.50 mm	960		°C	
3.00 mm	960		°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.750 mm	850		°C	
1.50 mm	850		°C	
3.00 mm	850		°C	
Oxygen index	26	*	%	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