

Vydyne® 21SPC1

polyamide 66



Vydyne 21SPC1 is a general-purpose, improved-flow, lubricated PA66 resin available in natural color. 21SPC1 offers a balanced combination of properties characterized by high strength, rigidity, good toughness, a high melt point, abrasion resistance with good surface lubricity, and excellent resistance to many chemicals. Vydyne 21SPC1 resin has an external lubricant for improved machine feed and an internal lubricant for improved mold release.

Typical Applications/End Uses:

End uses for Vydyne 21SPC1 include terminal blocks, bearings, bushings, control cams, electrical connectors, housings, cable ties, fasteners, switch components and industrial parts that require chemical resistance, stiffness, wear resistance and rigidity.

| General | | | | |
|---------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|
| Material Status | • Commercial: Active | | | |
| Availability | • Asia Pacific | • Europe | • North America | |
| Additive | • Lubricant | | | |
| Features | • Fast Molding Cycle • Gasoline Resistance • General Purpose • Good Abrasion Resistance | • Good Chemical Resistance • Good Mold Release • Good Toughness • High Rigidity | • High Strength • Lubricated • Oil Resistant • Solvent Resistant | |
| Uses | • Bearings • Bushings | • Cams • Connectors | • Housings • Industrial Applications | |
| Agency Ratings | • ASTM D 4066 PA0111 • ASTM D 6779 PA0111 | • FDA 21 CFR 177.1500 • FED L-P-410A | • MIL M-20693B | |
| RoHS Compliance | • RoHS Compliant | | | |
| Automotive Specifications | • ASTM D4000 PA111 • ASTM D4066 PA0111 • FEDERAL LP410A • FORD WSK-M4D647-A | • FORD WSK-M4D647-A Color: Black • GM GMP.PA66.005 • GM GMP.PA66.005 Color: Black • NISSAN PA66-INX-1 | • OPEL QK 002921 • SAE J1639 PA0121 Z6 • SAE J1639 PA0121 Z6 Color: Black | |
| UL File Number | • E70062 | | | |
| Appearance | • Natural Color | | | |
| Forms | • Pellets | | | |
| Processing Method | • Injection Molding | | | |

| Physical | Dry | Conditioned | Unit | Test Method |
|----------------------------------------------|------|-------------|-------------------|-------------|
| Density | 1.14 | -- | g/cm ³ | ISO 1183 |
| Molding Shrinkage | | | | ISO 294-4 |
| Across Flow : 73°F, 0.0787 in | 1.7 | -- | % | |
| Flow : 73°F, 0.0787 in | 1.8 | -- | % | |
| Water Absorption (73°F, 24 hr) | 1.2 | -- | % | ISO 62 |
| Water Absorption (Equilibrium, 73°F, 50% RH) | 2.4 | -- | % | ISO 62 |

| Mechanical | Dry | Conditioned | Unit | Test Method |
|----------------------------------------|----------|-------------|-----------------------|-------------|
| Tensile Modulus (73°F) | 450000 | 203000 | psi | ISO 527-2 |
| Tensile Stress (Yield, 73°F) | 11900 | 7980 | psi | ISO 527-2 |
| Tensile Stress (Break, 73°F) | 7980 | 6530 | psi | ISO 527-2 |
| Tensile Strain (Yield, 73°F) | 5.0 | 25 | % | ISO 527-2 |
| Nominal Tensile Strain at Break (73°F) | 25 | > 50 | % | ISO 527-2 |
| Flexural Modulus (73°F) | 421000 | 218000 | psi | ISO 178 |
| Flexural Strength (73°F) | 11600 | 7250 | psi | ISO 178 |
| Poisson's Ratio | 0.40 | -- | | ISO 527 |
| Impact | Dry | Conditioned | Unit | Test Method |
| Charpy Notched Impact Strength | | | | ISO 179/1eA |
| -22°F | 2.4 | 3.3 | ft·lb/in ² | |
| 73°F | 2.9 | 9.5 | ft·lb/in ² | |
| Charpy Unnotched Impact Strength | | | | ISO 179/1eU |
| -22°F | No Break | No Break | | |
| 73°F | No Break | No Break | | |
| Notched Izod Impact Strength | | | | ISO 180 |
| -22°F | 2.4 | 3.3 | ft·lb/in ² | |
| 73°F | 2.9 | 9.5 | ft·lb/in ² | |

| Thermal | Dry | Conditioned | Unit | Test Method |
|----------------------------------------------------|--------|-------------|----------|-------------|
| Heat Deflection Temperature 66 psi, Unannealed | 392 | -- | °F | ISO 75-2/B |
| Heat Deflection Temperature 264 psi, Unannealed | 158 | -- | °F | ISO 75-2/A |
| Melting Temperature | 500 | -- | °F | ISO 11357-3 |
| CLTE - Flow (73 to 131°F) | 5.6E-5 | -- | in/in/°F | ISO 11359-2 |
| CLTE - Transverse (73 to 131°F) | 5.6E-5 | -- | in/in/°F | ISO 11359-2 |
| RTI Elec | | | | UL 746 |
| 0.0280 in | 266 | -- | °F | |
| 0.0591 in | 266 | -- | °F | |
| 0.118 in | 266 | -- | °F | |
| RTI Imp | | | | UL 746 |
| 0.0280 in | 167 | -- | °F | |
| 0.0591 in | 167 | -- | °F | |
| 0.118 in | 167 | -- | °F | |
| RTI Str | | | | UL 746 |
| 0.0280 in | 185 | -- | °F | |
| 0.0591 in | 185 | -- | °F | |
| 0.118 in | 185 | -- | °F | |
| Electrical | Dry | Conditioned | Unit | Test Method |
| Dielectric Strength (0.0394 in) | 660 | -- | V/mil | IEC 60243 |
| Arc Resistance (0.118 in) | PLC 5 | -- | | ASTM D495 |
| Comparative Tracking Index (0.118 in) | 600 | -- | V | IEC 60112 |
| High Amp Arc Ignition (HAI) | | | | UL 746 |
| 0.0280 in | PLC 0 | -- | | |
| 0.0591 in | PLC 0 | -- | | |
| 0.118 in | PLC 0 | -- | | |
| High Voltage Arc Tracking Rate (HVTR) | PLC 0 | -- | | UL 746 |
| Hot-wire Ignition (HWI) | | | | UL 746 |
| 0.0280 in | PLC 4 | -- | | |
| 0.0591 in | PLC 3 | -- | | |
| 0.118 in | PLC 3 | -- | | |

| Flammability | Dry | Conditioned | Unit | Test Method |
|--------------------------------|------|-----------------|------|----------------|
| Flame Rating | | | | UL 94 |
| 0.0280 in | V-2 | -- | | |
| 0.0591 in | V-2 | -- | | |
| 0.118 in | V-2 | -- | | |
| Glow Wire Flammability Index | | | | IEC 60695-2-12 |
| 0.0280 in | 1470 | -- | °F | |
| 0.0591 in | 1470 | -- | °F | |
| 0.118 in | 1710 | -- | °F | |
| Glow Wire Ignition Temperature | | | | IEC 60695-2-13 |
| 0.0280 in | 1290 | -- | °F | |
| 0.0591 in | 1290 | -- | °F | |
| 0.118 in | 1290 | -- | °F | |
| Oxygen Index | 25 | -- | % | ISO 4589-2 |
| Injection | | Dry Unit | | |
| Drying Temperature | | < 158 °F | | |
| Drying Time | | 1.0 to 3.0 hr | | |
| Suggested Max Regrind | | 50 % | | |
| Rear Temperature | | 500 to 536 °F | | |
| Middle Temperature | | 518 to 545 °F | | |
| Front Temperature | | 536 to 554 °F | | |
| Nozzle Temperature | | 536 to 572 °F | | |
| Processing (Melt) Temp | | 545 to 572 °F | | |
| Mold Temperature | | 149 to 203 °F | | |

Notes

Typical properties: these are not to be construed as specifications.

¹ Typical properties: these are not to be construed as specifications.



North America

+1 888 927 2363

Europe

+32 10 608 600

Asia

+86 21 6340 3300

Disclaimer of Warranty and Liability

NOTICE: Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Ascend Performance Materials Operations LLC makes no representations or warranties as to the completeness or accuracy thereof.

Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Ascend Performance Materials Operations LLC be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information or the products to which information refers. Nothing contained herein is to be construed as a recommendation to use any product, equipment or formulation in conflict with any patent, and Ascend Performance Materials Operations LLC makes no representation or warranty, express or implied, that use thereof will not infringe any patent. No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers.