# Vydyne® R530H BK0202

## Ascend Performance Materials Operations LLC - Polyamide 66

Monday, November 4, 2019

## General Information

### Product Description

Vydyne R530H BK0202 is general-purpose, recycled, heat-stabilized, hydrolysis-resistant, 30% glass-fiber reinforced PA66 resin. Available in black, it is specifically designed to maximize the retention of physical properties when exposed to anti-freeze solutions at elevated temperatures. This product is also lubricated for improved machine feed and flow.

Glass-reinforced Vydyne resins provide higher heat distortion temperature, resistance to creep and better dimensional stability when compared with unreinforced PA66. These products have good chemical resistance to a broad range of chemicals including gasoline, hydraulic fluids and most solvents.

Vydyne R530H BK0202 is heat-stabilized to minimize oxidative degradation of the polymer when exposed to elevated temperatures in service. This product provides improved retention of physical properties under exposure to long-term heat. Also, Vydyne R530H BK0202 has excellent knit-line strength and fatigue resistance, which is essential for cycle testing with anti-freeze solutions.

Typical Applications/End Uses:
Vydyne R530H BK0202 has been used for several under-the-hood automotive applications. The hydrolysis-resistant properties make it an excellent candidate for radiator end tank and heater core applications.

### General

| | | | |
|---|---|---|---|
| Material Status | • Commercial: Active | | |
| Availability | • Asia Pacific | • Europe | • North America |
| Filler / Reinforcement | • Glass Fiber, 30% Filler by Weight | | |
| Additive | • Heat Stabilizer | • Lubricant | |
| Recycled Content | • Yes | | |
| Features | • Antifreeze Resistant<br>• Chemical Resistant<br>• Fatigue Resistant | • Gasoline Resistant<br>• Good Flow<br>• Heat Stabilized | • Hydrolysis Resistant<br>• Lubricated<br>• Solvent Resistant |
| Uses | • Automotive Under the Hood<br>• Connectors | • Fasteners<br>• Transmission Applications | |
| Agency Ratings | • ASTM D4066 PA012G30 | • ASTM D6779 PA012G30 | |
| Automotive Specifications | • CHRYSLER MS-DB-41 CPN4018<br>• DELPHI SD-2-181<br>• FORD WSK-M4D642-A<br>• FORD WSK-M4D642-A2 | • FORD WSK-M4D752-A<br>• GM GMP.PA66.040<br>• GM GMW16270P-PA66-GF30<br>• GM GMW3038P-PA66-GF30H | • GM GMW3038P-PA66-GF30J<br>• GM QK 003013 HW |
| UL File Number | • E70062 | | |
| Appearance | • Black | | |
| Forms | • Pellets | | |
| Processing Method | • Injection Molding | | |

## ASTM & ISO Properties [1]

| Physical | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Density | 1.37 | -- | g/cm³ | ISO 1183 |
| Molding Shrinkage | | | | ISO 294-4 |
| Across Flow : 73°F, 0.0787 in | 0.90 | -- | % | |
| Flow : 73°F, 0.0787 in | 0.40 | -- | % | |
| Water Absorption (24 hr, 73°F) | 0.90 | -- | % | ISO 62 |

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| Physical | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Water Absorption | | | | ISO 62 |
| Equilibrium, 73°F, 50% RH | 1.9 | -- | % | |
| **Mechanical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Tensile Modulus (73°F) | 1.45E+6 | 1.07E+6 | psi | ISO 527-2 |
| Tensile Stress (Break, 73°F) | 28300 | 19600 | psi | ISO 527-2 |
| Tensile Strain (Break, 73°F) | 3.0 | 5.0 | % | ISO 527-2 |
| Flexural Modulus (73°F) | 1.39E+6 | 870000 | psi | ISO 178 |
| Flexural Stress (73°F) | 39200 | 27600 | psi | ISO 178 |
| Poisson's Ratio (73°F) | 0.40 | -- | | ISO 527 |
| **Impact** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength | | | | ISO 179 |
| -22°F | 4.9 | 5.2 | ft·lb/in² | |
| 73°F | 5.3 | 6.2 | ft·lb/in² | |
| Charpy Unnotched Impact Strength | | | | ISO 179 |
| -22°F | 31 | 38 | ft·lb/in² | |
| 73°F | 36 | 40 | ft·lb/in² | |
| Notched Izod Impact Strength | | | | ISO 180 |
| -22°F | 4.8 | 5.2 | ft·lb/in² | |
| 73°F | 5.7 | 6.2 | ft·lb/in² | |
| **Thermal** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Heat Deflection Temperature | | | | ISO 75-2/B |
| 66 psi, Unannealed | 500 | -- | °F | |
| Heat Deflection Temperature | | | | ISO 75-2/A |
| 264 psi, Unannealed | 482 | -- | °F | |
| Melting Temperature | 500 | -- | °F | ISO 11357-3 |
| CLTE - Flow (73 to 131°F, 0.0787 in) | 1.2E-5 | -- | in/in/°F | ISO 11359-2 |
| CLTE - Transverse (73 to 131°F, 0.0787 in) | 5.9E-5 | -- | in/in/°F | ISO 11359-2 |
| RTI Elec | | | | UL 746 |
| 0.030 in | 284 | -- | °F | |
| 0.06 in | 284 | -- | °F | |
| 0.12 in | 284 | -- | °F | |
| RTI Imp | | | | UL 746 |
| 0.030 in | 248 | -- | °F | |
| 0.06 in | 248 | -- | °F | |
| 0.12 in | 248 | -- | °F | |
| RTI Str | | | | UL 746 |
| 0.030 in | 257 | -- | °F | |
| 0.06 in | 284 | -- | °F | |
| 0.12 in | 284 | -- | °F | |
| **Electrical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Volume Resistivity (0.118 in) | 1.0E+13 | -- | ohms·cm | IEC 60093 |
| Dielectric Strength (0.0394 in) | 510 | -- | V/mil | IEC 60243 |
| Arc Resistance (0.118 in) | PLC 6 | -- | | ASTM D495 |
| Comparative Tracking Index | | | | IEC 60112 |
| 0.118 in | 250 to 399 | -- | V | |

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| Electrical | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| High Amp Arc Ignition (HAI) | | | | UL 746 |
| 0.030 in | PLC 0 | -- | | |
| 0.06 in | PLC 0 | -- | | |
| 0.12 in | PLC 0 | -- | | |
| High Voltage Arc Tracking Rate (HVTR) | PLC 1 | -- | | UL 746 |
| Hot-wire Ignition (HWI) | | | | UL 746 |
| 0.030 in | PLC 4 | -- | | |
| 0.06 in | PLC 3 | -- | | |
| 0.12 in | PLC 4 | -- | | |

| Flammability | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Burning Rate | | | | ISO 3795 |
| 0.0787 in, Self-Extinguishing | 0.0 | -- | in/min | |
| Flame Rating | | | | UL 94 |
| 0.030 in | HB | -- | | |
| 0.06 in | HB | -- | | |
| 0.12 in | HB | -- | | |
| Glow Wire Flammability Index | | | | IEC 60695-2-12 |
| 0.030 in | 1250 | -- | °F | |
| 0.06 in | 1250 | -- | °F | |
| 0.12 in | 1250 | -- | °F | |
| Glow Wire Ignition Temperature | | | | IEC 60695-2-13 |
| 0.030 in | 1290 | -- | °F | |
| 0.06 in | 1290 | -- | °F | |
| 0.12 in | 1290 | -- | °F | |

## Processing Information

| Injection | Dry | Unit |
|---|---|---|
| Drying Temperature | 176 | °F |
| Drying Time | 4.0 | hr |
| Suggested Max Regrind | 25 | % |
| Rear Temperature | 536 to 590 | °F |
| Middle Temperature | 536 to 590 | °F |
| Front Temperature | 536 to 590 | °F |
| Nozzle Temperature | 536 to 590 | °F |
| Processing (Melt) Temp | 545 to 581 | °F |
| Mold Temperature | 149 to 203 | °F |

### Notes

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