

# Vydyne® R530H NT

## polyamide 66



Vydyne R530H NT is general-purpose, heat-stabilized, hydrolysis-resistant, 30% glass-fiber reinforced PA66 resin. Available in natural, 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 NT 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 NT has excellent knit-line strength and fatigue resistance, which is essential for cycle testing with anti-freeze solutions.

### Typical Applications/End Uses:

Vydyne R530H NT 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   |  |
| 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<br>• ASTM D6779 PA012G30                        | • EC 1935/2004<br>• EU 10/2011  | • EU 2023/2006<br>• FDA 21 CFR 177.1500                                      |
| Automotive Specifications | • FORD WSK-M4D642-A<br>• FORD WSK-M4D642-A2<br>• FORD WSK-M4D752-A    | • GM GMP.PA66.040<br>• GM<br>GMW16270P-PA66-GF30<br>• GM<br>GMW3038P-PA66-GF30H | • GM<br>GMW3038P-PA66-GF30J<br>• GM QK 003013 H<br>• HYUNDAI MS211-47 Type A |
| UL File Number            | • E70062  |   |  |
| Appearance                | • Natural Color   |   |  |
| Forms                     | • Pellets   |   |  |
| Processing Method         | • Injection Molding   |   |  |

| Physical                         | Dry   | Conditioned | Unit              | Test Method |
|----------------------------------|-------|-------------|-------------------|-------------|
| Density                          | 1.37  | --          | g/cm <sup>3</sup> | ISO 1183    |
| Molding Shrinkage                |       |             |                   | ISO 294-4   |
| Across Flow : 23°C, 2.00 mm      | 0.90  | --          | %                 |             |
| Flow : 23°C, 2.00 mm             | 0.40  | --          | %                 |             |
| Water Absorption                 |       |             |                   | ISO 62      |
| 24 hr, 23°C                      | 0.90  | --          | %                 |             |
| Equilibrium, 23°C, 50% RH        | 1.9   | --          | %                 |             |
| Mechanical                       | Dry   | Conditioned | Unit              | Test Method |
| Tensile Modulus (23°C)           | 10000 | 7400        | MPa               | ISO 527-2   |
| Tensile Stress (Break, 23°C)     | 195   | 135         | MPa               | ISO 527-2   |
| Tensile Strain (Break, 23°C)     | 3.0   | 5.0         | %                 | ISO 527-2   |
| Flexural Modulus (23°C)          | 9600  | 6000        | MPa               | ISO 178     |
| Flexural Stress (23°C)           | 270   | 190         | MPa               | ISO 178     |
| Poisson's Ratio (23°C)           | 0.40  | --          |                   | ISO 527     |
| Impact                           | Dry   | Conditioned | Unit              | Test Method |
| Charpy Notched Impact Strength   |       |             |                   | ISO 179     |
| -30°C                            | 10    | 11          | kJ/m <sup>2</sup> |             |
| 23°C                             | 11    | 13          | kJ/m <sup>2</sup> |             |
| Charpy Unnotched Impact Strength |       |             |                   | ISO 179     |
| -30°C                            | 65    | 80          | kJ/m <sup>2</sup> |             |
| 23°C                             | 75    | 85          | kJ/m <sup>2</sup> |             |
| Notched Izod Impact Strength     |       |             |                   | ISO 180     |
| -30°C                            | 10    | 11          | kJ/m <sup>2</sup> |             |
| 23°C                             | 12    | 13          | kJ/m <sup>2</sup> |             |

| Thermal                               | Dry        | Conditioned | Unit     | Test Method |
|---------------------------------------|------------|-------------|----------|-------------|
| Heat Deflection Temperature           |            |             |          |             |
| 0.45 MPa, Unannealed                  | 260        | --          | °C       | ISO 75-2/B  |
| 1.8 MPa, Unannealed                   | 250        | --          | °C       | ISO 75-2/A  |
| Melting Temperature                   | 260        | --          | °C       | ISO 11357-3 |
| CLTE                                  |            |             |          | ISO 11359-2 |
| Flow : 23 to 55°C, 2.00 mm            | 2.2E-5     | --          | cm/cm/°C |             |
| Transverse : 23 to 55°C, 2.00 mm      | 1.1E-4     | --          | cm/cm/°C |             |
| RTI Elec                              |            |             |          | UL 746      |
| 0.75 mm                               | 140        | --          | °C       |             |
| 1.5 mm                                | 140        | --          | °C       |             |
| 3.0 mm                                | 140        | --          | °C       |             |
| RTI Imp                               |            |             |          | UL 746      |
| 0.75 mm                               | 120        | --          | °C       |             |
| 1.5 mm                                | 120        | --          | °C       |             |
| 3.0 mm                                | 120        | --          | °C       |             |
| RTI Str                               |            |             |          | UL 746      |
| 0.75 mm                               | 125        | --          | °C       |             |
| 1.5 mm                                | 140        | --          | °C       |             |
| 3.0 mm                                | 140        | --          | °C       |             |
| Electrical                            | Dry        | Conditioned | Unit     | Test Method |
| Volume Resistivity (3.00 mm)          | 1.0E+13    | --          | ohms-cm  | IEC 60093   |
| Dielectric Strength (1.00 mm)         | 20         | --          | kV/mm    | IEC 60243   |
| Arc Resistance (3.00 mm)              | PLC 6      | --          |          | ASTM D495   |
| Comparative Tracking Index (3.00 mm)  | 250 to 399 | --          | V        | IEC 60112   |
| High Amp Arc Ignition (HAI)           |            |             |          | UL 746      |
| 0.75 mm                               | PLC 0      | --          |          |             |
| 1.5 mm                                | PLC 0      | --          |          |             |
| 3.0 mm                                | PLC 0      | --          |          |             |
| High Voltage Arc Tracking Rate (HVTR) | PLC 1      | --          |          | UL 746      |
| Hot-wire Ignition (HWI)               |            |             |          | UL 746      |
| 0.75 mm                               | PLC 4      | --          |          |             |
| 1.5 mm                                | PLC 3      | --          |          |             |
| 3.0 mm                                | PLC 4      | --          |          |             |

| Flammability                               | Dry | Conditioned   | Unit   | Test Method    |
|--|-----|---------------|--------|----------------|
| Burning Rate (2.00 mm, Self-Extinguishing) | 0.0 | --            | mm/min | ISO 3795       |
| Flame Rating                               |     |               |        | UL 94          |
| 0.75 mm                                    | HB  | --            |        |                |
| 1.5 mm                                     | HB  | --            |        |                |
| 3.0 mm                                     | HB  | --            |        |                |
| Glow Wire Flammability Index               |     |               |        | IEC 60695-2-12 |
| 0.75 mm                                    | 675 | --            | °C     |                |
| 1.5 mm                                     | 675 | --            | °C     |                |
| 3.0 mm                                     | 675 | --            | °C     |                |
| Glow Wire Ignition Temperature             |     |               |        | IEC 60695-2-13 |
| 0.75 mm                                    | 700 | --            | °C     |                |
| 1.5 mm                                     | 700 | --            | °C     |                |
| 3.0 mm                                     | 700 | --            | °C     |                |
| Injection                                  |     | Dry Unit      |        |                |
| Drying Temperature                         |     | 80 °C         |        |                |
| Drying Time                                |     | 4.0 hr        |        |                |
| Suggested Max Regrind                      |     | 25 %          |        |                |
| Rear Temperature                           |     | 280 to 310 °C |        |                |
| Middle Temperature                         |     | 280 to 310 °C |        |                |
| Front Temperature                          |     | 280 to 310 °C |        |                |
| Nozzle Temperature                         |     | 280 to 310 °C |        |                |
| Processing (Melt) Temp                     |     | 285 to 305 °C |        |                |
| Mold Temperature                           |     | 65 to 95 °C   |        |                |

Notes

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