



## Vydyne® 909 BK

Ascend Performance Materials Operations LLC - Polyamide 66/6 Copolymer

Monday, November 4, 2019

### General Information

#### Product Description

Vydyne 909 BK is an halogenated, 25% glass-filled, flame-retardant PA66/6 copolymer with excellent strength and toughness. It is lubricated for machine feed and easy mold release and has an Underwriters Laboratories UL 94 flammability classification of V-0 at 0.4 mm (0.016") thick.

#### General

|                           |                                     |                                      |                                                           |
|---------------------------|-------------------------------------|--------------------------------------|-----------------------------------------------------------|
| Material Status           | • Commercial: Active                |                                      |                                                           |
| Availability              | • Asia Pacific                      | • Europe                             | • North America                                           |
| Filler / Reinforcement    | • Glass Fiber, 25% Filler by Weight |                                      |                                                           |
| Additive                  | • Flame Retardant                   | • Halogen                            | • Lubricant                                               |
| Features                  | • Crack Resistant                   | • Good Toughness                     | • High Strength                                           |
|                           | • Flame Retardant                   | • Halogenated                        | • Ignition Resistant                                      |
|                           | • Good Mold Release                 | • High Rigidity                      | • Lubricated                                              |
| Uses                      | • Appliances                        | • Electrical Parts                   | • Living Hinges<br>• Printed Circuit Boards<br>• Switches |
|                           | • Automotive Electronics            | • Electrical/Electronic Applications |                                                           |
|                           | • Bobbins                           | • Housings                           |                                                           |
|                           | • Connectors                        | • Industrial Applications            |                                                           |
|                           | • Electrical Housing                | • Lighting Applications              |                                                           |
| RoHS Compliance           | • RoHS Compliant                    |                                      |                                                           |
| Automotive Specifications | • DELPHI M-6538V                    | • GM GMP.PA66.058                    |                                                           |
| UL File Number            | • E70062                            |                                      |                                                           |
| Appearance                | • Black                             |                                      |                                                           |
| Forms                     | • Pellets                           |                                      |                                                           |
| Processing Method         | • Injection Molding                 |                                      |                                                           |

### ASTM & ISO Properties <sup>1</sup>

| Physical                       | Dry     | Conditioned | Unit                  | Test Method |
|--------------------------------|---------|-------------|-----------------------|-------------|
| Density                        | 1.47    | --          | g/cm <sup>3</sup>     | ISO 1183    |
| Molding Shrinkage              |         |             |                       | ISO 294-4   |
| Across Flow : 73°F, 0.0787 in  | 1.0     | --          | %                     |             |
| Flow : 73°F, 0.0787 in         | 0.40    | --          | %                     |             |
| Water Absorption (24 hr, 73°F) | 0.70    | --          | %                     | ISO 62      |
| Water Absorption               |         |             |                       | ISO 62      |
| Equilibrium, 73°F, 50% RH      | 1.3     | --          | %                     |             |
| Mechanical                     | Dry     | Conditioned | Unit                  | Test Method |
| Tensile Modulus (73°F)         | 1.32E+6 | 1.03E+6     | psi                   | ISO 527-2   |
| Tensile Stress (Break, 73°F)   | 19100   | 13100       | psi                   | ISO 527-2   |
| Tensile Strain (Break, 73°F)   | 2.2     | 3.0         | %                     | ISO 527-2   |
| Flexural Modulus (73°F)        | 1.20E+6 | 725000      | psi                   | ISO 178     |
| Flexural Strength (73°F)       | 28000   | 20300       | psi                   | ISO 178     |
| Poisson's Ratio                | 0.40    | --          |                       | ISO 527-2   |
| Impact                         | Dry     | Conditioned | Unit                  | Test Method |
| Charpy Notched Impact Strength |         |             |                       | ISO 179/1eA |
| -22°F                          | 4.5     | --          | ft·lb/in <sup>2</sup> |             |
| 73°F                           | 4.5     | --          | ft·lb/in <sup>2</sup> |             |

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| Impact                                     | Dry        | Conditioned | Unit                  | Test Method |
|--------------------------------------------|------------|-------------|-----------------------|-------------|
| Charpy Unnotched Impact Strength           |            |             |                       | ISO 179/1eU |
| -22°F                                      | 17         | --          | ft·lb/in <sup>2</sup> |             |
| 73°F                                       | 19         | --          | ft·lb/in <sup>2</sup> |             |
| Notched Izod Impact Strength               |            |             |                       | ISO 180     |
| 73°F                                       | 4.3        | --          | ft·lb/in <sup>2</sup> |             |
| Thermal                                    | Dry        | Conditioned | Unit                  | Test Method |
| Heat Deflection Temperature                |            |             |                       | ISO 75-2/B  |
| 66 psi, Unannealed                         | 482        | --          | °F                    |             |
| Heat Deflection Temperature                |            |             |                       | ISO 75-2/A  |
| 264 psi, Unannealed                        | 446        | --          | °F                    |             |
| Melting Temperature                        | 482        | --          | °F                    | ISO 11357-3 |
| CLTE - Flow (73 to 131°F, 0.0787 in)       | 1.1E-5     | --          | in/in/°F              | ISO 11359-2 |
| CLTE - Transverse (73 to 131°F, 0.0787 in) | 5.6E-5     | --          | in/in/°F              | ISO 11359-2 |
| RTI Elec                                   |            |             |                       | UL 746      |
| 0.016 in                                   | 149        | --          | °F                    |             |
| 0.030 in                                   | 266        | --          | °F                    |             |
| 0.06 in                                    | 266        | --          | °F                    |             |
| 0.12 in                                    | 266        | --          | °F                    |             |
| RTI Imp                                    |            |             |                       | UL 746      |
| 0.016 in                                   | 149        | --          | °F                    |             |
| 0.030 in                                   | 149        | --          | °F                    |             |
| 0.06 in                                    | 203        | --          | °F                    |             |
| 0.12 in                                    | 203        | --          | °F                    |             |
| RTI Str                                    |            |             |                       | UL 746      |
| 0.016 in                                   | 149        | --          | °F                    |             |
| 0.030 in                                   | 230        | --          | °F                    |             |
| 0.06 in                                    | 230        | --          | °F                    |             |
| 0.12 in                                    | 230        | --          | °F                    |             |
| Electrical                                 | Dry        | Conditioned | Unit                  | Test Method |
| Arc Resistance (0.118 in)                  | PLC 6      | --          |                       | ASTM D495   |
| Comparative Tracking Index                 |            |             |                       | IEC 60112   |
| 0.118 in                                   | 250 to 399 | --          | V                     |             |
| High Amp Arc Ignition (HAI)                |            |             |                       | UL 746      |
| 0.030 in                                   | PLC 0      | --          |                       |             |
| 0.06 in                                    | PLC 0      | --          |                       |             |
| High Voltage Arc Tracking Rate (HVTR)      |            |             |                       | UL 746      |
| 0.118 in                                   | PLC 3      | --          |                       |             |
| Hot-wire Ignition (HWI)                    |            |             |                       | UL 746      |
| 0.030 in                                   | PLC 0      | --          |                       |             |
| 0.06 in                                    | PLC 0      | --          |                       |             |
| Flammability                               | Dry        | Conditioned | Unit                  | Test Method |
| Flame Rating                               |            |             |                       | UL 94       |
| 0.016 in                                   | V-0        | --          |                       |             |
| 0.030 in                                   | V-0        | --          |                       |             |
| 0.06 in                                    | • V-0      | --          |                       |             |
|                                            | • 5VA      |             |                       |             |
| 0.12 in                                    | • V-0      | --          |                       |             |
|                                            | • 5VA      |             |                       |             |

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| Flammability                   | Dry  | Conditioned | Unit | Test Method    |
|--------------------------------|------|-------------|------|----------------|
| Glow Wire Flammability Index   |      |             |      | IEC 60695-2-12 |
| 0.016 in                       | 1760 | --          | °F   |                |
| 0.030 in                       | 1760 | --          | °F   |                |
| 0.06 in                        | 1760 | --          | °F   |                |
| 0.12 in                        | 1760 | --          | °F   |                |
| Glow Wire Ignition Temperature |      |             |      | IEC 60695-2-13 |
| 0.016 in                       | 1710 | --          | °F   |                |
| 0.030 in                       | 1380 | --          | °F   |                |
| 0.06 in                        | 1380 | --          | °F   |                |
| 0.12 in                        | 1470 | --          | °F   |                |
| Oxygen Index                   | 32   | --          | %    | ISO 4589-2     |

### Processing Information

| Injection              | Dry        | Unit |
|------------------------|------------|------|
| Drying Temperature     | 176        | °F   |
| Drying Time            | 4.0        | hr   |
| Suggested Max Regrind  | 25         | %    |
| Rear Temperature       | 464 to 518 | °F   |
| Middle Temperature     | 464 to 518 | °F   |
| Front Temperature      | 464 to 518 | °F   |
| Nozzle Temperature     | 464 to 518 | °F   |
| Processing (Melt) Temp | 482 to 518 | °F   |
| Mold Temperature       | 149 to 203 | °F   |

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.