



## Vydyne® ECO366

Ascend Performance Materials Operations LLC - Polyamide 66

Monday, November 4, 2019

### General Information

#### Product Description

Vydyne ECO366 is a non-halogenated, unfilled, flame-retardant PA66 homopolymer designed with superior flow properties to assist in filling thin-walled, intricate parts. 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                                           |
| Additive          | • Flame Retardant        | • Heat Stabilizer                    | • Lubricant                                               |
| Features          | • Crack Resistant        | • Good Mold Release                  | • Heat Stabilized                                         |
|                   | • Ductile                | • Good Toughness                     | • Low Density                                             |
|                   | • Flame Retardant        | • Halogen Free                       | • Lubricated                                              |
| Uses              | • Appliances             | • Electrical Parts                   | • Living Hinges<br>• Printed Circuit Boards<br>• Switches |
|                   | • Automotive Electronics | • Electrical/Electronic Applications |                                                           |
|                   | • Bobbins                | • Fasteners                          |                                                           |
|                   | • Connectors             | • Industrial Applications            |                                                           |
|                   | • Electrical Housing     | • Lighting Applications              |                                                           |
| UL File Number    | • E70062                 |                                      |                                                           |
| Appearance        | • Natural Color          |                                      |                                                           |
| Forms             | • Pellets                |                                      |                                                           |
| Processing Method | • Injection Molding      |                                      |                                                           |

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

| Physical                         | Dry    | Conditioned | Unit                  | Test Method |
|----------------------------------|--------|-------------|-----------------------|-------------|
| Density                          | 1.17   | --          | g/cm <sup>3</sup>     | ISO 1183    |
| Molding Shrinkage                |        |             |                       | ISO 294-4   |
| Across Flow : 73°F, 0.0787 in    | 1.2    | --          | %                     |             |
| Flow : 73°F, 0.0787 in           | 0.90   | --          | %                     |             |
| Water Absorption (24 hr, 73°F)   | 0.80   | --          | %                     | ISO 62      |
| Water Absorption                 |        |             |                       | ISO 62      |
| Equilibrium, 73°F, 50% RH        | 2.3    | --          | %                     |             |
| Mechanical                       | Dry    | Conditioned | Unit                  | Test Method |
| Tensile Stress (Yield, 73°F)     | 12000  | 8410        | psi                   | ISO 527-2   |
| Tensile Strain (Break, 73°F)     | 5.0    | 6.0         | %                     | ISO 527-2   |
| Flexural Modulus (73°F)          | 566000 | 196000      | psi                   | ISO 178     |
| Flexural Strength (73°F)         | 15500  | 5660        | 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                            | 1.8    | --          | ft·lb/in <sup>2</sup> |             |
| 73°F                             | 1.6    | --          | ft·lb/in <sup>2</sup> |             |
| Charpy Unnotched Impact Strength |        |             |                       | ISO 179/1eU |
| -22°F                            | 37     | --          | ft·lb/in <sup>2</sup> |             |
| 73°F                             | 36     | --          | ft·lb/in <sup>2</sup> |             |

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| Impact                                             | Dry     | Conditioned | Unit                  | Test Method |
|----------------------------------------------------|---------|-------------|-----------------------|-------------|
| Notched Izod Impact Strength<br>73°F               | 2.9     | --          | ft·lb/in <sup>2</sup> | ISO 180     |
| Thermal                                            | Dry     | Conditioned | Unit                  | Test Method |
| Heat Deflection Temperature<br>66 psi, Unannealed  | 464     | --          | °F                    | ISO 75-2/B  |
| Heat Deflection Temperature<br>264 psi, Unannealed | 167     | --          | °F                    | ISO 75-2/A  |
| Melting Temperature                                | 509     | --          | °F                    | ISO 11357-3 |
| RTI Elec                                           |         |             |                       | UL 746      |
| 0.016 in                                           | 248     | --          | °F                    |             |
| 0.030 in                                           | 248     | --          | °F                    |             |
| 0.06 in                                            | 248     | --          | °F                    |             |
| 0.12 in                                            | 248     | --          | °F                    |             |
| RTI Imp                                            |         |             |                       | UL 746      |
| 0.016 in                                           | 167     | --          | °F                    |             |
| 0.030 in                                           | 176     | --          | °F                    |             |
| 0.06 in                                            | 176     | --          | °F                    |             |
| 0.12 in                                            | 176     | --          | °F                    |             |
| RTI Str                                            |         |             |                       | UL 746      |
| 0.016 in                                           | 221     | --          | °F                    |             |
| 0.030 in                                           | 230     | --          | °F                    |             |
| 0.06 in                                            | 230     | --          | °F                    |             |
| 0.12 in                                            | 230     | --          | °F                    |             |
| Electrical                                         | Dry     | Conditioned | Unit                  | Test Method |
| Volume Resistivity (0.0295 in)                     | 1.0E+10 | --          | ohms·cm               | IEC 60093   |
| Dielectric Strength (0.0394 in)                    | 430     | --          | V/mil                 | IEC 60243   |
| Arc Resistance (0.118 in)                          | PLC 5   | --          |                       | ASTM D495   |
| Comparative Tracking Index<br>0.118 in             | 600     | --          | V                     | IEC 60112   |
| High Amp Arc Ignition (HAI)                        |         |             |                       | UL 746      |
| 0.016 in                                           | PLC 2   | --          |                       |             |
| 0.030 in                                           | PLC 1   | --          |                       |             |
| 0.06 in                                            | PLC 1   | --          |                       |             |
| 0.12 in                                            | PLC 1   | --          |                       |             |
| High Voltage Arc Tracking Rate (HVTR)              | PLC 0   | --          |                       | UL 746      |
| Hot-wire Ignition (HWI)                            |         |             |                       | UL 746      |
| 0.016 in                                           | PLC 4   | --          |                       |             |
| 0.030 in                                           | PLC 4   | --          |                       |             |
| 0.06 in                                            | PLC 3   | --          |                       |             |
| 0.12 in                                            | PLC 2   | --          |                       |             |
| 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     | --          |                       |             |
| 0.12 in                                            | V-0     | --          |                       |             |

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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                       | 1760 | --          | °F   |                |
| 0.030 in                       | 1760 | --          | °F   |                |
| 0.06 in                        | 1290 | --          | °F   |                |
| 0.12 in                        | 1290 | --          | °F   |                |
| Oxygen Index                   | 35   | --          | %    | ISO 4589-2     |

### Processing Information

| Injection              | Dry        | Unit |
|------------------------|------------|------|
| Drying Temperature     | 176        | °F   |
| Drying Time            | 4.0        | hr   |
| Suggested Max Regrind  | 50         | %    |
| Rear Temperature       | 500 to 554 | °F   |
| Middle Temperature     | 500 to 554 | °F   |
| Front Temperature      | 500 to 554 | °F   |
| Nozzle Temperature     | 500 to 554 | °F   |
| Processing (Melt) Temp | 518 to 545 | °F   |
| Mold Temperature       | 149 to 203 | °F   |

### Notes

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