# Amodel® HFZ A-4133L

Polyphthalamide

Solvay Specialty Polymers

## Message:

Amodel HFZ A- 4133 L polyphthalamide (PPA) is a 33% glass fiber reinforced, hot water moldable resin. The main properties include heat resistance, reduced gas emission over a wide temperature range, high strength and rigidity, low moisture absorption, excellent chemical resistance and excellent electrical properties. Amodel HFZ A- 4133 L resin is ideal for automotive electrical and electronic products, including connectors, sockets, switches and sensors. It is also a good choice for protecting key control systems under the hood, such as anti-lock braking system, traction control system, steering system, engine electronic control, transmission and chassis control unit. -Black: HFZ A- 4133 L BK 324
natural color: HFZ A- 4133 L NT

| General Information | |
|---|---|
| UL YellowCard | E95746-271676 |
| Filler / Reinforcement | Glass fiber reinforced material, 33% filler by weight |
| Additive | Lubricant<br>demoulding |
| Features | Good dimensional stability<br>Low hygroscopicity<br>Rigidity, high<br>Rigid, good<br>High strength<br>Fast molding cycle<br>Good creep resistance<br>High liquidity<br>Good chemical resistance<br>Hot water formability<br>Lubrication |
| Uses | Lawn and Garden Equipment<br>Electrical/Electronic Applications<br>Industrial components<br>Industrial application<br>Machine/mechanical parts<br>Metal substitution<br>Connector<br>Parts under the hood of a car<br>Automotive Electronics<br>Application in Automobile Field<br>Mobile phone<br>General<br>spool |

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|---|---|
| | Camera application |
| RoHS Compliance | RoHS compliance |
| Appearance | Black |
| | Natural color |
| Forms | Particle |
| Processing Method | Water temperature mold injection molding |

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Density | 1.46 | g/cm³ | ISO 1183/A |
| Molding Shrinkage | | | ASTM D955 |
| Flow | 0.50 | % | ASTM D955 |
| Transverse flow | 1.0 | % | ASTM D955 |
| Water Absorption (24 hr) | 0.26 | % | ASTM D570 |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Modulus | 12000 | MPa | ISO 527-2 |
| Tensile Stress (Break) | 180 | MPa | ISO 527-2 |
| Tensile Strain (Break) | 1.8 | % | ISO 527-2 |
| Flexural Modulus | 11000 | MPa | ISO 178 |
| Flexural Stress | 255 | MPa | ISO 178 |
| **Impact** | **Nominal Value** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength | 8.2 | kJ/m² | ISO 179/1eA |
| Notched Izod Impact | 8.4 | kJ/m² | ISO 180/1A |
| Unnotched Izod Impact Strength | 40 | kJ/m² | ISO 180/1U |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Heat Deflection Temperature (1.8 MPa, Unannealed) | 310 | °C | ISO 75-2/A |
| Melting Temperature (DSC) | 327 | °C | ISO 3146 |
| Linear thermal expansion coefficient | | | ASTM E831 |
| Flow: 0 to 90°C | 2.0E-5 | cm/cm/°C | ASTM E831 |
| Flow: 150 to 250°C | 1.4E-5 | cm/cm/°C | ASTM E831 |
| Lateral: 0 to 90°C | 6.3E-5 | cm/cm/°C | ASTM E831 |
| Lateral: 150 to 250°C | 1.5E-4 | cm/cm/°C | ASTM E831 |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Surface Resistivity | 1.0E+16 | ohms | ASTM D257 |
| Volume Resistivity | 1.0E+15 | ohms·cm | ASTM D257 |
| Dielectric Strength | 19 | kV/mm | ASTM D149 |
| Dielectric Constant | | | ASTM D150 |
| 60 Hz | 3.90 | | ASTM D150 |
| 1 MHz | 3.70 | | ASTM D150 |
| Dissipation Factor | | | ASTM D150 |
| 60 Hz | 6.0E-3 | | ASTM D150 |

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|---|---|---|---|
| 1 MHz | 0.016 | | ASTM D150 |
| High Amp Arc Ignition (HAI) | PLC 0 | | UL 746 |
| High Voltage Arc Resistance to Ignition (HVAR) | PLC 0 | | UL 746 |
| High Voltage Arc Tracking Rate (HVTR) | PLC 0 | | UL 746 |
| Hot-wire Ignition (HWI) | PLC 1 | | UL 746 |
| **Flammability** | **Nominal Value** | **Unit** | **Test Method** |
| Flame Rating [1] (0.800 mm) | HB | | UL 94 |
| Glow Wire Flammability Index | 800 | °C | IEC 60695-2-12 |
| Glow Wire Ignition Temperature | 800 | °C | IEC 60695-2-13 |
| **Injection** | **Nominal Value** | **Unit** | |
| Drying Temperature | 120 | °C | |
| Drying Time | 4.0 | hr | |
| Suggested Max Moisture | 0.045 | % | |
| Rear Temperature | 318 - 324 | °C | |
| Front Temperature | 327 - 332 | °C | |
| Processing (Melt) Temp | 329 - 343 | °C | |
| Mold Temperature | 65.6 - 93.3 | °C | |
| **Injection instructions** | | | |
| 射出压力:3~4英寸/秒 | | | |
| **NOTE** | | | |
| 1. | These flammability ratings do not represent the risk of these materials or any other materials in actual fire situations. | | |



## Recommended distributors for this material

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