

# Amodel® AFA-6133 V0 Z

Polyphthalamide  
Solvay Specialty Polymers

Message:

Amodel AFA- 6133 V0 Z is a 33% glass fiber reinforced flame retardant polyphthalamide (PPA) resin, specially developed for connectors commonly used in the electronic industry that can adapt to infrared and vapor welding. Amodel AFA-6133 V0 Z has high fluidity and short molding cycle, so it can improve molding efficiency and reduce costs. -black: AFA-6133 V0 Z BK 324

| General Information           |      |                                                       |                   |             |
|-------------------------------|------|-------------------------------------------------------|-------------------|-------------|
| UL YellowCard                 |      | E95746-253234                                         |                   |             |
| Filler / Reinforcement        |      | Glass fiber reinforced material, 33% filler by weight |                   |             |
| Additive                      |      | Flame retardancy                                      |                   |             |
| Features                      |      | Good dimensional stability                            |                   |             |
|                               |      | Rigid, good                                           |                   |             |
|                               |      | High strength                                         |                   |             |
|                               |      | Good electrical performance                           |                   |             |
|                               |      | High liquidity                                        |                   |             |
|                               |      | Good chemical resistance                              |                   |             |
|                               |      | Hot water formability                                 |                   |             |
|                               |      | Flame retardancy                                      |                   |             |
| Uses                          |      | Electrical/Electronic Applications                    |                   |             |
|                               |      | Connector                                             |                   |             |
|                               |      | Automotive Electronics                                |                   |             |
|                               |      | Application in Automobile Field                       |                   |             |
|                               |      | spool                                                 |                   |             |
| RoHS Compliance               |      | RoHS compliance                                       |                   |             |
| Appearance                    |      | Black                                                 |                   |             |
| Forms                         |      | Particle                                              |                   |             |
| Processing Method             |      | Water temperature mold injection molding              |                   |             |
| Multi-Point Data              |      | Isochronous Stress vs. Strain (ISO 11403-1)           |                   |             |
|                               |      | Isothermal Stress vs. Strain (ISO 11403-1)            |                   |             |
|                               |      | Secant Modulus vs. Strain (ISO 11403-1)               |                   |             |
|                               |      | Viscosity vs. Shear Rate (ISO 11403-2)                |                   |             |
| Part Marking Code (ISO 11469) |      | >PA6T/66-GF33                                         |                   |             |
| Resin ID (ISO 1043)           |      | PA6T/66 GF33 FR(17)                                   |                   |             |
| Physical                      | Dry  | Conditioned                                           | Unit              | Test Method |
| Density                       | 1.68 | --                                                    | g/cm <sup>3</sup> | ISO 1183/A  |
| Molding Shrinkage             |      |                                                       |                   | ASTM D955   |

|                                         |            |                    |                   |                    |
|-----------------------------------------|------------|--------------------|-------------------|--------------------|
| Flow                                    | 0.30       | --                 | %                 | ASTM D955          |
| Transverse flow                         | 0.60       | --                 | %                 | ASTM D955          |
| Water Absorption (24 hr)                | 0.20       | --                 | %                 | ASTM D570          |
| <b>Mechanical</b>                       | <b>Dry</b> | <b>Conditioned</b> | <b>Unit</b>       | <b>Test Method</b> |
| Tensile Modulus                         |            |                    |                   |                    |
| --                                      | 16100      | 13700              | MPa               | ASTM D638          |
| 23°C                                    | 14500      | 14500              | MPa               | ISO 527-2          |
| 100°C                                   | 9170       | 9200               | MPa               | ISO 527-2          |
| 150°C                                   | 5930       | 5900               | MPa               | ISO 527-2          |
| 175°C                                   | 5100       | 5100               | MPa               | ISO 527-2          |
| Tensile Stress                          |            |                    |                   |                    |
| Yield, 23°C                             | 186        | 186                | MPa               | ISO 527-2          |
| Yield, 100°C                            | 114        | 114                | MPa               | ISO 527-2          |
| Yield, 150°C                            | 75.2       | 75.2               | MPa               | ISO 527-2          |
| Yield, 175°C                            | 63.4       | 63.4               | MPa               | ISO 527-2          |
| --                                      | 199        | 166                | MPa               | ASTM D638          |
| Tensile Elongation                      |            |                    |                   |                    |
| Fracture                                | 1.7        | 1.7                | %                 | ASTM D638          |
| Fracture, 23°C                          | 1.6        | 1.6                | %                 | ISO 527-2          |
| Fracture, 100°C                         | 2.4        | 2.4                | %                 | ISO 527-2          |
| Fracture, 150°C                         | 5.1        | 5.1                | %                 | ISO 527-2          |
| Fracture, 175°C                         | 4.9        | 4.9                | %                 | ISO 527-2          |
| Flexural Modulus                        |            |                    |                   |                    |
| --                                      | 13100      | 13300              | MPa               | ASTM D790          |
| 23°C                                    | 12600      | 12600              | MPa               | ISO 178            |
| 100°C                                   | 8070       | 8100               | MPa               | ISO 178            |
| 150°C                                   | 4960       | 5000               | MPa               | ISO 178            |
| 175°C                                   | 4620       | 4600               | MPa               | ISO 178            |
| Flexural Strength                       |            |                    |                   |                    |
| --                                      | 224        | 229                | MPa               | ASTM D790          |
| 23°C                                    | 259        | 259                | MPa               | ISO 178            |
| 100°C                                   | 161        | 161                | MPa               | ISO 178            |
| 150°C                                   | 101        | 101                | MPa               | ISO 178            |
| 175°C                                   | 87.6       | 88.0               | MPa               | ISO 178            |
| Compressive Strength                    | 145        | --                 | MPa               | ASTM D695          |
| Shear Strength                          | 80.0       | 62.1               | MPa               | ASTM D732          |
| <b>Impact</b>                           | <b>Dry</b> | <b>Conditioned</b> | <b>Unit</b>       | <b>Test Method</b> |
| Charpy Notched Impact Strength          |            |                    |                   |                    |
| 23°C                                    | 14         | --                 | kJ/m <sup>2</sup> | ISO 179/1eA        |
| 23°C                                    | --         | 14                 | kJ/m <sup>2</sup> | ISO 179/2eA        |
| Charpy Unnotched Impact Strength (23°C) |            |                    |                   |                    |
|                                         | 46         | 47                 | kJ/m <sup>2</sup> | ISO 179/1eU        |

|                                      |         |             |                   |             |
|--------------------------------------|---------|-------------|-------------------|-------------|
| Notched Izod Impact                  |         |             |                   |             |
| --                                   | 85      | 80          | J/m               | ASTM D256   |
| 23°C                                 | 8.2     | 8.0         | kJ/m <sup>2</sup> | ISO 180/1A  |
| Unnotched Izod Impact                |         |             |                   |             |
| --                                   | 690     | --          | J/m               | ASTM D256   |
| 23°C                                 | 44      | 44          | kJ/m <sup>2</sup> | ISO 180/1U  |
| Thermal                              | Dry     | Conditioned | Unit              | Test Method |
| Heat Deflection Temperature          |         |             |                   |             |
| 1.8 MPa, not annealed                | 282     | 282         | °C                | ISO 75-2/Af |
| 1.8 MPa, annealed                    | 277     | --          | °C                | ASTM D648   |
| Melting Temperature                  |         |             |                   |             |
| --                                   | 310     | 310         | °C                | ISO 11357-3 |
| --                                   | 310     | --          | °C                | ASTM D3418  |
| Linear thermal expansion coefficient |         |             |                   |             |
|                                      |         |             |                   | ASTM E831   |
| Flow: 0 to 100°C                     | 1.7E-5  | --          | cm/cm/°C          | ASTM E831   |
| Flow: 100 to 200°C                   | 7.0E-6  | --          | cm/cm/°C          | ASTM E831   |
| Lateral: 0 to 100°C                  | 6.4E-5  | --          | cm/cm/°C          | ASTM E831   |
| Lateral: 100 to 200°C                | 1.1E-4  | --          | cm/cm/°C          | ASTM E831   |
| Electrical                           | Dry     | Conditioned | Unit              | Test Method |
| Surface Resistivity                  | 1.0E+15 | --          | ohms              | ASTM D257   |
| Volume Resistivity                   | 1.0E+15 | --          | ohms·cm           | ASTM D257   |
| Dielectric Strength (3.18 mm)        | 24      | --          | kV/mm             | ASTM D149   |
| Dielectric Constant                  |         |             |                   |             |
|                                      |         |             |                   | ASTM D150   |
| 100 Hz                               | 4.40    | --          |                   | ASTM D150   |
| 1 MHz                                | 4.10    | --          |                   | ASTM D150   |
| Dissipation Factor (1 MHz)           | 0.011   | --          |                   | ASTM D150   |
| Comparative Tracking Index (CTI)     | PLC 1   | --          |                   | UL 746      |
| High Amp Arc Ignition (HAI)          |         |             |                   |             |
|                                      |         |             |                   | UL 746      |
| 0.749 mm                             | PLC 0   | --          |                   | UL 746      |
| 1.50 mm                              | PLC 0   | --          |                   | UL 746      |
| 3.00 mm                              | PLC 0   | --          |                   | UL 746      |
| Hot-wire Ignition (HWI)              |         |             |                   |             |
|                                      |         |             |                   | UL 746      |
| 0.749 mm                             | PLC 0   | --          |                   | UL 746      |
| 1.50 mm                              | PLC 0   | --          |                   | UL 746      |
| 3.00 mm                              | PLC 0   | --          |                   | UL 746      |
| Flammability                         | Dry     | Conditioned | Unit              | Test Method |
| Flame Rating <sup>1</sup> (0.800 mm) | V-0     | --          |                   | UL 94       |
| Injection                            | Dry     | Unit        |                   |             |
| Drying Temperature                   | < 120   |             | °C                |             |

|                        |               |    |
|------------------------|---------------|----|
| Drying Time            | 4.0           | hr |
| Suggested Max Moisture | 0.030 - 0.060 | %  |
| Rear Temperature       | 327 - 332     | °C |
| Middle Temperature     | 316 - 324     | °C |
| Front Temperature      | 316 - 324     | °C |
| Processing (Melt) Temp | 321 - 338     | °C |
| Mold Temperature       | 65.6 - 93.3   | °C |

Injection instructions

射出速度: 3~4英寸/秒 保压压力:射出压力的50%

NOTE

1.
- These flammability ratings do not represent the risk of these materials or any other materials in actual fire situations.

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Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China



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