

## Technical Data Sheet

### Schulamid 66 GF 25 FR 5 A NAT



Polyamide 66

#### Product Description

25% glass fibre reinforced flame-retardant Polyamide 66 grade; without PBDE and antimony trioxide

|                      |                                                          |
|----------------------|----------------------------------------------------------|
| Processing Method    | Injection Molding                                        |
| Attribute            | Antimony Free; Good Electrical Properties; Good Strength |
| Additive             | Flame Retardant                                          |
| Filler/Reinforcement | Glass Fiber, 25%                                         |
| Resin ID             | PA 66 GF25 FR(16+72)                                     |

| Typical Properties                                     | Nominal Value | Units              | Test Method |
|--------------------------------------------------------|---------------|--------------------|-------------|
| <b>Physical</b>                                        |               |                    |             |
| Density, (Method A)                                    | 1.59          | g/cm <sup>3</sup>  | ISO 1183    |
| Viscosity Number                                       | 170           | cm <sup>3</sup> /g | ISO 307     |
| <b>Mechanical</b>                                      |               |                    |             |
| Tensile Strain at Break                                |               |                    |             |
| (Type 1A, 5 mm/min)                                    | 2.2           | %                  | ISO 527-2   |
| (Type 1A, 5 mm/min) - Conditioned                      | 3.0           | %                  | ISO 527-2   |
| Flexural Modulus, (2.0 mm/min)                         | 8600          | MPa                | ISO 178     |
| Tensile Stress at Break                                |               |                    |             |
| (Type 1A, 5 mm/min)                                    | 125           | MPa                | ISO 527-2   |
| (Type 1A, 5 mm/min) - Conditioned                      | 112           | MPa                | ISO 527-2   |
| Tensile Modulus                                        |               |                    |             |
| (1 mm/min, Type 1A)                                    | 9800          | MPa                | ISO 527-1   |
| (1 mm/min, Type 1A) - Conditioned                      | 8000          | MPa                | ISO 527-1   |
| Flexural Stress, (2.0 mm/min, 2.9%)                    | 195           | MPa                | ISO 178     |
| <b>Impact</b>                                          |               |                    |             |
| Charpy Impact Strength - Notched                       |               |                    |             |
| (23 °C, Type 1, Edgewise, Notch A)                     | 10            | kJ/m <sup>2</sup>  | ISO 179     |
| (-30 °C, Type 1, Edgewise, Notch A)                    | 10            | kJ/m <sup>2</sup>  | ISO 179     |
| (23 °C, Type 1, Edgewise, Notch A) - Conditioned       | 12            | kJ/m <sup>2</sup>  | ISO 179     |
| Charpy Impact Strength - Unnotched                     |               |                    |             |
| (23 °C, Type 1, Edgewise)                              | 52            | kJ/m <sup>2</sup>  | ISO 179     |
| (-30 °C, Type 1, Edgewise)                             | 52            | kJ/m <sup>2</sup>  | ISO 179     |
| (23 °C, Type 1, Edgewise) - Conditioned                | 55            | kJ/m <sup>2</sup>  | ISO 179     |
| Notched Izod Impact Strength, (23 °C, Type 1, Notch A) | 8.5           | kJ/m <sup>2</sup>  | ISO 180     |
| Unnotched Izod Impact Strength, (23 °C, Type 1)        | 46            | kJ/m <sup>2</sup>  | ISO 180     |

### Hardness

|                              |      |                |
|------------------------------|------|----------------|
| Ball Pressure Test, (200 °C) | Pass | IEC 60695-10-2 |
|------------------------------|------|----------------|

### Thermal

|                                                                     |         |            |
|---------------------------------------------------------------------|---------|------------|
| Vicat Softening Temperature                                         |         |            |
| (B (50N), 50 °C/h)                                                  | 229 °C  | ISO 306    |
| (A (10N), 50 °C/h)                                                  | >250 °C | ISO 306    |
| Deflection Temperature Under Load Unannealed (0.45 MPa), (Flatwise) | >250 °C | ISO 75-2/B |
| Deflection Temperature Under Load Unannealed (1.80 MPa), (Flatwise) | 240 °C  | ISO 75-2/A |
| RTI Elec                                                            |         |            |
| (1.5 mm)                                                            | 130 °C  | UL 746B    |
| (3.0 mm)                                                            | 130 °C  | UL 746B    |
| (0.75 mm)                                                           | 130 °C  | UL 746B    |
| (0.50 mm)                                                           | 130 °C  | UL 746B    |
| RTI Imp                                                             |         |            |
| (1.5 mm)                                                            | 110 °C  | UL 746B    |
| (3.0 mm)                                                            | 110 °C  | UL 746B    |
| (0.75 mm)                                                           | 105 °C  | UL 746B    |
| (0.50 mm)                                                           | 105 °C  | UL 746B    |
| RTI Str                                                             |         |            |
| (1.5 mm)                                                            | 120 °C  | UL 746B    |
| (3.0 mm)                                                            | 120 °C  | UL 746B    |
| (0.75 mm)                                                           | 105 °C  | UL 746B    |
| (0.50 mm)                                                           | 105 °C  | UL 746B    |

### Electrical

|                                  |                     |       |               |
|----------------------------------|---------------------|-------|---------------|
| Volume Resistivity               | 2700000000<br>00000 | ohm*m | IEC 62631-3-1 |
| - Conditioned                    | 1800000000<br>0000  | ohm*m | IEC 62631-3-1 |
| Dielectric Strength              | 28                  | kV/mm | IEC 60243-1   |
| Comparative Tracking Index (CTI) | 400                 | V     | IEC 60112     |
| High Amp Arc Ignition            |                     |       | UL 746A       |
| Surface Resistivity              | 4700000000<br>00000 | ohm   | IEC 60093     |
| - Conditioned                    | 1400000000<br>0000  | ohm   | IEC 60093     |

### Flammable

|                                |     |        |                |
|--------------------------------|-----|--------|----------------|
| Hot-wire Ignition (HWI)        |     |        | UL 746A        |
| Burning Rate                   |     |        |                |
| (0.750 mm, Self-Extinguishing) | 0.0 | mm/min | ISO 3795       |
| (1.50 mm, Self-Extinguishing)  | 0.0 | mm/min | ISO 3795       |
| (3.00 mm, Self-Extinguishing)  | 0.0 | mm/min | ISO 3795       |
| (0.500 mm, Self-Extinguishing) | 0.0 | mm/min | ISO 3795       |
| Glow Wire Flammability Index   |     |        |                |
| (0.50 mm)                      | 960 | °C     | IEC 60695-2-12 |
| (0.75 mm)                      | 960 | °C     | IEC 60695-2-12 |
| (1.5 mm)                       | 960 | °C     | IEC 60695-2-12 |
| (3.0 mm)                       | 960 | °C     | IEC 60695-2-12 |
| Glow Wire Ignition Temperature |     |        |                |
| (0.50 mm)                      | 900 | °C     | IEC 60695-2-13 |
| (0.75 mm)                      | 900 | °C     | IEC 60695-2-13 |
| (1.5 mm)                       | 900 | °C     | IEC 60695-2-13 |
| (3.0 mm)                       | 930 | °C     | IEC 60695-2-13 |

|                             |                      |              |                      |
|-----------------------------|----------------------|--------------|----------------------|
| Oxygen Index                | 34                   | %            | ISO 4589-2           |
| <b>UL Information</b>       |                      |              |                      |
| Flame Rating                |                      |              |                      |
| (1.5 mm)                    | V-0                  |              | UL 94                |
| (1.5 mm)                    | 5VA                  |              | UL 94                |
| (3.0 mm)                    | V-0                  |              | UL 94                |
| (3.0 mm)                    | 5VA                  |              | UL 94                |
| (0.75 mm)                   | V-0                  |              | UL 94                |
| (0.50 mm)                   | V-0                  |              | UL 94                |
| Flammability Classification |                      |              |                      |
| (0.50 mm)                   | V-0                  |              | IEC 60695-11-10, -20 |
| (0.75 mm)                   | V-0                  |              | IEC 60695-11-10, -20 |
| (1.5 mm)                    | V-0                  |              | IEC 60695-11-10, -20 |
| (1.5 mm)                    | 5VA                  |              | IEC 60695-11-10, -20 |
| (3.0 mm)                    | 5VA                  |              | IEC 60695-11-10, -20 |
| (3.0 mm)                    | V-0                  |              | IEC 60695-11-10, -20 |
| UL File Number              |                      |              |                      |
| (Global)                    | E344659              |              |                      |
| (Global)                    | E86615               |              |                      |
| <b>Injection Parameters</b> |                      |              |                      |
|                             | <b>Nominal Value</b> | <b>Units</b> |                      |
| Drying Time                 | 4.0 to 6.0           | hr           |                      |
| Drying Temperature          | 80                   | °C           |                      |
| Suggested Max Moisture      | 0.040 to 0.10        | %            |                      |
| Screw Speed                 | <250                 | mm/sec       |                      |
| Processing (Melt) Temp      | 270 to 300           | °C           |                      |
| Injection Rate              | Slow-Moderate        |              |                      |
| Back Pressure               | 20 to 80             | bar          |                      |
| Mold Temperature            | 60 to 90             | °C           |                      |