

## Technical Data Sheet

### Schulamid 6 GF 15 FR 4 K1681 NAT



Polyamide 6

#### Product Description

15% glass fibre reinforced flame-retardant Polyamide 6 grade without PBDE

|                             |                    |
|-----------------------------|--------------------|
| <b>Processing Method</b>    | Injection Molding  |
| <b>Additive</b>             | Flame Retardant    |
| <b>Filler/Reinforcement</b> | Glass Fiber, 15%   |
| <b>Resin ID</b>             | PA6 GF15 FR(17+30) |

| Typical Properties                               | Nominal Value | Units              | Test Method    |
|--------------------------------------------------|---------------|--------------------|----------------|
| <b>Physical</b>                                  |               |                    |                |
| Density, (Method A)                              | 1.38          | g/cm <sup>3</sup>  | ISO 1183       |
| Viscosity Number                                 | 145           | cm <sup>3</sup> /g | ISO 307        |
| <b>Mechanical</b>                                |               |                    |                |
| Tensile Strain at Break                          |               |                    |                |
| (Type 1A, 5 mm/min)                              | 3.5           | %                  | ISO 527-2      |
| (Type 1A, 5 mm/min) - Conditioned                | 8.5           | %                  | ISO 527-2      |
| Tensile Stress at Break                          |               |                    |                |
| (Type 1A, 5 mm/min)                              | 117           | MPa                | ISO 527-2      |
| (Type 1A, 5 mm/min) - Conditioned                | 71.0          | MPa                | ISO 527-2      |
| Tensile Modulus                                  |               |                    |                |
| (1 mm/min, Type 1A)                              | 7100          | MPa                | ISO 527-1      |
| (1 mm/min, Type 1A) - Conditioned                | 4000          | MPa                | ISO 527-1      |
| <b>Impact</b>                                    |               |                    |                |
| Charpy Impact Strength - Notched                 |               |                    |                |
| (23 °C, Type 1, Edgewise, Notch A)               | 9.0           | kJ/m <sup>2</sup>  | ISO 179        |
| (-30 °C, Type 1, Edgewise, Notch A)              | 6.0           | kJ/m <sup>2</sup>  | ISO 179        |
| (23 °C, Type 1, Edgewise, Notch A) - Conditioned | 14            | kJ/m <sup>2</sup>  | ISO 179        |
| Charpy Impact Strength - Unnotched               |               |                    |                |
| (23 °C, Type 1, Edgewise)                        | 60            | kJ/m <sup>2</sup>  | ISO 179        |
| (-30 °C, Type 1, Edgewise)                       | 55            | kJ/m <sup>2</sup>  | ISO 179        |
| (23 °C, Type 1, Edgewise) - Conditioned          | 70            | kJ/m <sup>2</sup>  | ISO 179        |
| <b>Hardness</b>                                  |               |                    |                |
| Ball Pressure Test, (200 °C)                     | Pass          |                    | IEC 60695-10-2 |
| <b>Thermal</b>                                   |               |                    |                |

|                                                                        |          |        |                |
|------------------------------------------------------------------------|----------|--------|----------------|
| Deflection Temperature Under Load Unannealed (0.45 MPa),<br>(Flatwise) | 223      | °C     | ISO 75-2/B     |
| Deflection Temperature Under Load Unannealed (1.80 MPa),<br>(Flatwise) | 203      | °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        |
| (0.38 mm)                                                              | 130      | °C     | UL 746B        |
| RTI Imp                                                                |          |        |                |
| (1.5 mm)                                                               | 100      | °C     | UL 746B        |
| (3.0 mm)                                                               | 100      | °C     | UL 746B        |
| (0.75 mm)                                                              | 90.0     | °C     | UL 746B        |
| (0.38 mm)                                                              | 75.0     | °C     | UL 746B        |
| RTI Str                                                                |          |        |                |
| (1.5 mm)                                                               | 120      | °C     | UL 746B        |
| (3.0 mm)                                                               | 120      | °C     | UL 746B        |
| (0.75 mm)                                                              | 110      | °C     | UL 746B        |
| (0.38 mm)                                                              | 100      | °C     | UL 746B        |
| <b>Electrical</b>                                                      |          |        |                |
| Volume Resistivity                                                     | >1.0E+13 | ohm*m  | IEC 62631-3-1  |
| - Conditioned                                                          | >1.0E+10 | ohm*m  | IEC 62631-3-1  |
| Comparative Tracking Index (CTI)                                       | 275      | V      | IEC 60112      |
| High Amp Arc Ignition                                                  |          |        | UL 746A        |
| Surface Resistivity                                                    | >1.0E+15 | ohm    | IEC 60093      |
| <b>Flammable</b>                                                       |          |        |                |
| 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       |
| (0.380 mm, Self-Extinguishing)                                         | 0.0      | mm/min | ISO 3795       |
| Glow Wire Flammability Index                                           |          |        |                |
| (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 |
| (0.38 mm)                                                              | 850      | °C     | IEC 60695-2-12 |
| Glow Wire Ignition Temperature                                         |          |        |                |
| (0.75 mm)                                                              | 900      | °C     | IEC 60695-2-13 |
| (1.5 mm)                                                               | 900      | °C     | IEC 60695-2-13 |
| (3.0 mm)                                                               | 900      | °C     | IEC 60695-2-13 |
| (0.38 mm)                                                              | 825      | °C     | IEC 60695-2-13 |
| Oxygen Index                                                           | 26       | %      | ISO 4589-2     |
| <b>UL Information</b>                                                  |          |        |                |
| Flame Rating                                                           |          |        |                |
| (1.5 mm)                                                               | V-2      |        | UL 94          |
| (3.0 mm)                                                               | V-2      |        | UL 94          |
| (0.75 mm)                                                              | V-2      |        | UL 94          |
| (0.38 mm)                                                              | V-2      |        | UL 94          |

|                             |        |                      |
|-----------------------------|--------|----------------------|
| Flammability Classification |        |                      |
| (0.38 mm)                   | V-2    | IEC 60695-11-10, -20 |
| (0.75 mm)                   | V-2    | IEC 60695-11-10, -20 |
| (1.5 mm)                    | V-2    | IEC 60695-11-10, -20 |
| (3.0 mm)                    | V-2    | IEC 60695-11-10, -20 |
| UL File Number              | E86615 |                      |

| Injection Parameters   | Nominal       |        |
|------------------------|---------------|--------|
|                        | Value         | Units  |
| Drying Time            | 4.0 to 6.0    | hr     |
| Drying Temperature     | 80            | °C     |
| Suggested Max Moisture | 0.1           | %      |
| Screw Speed            | <250          | mm/sec |
| Processing (Melt) Temp | 240 to 260    | °C     |
| Injection Rate         | Slow-Moderate |        |
| Back Pressure          | 20 to 80      | bar    |
| Mold Temperature       | 60 to 90      | °C     |