Technical Data Sheet

SCHULAMID® 6 GF 20 FR NATURAL

Polyamide 6
Engineering Plastics

Product Description
20% glass fibre reinforced flame-retardant Polyamide 6 grade (V-2); halogen free

General	
Filler / Reinforcement	• Glass Fiber, 20% Filler by Weight
Processing Method	• Injection Molding
Resin ID (ISO 1043)	• PA 6 GF 20 FR(30)

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.32 g/cm³	1.32 g/cm³	ISO 1183/A
Viscosity Number			ISO 307
96% H2SO4 (Sulphuric Acid)	180 cm³/g	180 cm³/g	
Mechanical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Tensile Modulus	754000 psi	5200 MPa	ISO 527-2/1A/1
Tensile Stress (Break)	10200 psi	70.0 MPa	ISO 527-2/1A/5
Tensile Strain (Break)	5.0 %	5.0 %	ISO 527-2/1A/5
Flexural Modulus	667000 psi	4600 MPa	ISO 178
Flexural Stress [1]			ISO 178
6.0% Strain	16700 psi	115 MPa	
3.5% Strain	15200 psi	105 MPa	
7.0% Strain [2]	15200 psi	105 MPa	
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	1.9 ft·lb/in²	4.0 kJ/m²	
73°F (23°C)	2.9 ft·lb/in²	6.0 kJ/m²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F (-30°C)	19 ft·lb/in²	40 kJ/m²	
73°F (23°C)	26 ft·lb/in²	55 kJ/m²	
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	394 °F	201 °C	ISO 75-2/Bf
264 psi (1.8 MPa), Unannealed	279 °F	137 °C	ISO 75-2/Af
Continuous Use Temperature [3]	194 °F	90.0 °C	
Vicat Softening Temperature			
--	424 °F	218 °C	ISO 306/A50
--	401 °F	205 °C	ISO 306/B50
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Surface Resistivity	2.0E+14 ohms	2.0E+14 ohms	IEC 60093
Volume Resistivity	8.0E+14 ohms·m	8.0E+14 ohms·m	IEC 62631-3-1
Electric Strength	900 V/mil	35 kV/mm	IEC 60243-1
Comparative Tracking Index	600 V	600 V	IEC 60112

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Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating			
0.031 in (0.8 mm)	V-2	V-2	UL 94
0.06 in (1.6 mm)	V-2	V-2	UL 94 IEC 60695-11-10, -20
0.13 in (3.2 mm)	V-2	V-2	UL 94 IEC 60695-11-10, -20
0.03 in (0.8 mm)	V-2	V-2	IEC 60695-11-10, -20
Glow Wire Flammability Index			IEC 60695-2-12
0.030 in (0.75 mm)	1760 °F	960 °C	
0.06 in (1.5 mm)	1760 °F	960 °C	
0.12 in (3.0 mm)	1760 °F	960 °C	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.030 in (0.75 mm)	1340 °F	725 °C	
0.06 in (1.5 mm)	1340 °F	725 °C	
0.12 in (3.0 mm)	1340 °F	725 °C	

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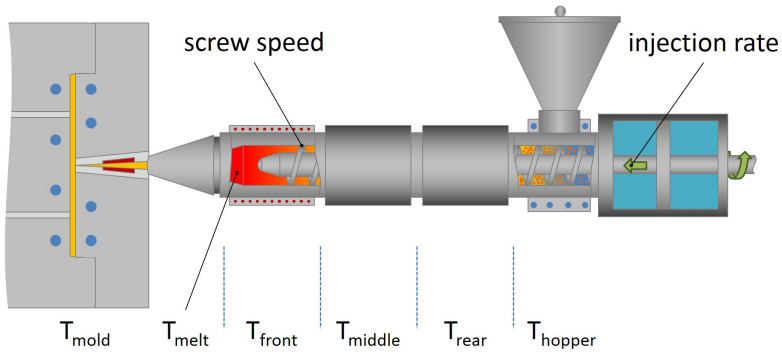

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 °F	80 °C
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 hr
Suggested Max Moisture	0.04 to 0.10 %	0.04 to 0.10 %
Suggested Max Regrind	25 %	25 %
Processing (Melt) Temp	464 to 500 °F	240 to 260 °C
Mold Temperature	140 to 212 °F	60 to 100 °C
Injection Pressure	11600 to 20300 psi	80.0 to 140 MPa
Injection Rate	Slow-Moderate	Slow-Moderate
Holding Pressure	5800 to 12300 psi	40.0 to 85.0 MPa
Back Pressure	290 to 1160 psi	2.00 to 8.00 MPa
Screw Speed	< 591 in/min	< 15 m/min

Injection Notes

Predrying
Typically a minimum predrying time of 3 to 4 hours at 80°C is recommended in an dehumidifying dryer. For optimal qualities a humidity of 0,04 - 0,1 % is recommended. Drying over 6 hours duration should occur at 60°C. Should be placed in the hopper.

Shut down
Long residence time should be avoided. Purge with polyolefin or with base polymer.

Finishing
The material is suitable for machining. Varnishing, printing, gluing and embossing can be carried out using commercially available products.

Conditioning
Recently processed mouldings which not have been conditioned are brittle. The material picks up moisture until the equilibrium moisture content is reached. This may last for over a half year. Then the article has reached his balanced property profile. For accelerated absoption see our separate Technical instruction.

Remarks
For permanent processing of glass fibre reinforced grades wear resistant screws and cylinders are recommended.

Notes

[1] 0.079 in/min (2.0 mm/min)

[2] at Break

[3] Long periode (20000h)

Notes

These are typical property values not to be construed as specification limits.