TECHNYL STAR® S 60G1 V30 NATURAL LP

TECHNICAL DATA SHEET

Revised: November, 2017

TECHNYL STAR® S 60G1 V30 Natural is a grade based on a non-halogenated flame retardant system and on a patented high flow polyamide 6 resin (TechnylStar), reinforced of 30% of glass fiber, heat stabilized, laser markable, for injection moulding. This grade is Heat stabilized and provides optimized injection moulding performance.

GENERAL

Material Status	• Commercial: Discontinued	
Availability	• Africa & Middle East	• Europe
Filler / Reinforcement	• Glass Fiber, 30% Filler by Weight	
Additive	• Flame Retardant	• Heat Stabilizer
Key Benefits	• High Arc Resistance • Lower Corrosivity • High Flow • Low Temperature Impact Resistance • IR Laser Markable	• Good Mold Release • Superior Surface Finish • UL 94 5VA • UL 94 V0 at 0.4 mm
Applications	• Circuit Breaker • Connectors • Conversion Devices • Electrical protection devices	• Electrical/Electronic Applications • Junction box • Smart devices
Certification/Compliance	• EC 1907/2006 (REACH) • EN 45545	• NF F 16-101 • UL QMFZ2
RoHS Compliance	• RoHS Compliant	
Colors Available	• Black • Grey	• Natural Color
Forms	• Pellets	
Processing Method	• Injection Molding	
Resin ID (ISO 1043)	• PA6-GF30 FR(40)	

PROPERTIES

Typical values of properties are for Natural grades

Physical	Dry	Conditioned	Unit	Test Method
Water Absorption				ISO 62
24 hr, 23°C	0.90		%	
Saturation, 23°C	4.2		%	
Equilibrium, 23°C, 50% RH	1.8		%	
Density	1.42		g/cm³	ISO 1183/A

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	11000	7200	MPa	ISO 527-2/1A

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Strength				
Break, 23°C	155		MPa	ASTM D638
Break, 23°C	155	97	MPa	ISO 527-2/1A
Tensile Elongation				
Break, 23°C	2.5		%	ASTM D638
Break, 23°C	2.8	5.0	%	ISO 527-2
Flexural Modulus				
23°C	10100		MPa	ASTM D790
23°C	9450	5400	MPa	ISO 178
Flexural Strength				
23°C	222		MPa	ASTM D790
23°C	248	167	MPa	ISO 178
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	9.0		kJ/m²	
23°C	10	13	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	50		kJ/m²	
23°C	65	70	kJ/m²	
Notched Izod Impact				
23°C	100		J/m	ASTM D256
23°C	10	12	kJ/m²	ISO 180
Unnotched Izod Impact Strength (23°C)	54	63	kJ/m²	ISO 180/1U

Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	205		°C	ASTM D648
1.8 MPa, Unannealed	205		°C	ISO 75-2/Af
Melting Temperature	222		°C	ISO 11357-3

Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	6.0E+14		ohms	IEC 60093
Volume Resistivity	1.0E+15		ohms·cm	IEC 60093
Electric Strength				IEC 60243-1
0.800 mm	38		kV/mm	
2.00 mm	25	23	kV/mm	
Relative Permittivity	2.90	4.35		IEC 60250
Dissipation Factor		0.080		IEC 60250
Comparative Tracking Index (Solution A)	600	600	V	IEC 60112

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Flammability		Dry	Conditioned	Unit	Test Method
Flame Rating					UL 94
0.40 mm		V-0			
0.8 mm		V-0			
1.6 mm	•	V-0			
	•	5VA			
3.2 mm	•	V-0			
	•	5VA			
Glow Wire Flammability Index					IEC
0.8 mm		960		°C	60695-2-12
1.6 mm		960		°C	
3.2 mm		960		°C	
Glow Wire Ignition Temperature					IEC
0.8 mm		775		°C	60695-2-13
1.6 mm		800		°C	
3.2 mm		825		°C	
Oxygen Index		35		%	ISO 4589-2
French Fire Index		F2			NF F16-101
French Smoke Index		I3			NF F16-101

Additional Information	Dry	Unit	Test Method
European Railways Certifications			EN 45545-2
R22	HL2		
R23	HL3		

PROCESSING

Injection	Dry	Unit
Drying Temperature	80	°C
Suggested Max Moisture	0.20	%
Rear Temperature	230 to 235	°C
Middle Temperature	235 to 240	°C
Front Temperature	240 to 245	°C
Mold Temperature	60 to 90	°C

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Injection Notes

The material is supplied in airtight bags, ready for use. In case that the virgin material has absorbed moisture, it must be dried with a dehumidified air drying equipment, dew point mini -20°C. Recommended time 2-4h

Injection Advice:

- All reinforced, flame retardant compounds generate some level of abrasion/corrosion to the steel processing equipment. These issues may be magnified by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process. Therefore, Solvay recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, Solvay advises you to use a steel with high chromium and high carbon content (having a minimum concentration of 16% Chromium) to prevent corrosion and abrasion. For the correct reference of steel associated to flame retardant compounds' processing, please refer to your equipment manufacturers. In the case of high requirements on surface quality a mould temperature of up to 120°C can be considered.
- The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design

DISCLAIMER

SAFETY INFORMATION

Detailed information regarding safety are available on the safety data sheet (SDS). SDS is sent with the first material order or available by contacting our customer services

REGULATIONS COMPLIANCE

This product is not intended to be used for the following regulated market: food contact, drinking water, toys, cosmetics or medical devices.

This grade complies with ROHS Directive 2011/65/EU and 2015/863 as amended.

Grades produced or imported in Europe comply with REACH directive 1907/2006/EC as amended.

CUSTOMER SERVICES

Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:

- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

You can find more information on Solvay Product range on our internet product finder at the following address: http://www.technyl.com

Notes

Typical properties: these are not to be construed as specifications.