

TECHNYL STAR® S 60G1 V30 NATURAL LP

Polyamide 6
Solvay Engineering Plastics

Message:

TECHNYL STAR® S 60G1 V30 Natural LP is a Non-halogenated flame retardant grade based 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 Information				
UL YellowCard		E44716-467001	E44716-235537	
Filler / Reinforcement		Glass fiber reinforced material, 30% filler by weight		
Additive		heat stabilizer		
		Flame retardancy		
Features		IR Laser Markable		
		Excellent appearance		
		Anti-arc		
		Good corrosion resistance		
		High liquidity		
		Low temperature impact resistance		
		Good demoulding performance		
		Halogen-free		
Uses		Electrical/Electronic Applications		
		Connector		
Agency Ratings		EC 1907/2006 (REACH)		
		EN 45545		
		NF F 16-101		
		UL QMFZ2		
RoHS Compliance		RoHS compliance		
Appearance		Black		
		Grey		
		Natural color		
Forms		Particle		
Processing Method		Injection molding		
Resin ID (ISO 1043)		PA6-GF30 FR(40)		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.42	--	g/cm³	ISO 1183/A

Water Absorption				ISO 62
23°C, 24 hr	0.90	--	%	ISO 62
Saturated, 23°C	4.2	--	%	ISO 62
Equilibrium, 23°C, 50% RH	1.8	--	%	ISO 62
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	11000	7200	MPa	ISO 527-2/1A
Tensile Strength				
Fracture, 23°C	155	--	MPa	ASTM D638
Fracture, 23°C	155	97.0	MPa	ISO 527-2/1A
Tensile Elongation				
Fracture, 23°C	2.5	--	%	ASTM D638
Fracture, 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
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	9.0	--	kJ/m ²	ISO 179/1eA
23°C	10	13	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	50	--	kJ/m ²	ISO 179/1eU
23°C	65	70	kJ/m ²	ISO 179/1eU
Notched Izod Impact				
23°C	100	--	J/m	ASTM D256
23°C	10	12	kJ/m ²	ISO 180
Unnotched Izod Impact Strength (23°C)				ISO 180/1U
	54	63	kJ/m ²	
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, not annealed	205	--	°C	ASTM D648
1.8 MPa, not annealed	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
Dielectric Strength				IEC 60243-1
0.800 mm	38	--	kV/mm	IEC 60243-1

2.00 mm	25	23	kV/mm	IEC 60243-1
Relative Permittivity	2.90	4.35		IEC 60250
Dissipation Factor	--	0.080		IEC 60250
Comparative Tracking Index (Solution A)	600	600	V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.40 mm	V-0	--		UL 94
0.8 mm	V-0	--		UL 94
	V-0			
1.6 mm	5VA	--		UL 94
	V-0			
3.2 mm	5VA	--		UL 94
Glow Wire Flammability Index				IEC 60695-2-12
0.8 mm	960	--	°C	IEC 60695-2-12
1.6 mm	960	--	°C	IEC 60695-2-12
3.2 mm	960	--	°C	IEC 60695-2-12
Glow Wire Ignition Temperature				IEC 60695-2-13
0.8 mm	775	--	°C	IEC 60695-2-13
1.6 mm	800	--	°C	IEC 60695-2-13
3.2 mm	825	--	°C	IEC 60695-2-13
Oxygen Index	35	--	%	ISO 4589-2
French Fire Index	F2	--		NF F16-101
French Smoke Index	I3	--		NF F16-101
European Railways Certifications				EN 45545-2
R22	HL2	--		EN 45545-2
R23	HL3	--		EN 45545-2
Injection	Dry	Unit		
Drying Temperature	80		°C	
Suggested Max Moisture	0.20		%	
Rear Temperature	230 - 235		°C	
Middle Temperature	235 - 240		°C	
Front Temperature	240 - 245		°C	
Mold Temperature	60 - 90		°C	
Injection instructions				

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 can be worsened by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process.

Therefore, Solvay recommends to use the advised processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retarded compounds, Solvay advises to use a steel containing high chromium & high carbon content (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. For Mould Temperature, in the case of parts where the surface roughness is required we can recommend a temperature at 120°C. Of course it should be noted that this improvement in the surface appearance may be at the expense of the cycle time.

The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design

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Recommended distributors for this material

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

