TECHNYL® PROTECT
Flame retardants

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TECHNICAL DATA SHEET

TECHNYL PROTECT A 60G1 V30 BK 15N

TECHNYL A 60G1 V30 BLACK 15N

TECHNYL PROTECT A 60G1 V30 BK 15N is a polyamide 66 based on a non-halogenated flame retardant system, reinforced with 30% of glass fiber, heat stabilized, for injection moulding. This grade offers excellent flame retardancy properties (UL 94, 5VA, GWIT) combined with excellent processing, mechanical and electrical performance. It can withstand temperatures of 160°C for over 6000 hours and has a UL F1 rating for weatherability resistance.

General

Certifications	RoHS EC 1907/2006 (REACH)	UL listed product EN 45545
Polymer type	PA66	
Feature	halogen and red phosphorus free flame retardant UL 94 V0 GWFI 960°C	heat-aging stabilized halogen free flame retardant
Applications	electrical/electronic applications	
Colors available	black grey	natural
Forms	pellets	
Processing technology	injection moulding	

Product identification

ISO 1043 abbreviation	PA66-GF30 FR(40)
ISO 16396 designation	PA66,GF30FR(40),MH,S14-100

Physical properties

	Condition	Standard	Unit	Value
Density		ISO 1183	g/cm³	1.46
Water absorption	24 hr, 23°C	ISO 62	%	0.7 - 0.8
Water absorption, saturation			%	4.3
Molding shrinkage, parallel		ISO 294-4, 2577	%	0.2 - 0.4
Molding shrinkage, normal		ISO 294-4, 2577	%	0.6 - 0.8

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	Condition	Standard	Unit	Value
Mechanical properties				**dam / cond.***
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	10200 / 8400
Stress at break		ISO 527-1/-2	MPa	145 / 110
Strain at break		ISO 527-1/-2	%	2.3 / 4
Flexural modulus, ISO 178	2 mm/min	ISO 178	MPa	10000 / 7900
Flexural modulus, ASTM D790	2 mm/min	ASTM D790	MPa	10000 / 7900
Flexural strength, ISO 178	2 mm/min	ISO 178	MPa	250 / 180
Flexural strength, ASTM D790	2 mm/min	ASTM D790	MPa	220 / 180
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m²	55 / 60
Charpy impact strength, -30°C	-30°C	ISO 179/1eU	kJ/m²	55 / -
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m²	8 / 11
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m²	8 / -

: conditioned according to ISO 1110

	Condition	Standard	Unit	Value
Thermal properties				
Melting temperature, 10°C/min		ISO 11357-1	°C	263
Temp. of deflection under load, 1.80 MPa	1.80 MPa	ISO 75	°C	245

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Burning behaviour

	Condition	Standard	Unit	Value
UL Yellow Card availability 1		**Click here to have access to the UL Yellow Card availability 1 -> QMFZ2.E44716**		
Flammability, 0.75 mm	0.75 mm	UL 94		V0
Flammability, 1.5 mm	1.5 mm	UL 94		V0,5VA
Flammability, 3.0 mm	3.0 mm	UL 94		V0,5VA
Glow-wire flammability index, GWFI, 0.75 mm	0.75 mm	IEC 60695-2-12	°C	960
Glow-wire flammability index, GWFI, 1.5 mm	1.5 mm	IEC 60695-2-12	°C	960
Glow-wire flammability index, GWFI, 3.0 mm			°C	960
Glow-wire ignition temperature, GWIT, 0.75 mm	0.75 mm	IEC 60695-2-13	°C	800
Glow-wire ignition temperature, GWIT, 1.5 mm	1.5 mm	IEC 60695-2-13	°C	825
Glow-wire ignition temperature, GWIT, 3.0 mm	3.0 mm	IEC 60695-2-13	°C	826
Oxygen index			%	33.0
Burning rate, FMVSS, Thickness 1 mm		FMVSS 302		< 100mm/min

Electrical properties

	Condition	Standard	Unit	Value
Volume resistivity		IEC 62631-3-1	ohm.m	6.0E12
Surface resistivity		IEC 62631-3-1	ohm	2.0E15
Comparative tracking index	Solution A	IEC 60112	V	600.0
CTI performance level category		Sol A		PLC 0
Dielectric strength	1 mm	IEC 60243-1	kV/mm	38.0

Processing conditions

Drying temperature/time	80 °C
Suggested max moisture	0.2 %

Processing conditions

Rear temperature	265 - 275 °C
Middle temperature	265 - 275 °C
Front temperature	270 - 280 °C
Recommended mould temperature	60 - 90 °C

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 minimum -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, Domo recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, Domo 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.