

TECHNYL® PROTECT

Flame retardants

TECHNICAL DATA SHEET

TECHNYL PROTECT A 50H1 BK

(Previously TECHNYL A 50H1 BLACK)

TECHNYL PROTECT A 50H1 BK is an unreinforced polyamide 66 based on a non-phosphorous and non-halogenated flame retardant system, heat stabilized, for injection moulding. This flame retardant grade, offers excellent filling qualities combined with good stiffness.

General

Feature	halogen free flame retardant		
Polymer type	PA66 (Polyamide 66)		
Processing technology	Injection molding		
Certification	RoHS EC 1907/2006 (REACH)	UL-Yellow Card European Railways Certifications EN 45545-2	
Applications	Connectors		Electrical/Electronic Applications
Colors available	Black		Natural
Forms	Pellets		

Product identification

ISO 1043 abbreviation	PA66 FR(30)		
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Condition	Standard	Unit	Value
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Physical properties

Density		ISO 1183	g/cm ³	1.16
Humidity absorption	T=23°C, 50% RH	ISO 62	%	2.6
Water absorption	24 hr, 23°C	ISO 62	%	0.9 - 1
Molding shrinkage, parallel		ISO 294-4, 2577	%	1.3
Molding shrinkage, normal		ISO 294-4, 2577	%	0.95

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	Condition	Standard	Unit	Value dam / cond.*
Mechanical properties				
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	3800 / 1700
Stress at break		ISO 527-1/-2	MPa	75 / 40
Strain at break		ISO 527-1/-2	%	9 / 100
Flexural modulus, ISO 178	2 mm/min	ISO 178	MPa	3700 / 1700
Flexural modulus, ASTM D790	2 mm/min	ASTM D790	MPa	3800 / 1750
Flexural strength, ISO 178	2 mm/min	ISO 178	MPa	130 / 55
Flexural strength, ASTM D790	2 mm/min	ASTM D790	MPa	120 / 50
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m ²	80 / -
Charpy impact strength, -30°C	-30°C	ISO 179/1eU	kJ/m ²	80 / -
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m ²	3.2 / 7
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m ²	3 / -
Izod notched impact strength, +23°C	+23°C	ISO 180/1A	kJ/m ²	3 / -
Thermal properties				
Melting temperature, 10°C/min		ISO 11357-1	°C	263
Temp. of deflection under load, 0.45 MPa	0.45 MPa	ISO 75	°C	237
Temp. of deflection under load, 1.80 MPa	1.80 MPa	ISO 75	°C	85
Electrical properties				
Volume resistivity		IEC 62631-3-1	ohm.m	3E+013
Surface resistivity		IEC 62631-3-1	ohm	3E+015
Comparative tracking index	Solution A	IEC 60112	V	600
CTI performance level category		Sol A		PLC 0
Dielectric strength	1 mm	IEC 60243-1	kV/mm	21

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Burning behaviour				
UL Yellow Card availability 		Click here to have access to the UL Yellow Card → QMFZ2.E44716		
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Flammability, 0.40 mm	0.40 mm	UL 94		V0
Flammability, 0.75 mm	0.75 mm	UL 94		V0
Flammability, 1.5 mm	1.5 mm	UL 94		V0
Flammability, 3.0 mm	3.0 mm	UL 94		V0
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	3.0 mm	IEC 60695-2-12	°C	960
Glow-wire ignition temperature, GWIT, 0.40 mm	0.40 mm	IEC 60695-2-13	°C	960
Glow-wire ignition temperature, GWIT, 0.75 mm	0.75 mm	IEC 60695-2-13	°C	960
Glow-wire ignition temperature, GWIT, 1.5 mm	1.5 mm	IEC 60695-2-13	°C	775
Oxygen index			%	33

*: conditioned according to ISO 1110

Processing conditions

Drying temperature/time	80 °C
Suggested max moisture	0.2 %
Rear temperature	260 - 270 °C
Middle temperature	265 - 275 °C
Front temperature	265 - 275 °C
Recommended mould temperature	60 - 80 °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.

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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.

Disclaimer

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