

TECHNICAL DATA SHEET

TECHNYL PROTECT A 50H1 NC  
(Previously TECHNYL A 50H1 NATURAL)

TECHNYL PROTECT A 50H1 NC 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)
-----------------------	-------------

	Condition	Standard	Unit	Value
Physical properties				
Density		ISO 1183	g/cm³	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	%	1.1
Molding shrinkage, normal		ISO 294-4, 2577	%	1

TECHNICAL DATA SHEET
TECHNYL PROTECT A 50H1 NC

	Condition	Standard	Unit	Value
<b>Mechanical properties</b>				<b>dam / cond.*</b>
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	3800 / 1700
Stress at break		ISO 527-1/-2	MPa	80 / 45
Strain at break		ISO 527-1/-2	%	12 / 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	135 / 60
Flexural strength, ASTM D790	2 mm/min	ASTM D790	MPa	125 / 55
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m²	80 / -
Charpy impact strength, -30°C	-30°C	ISO 179/1eU	kJ/m²	90 / -
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m²	3.2 / 7
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m²	3 / -
Izod notched impact strength, +23°C	+23°C	ISO 180/1A	kJ/m²	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

TECHNICAL DATA SHEET

TECHNYL PROTECT A 50H1 NC

	Condition	Standard	Unit	Value
<b>Burning behaviour</b>				
UL Yellow Card availability 	Click here to have access to the UL Yellow Card → <a href="#">QMFZ2.E44716</a>			
UL Yellow Card availability 	Click here to have access to the UL Yellow Card → <a href="#">QMFZ2.E44716</a>			
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.

## 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

The information provided in this documentation corresponds to our technical knowledge at the date of its publication and do not constitute a specification. This information may be subject to revision at our discretion. Domo cannot anticipate all conditions under which this information and our products of other manufactures in combination with our products may be used. Domo accepts no responsibility for results obtained by the application of this information or for the safety and suitability of our products alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each product or product combination for their own purposes. Unless otherwise agreed in writing, Domo sells the product without warranties. Buyers and users assume all responsibility and liability for loss or damage arising from handling and use of our products, whether used alone or in combination with other products. Unless specifically indicated, the grades mentioned are not suitable for applications in the pharmaceutical/medical sector.