

# TECHNYL® PROTECT

Flame retardants

## TECHNICAL DATA SHEET

### TECHNYL PROTECT C 50H2 NC

(Previously TECHNYL C 50H2 NATURAL)

TECHNYL PROTECT C 50H2 NC is an unreinforced polyamide 6 based on a non-phosphorous and non-halogenated flame retardant system, heat stabilized, for injection moulding. This product, UL94 VO @ 0,4mm, offers excellent moldability together with good stiffness.

#### General

Feature	halogen free flame retardant		
Polymer type	PA6 (Polyamide 6)		
Processing technology	Injection molding		
Certification	RoHS EC 1907/2006 (REACH)	UL-Yellow Card European Railways Certifications EN 45545-2	
Applications	Electrical/Electronic Applications		
Colors available	Black Grey		
Forms	Pellets		

#### Product identification

ISO 1043 abbreviation	PA6 FR(30)		
ISO 16396 designation	PA6,0FR(30)0,M1,S14-030		

Condition	Standard	Unit	Value
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#### Physical properties

Density		ISO 1183	g/cm <sup>3</sup>	1.16
Water absorption	24 hr, 23°C	ISO 62	%	1.1
Molding shrinkage, parallel		ISO 294-4, 2577	%	0.7 - 0.9
Molding shrinkage, normal		ISO 294-4, 2577	%	0.6 - 0.8

#### Mechanical properties

dam / cond.\*

Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	3500 / 1250
Stress at break		ISO 527-1/-2	MPa	60 / 45
Strain at break		ISO 527-1/-2	%	10 / 250
Yield stress		ISO 527-1/-2	MPa	85 / 40
Yield strain		ISO 527-1/-2	%	4 / 25
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m <sup>2</sup>	3.5 / 14

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	Condition	Standard	Unit	Value
<b>Thermal properties</b>				
Melting temperature, 10°C/min		ISO 11357-1	°C	222
Temp. of deflection under load, 0.45 MPa	0.45 MPa	ISO 75	°C	180
Temp. of deflection under load, 1.80 MPa	1.80 MPa	ISO 75	°C	75
Vicat softening temperature	50°C/h - 50N	ISO 306	°C	205

### Electrical properties

Volume resistivity		IEC 62631-3-1	ohm.m	1E+013
Surface resistivity		IEC 62631-3-1	ohm	1E+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	34

### Burning behaviour

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
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, 0.75 mm	0.75 mm	IEC 60695-2-13	°C	700
Glow-wire ignition temperature, GWIT, 1.5 mm	1.5 mm	IEC 60695-2-13	°C	700
Glow-wire ignition temperature, GWIT, 3.0 mm	3.0 mm	IEC 60695-2-13	°C	700
Oxygen index			%	36
Burning rate, FMVSS, Thickness 1 mm		FMVSS 302		<100

\*: conditioned according to ISO 1110

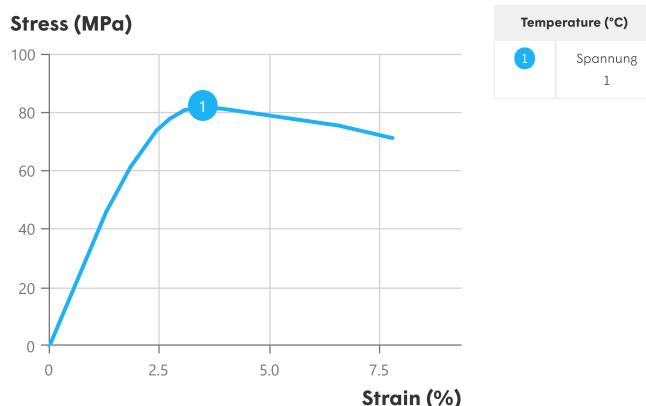
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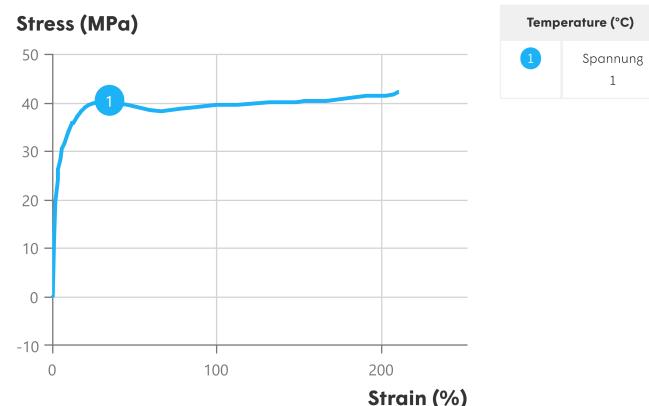
#### Processing conditions

Drying temperature/time	80 °C
Suggested max moisture	0.2 %
Rear temperature	230 - 235 °C
Middle temperature	235 - 240 °C
Front temperature	235 - 245 °C
Recommended mould temperature	60 - 90 °C

Stress-strain, dry



Stress-strain, conditioned



#### 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

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