TECHNYL® PROTECT
Flame retardants

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TECHNICAL DATA SHEET

TECHNYL PROTECT C 50H1 YL 1170

(Previously DOMAMID FR 6V0M YL11170)

Polyamide 6, heat-aging stabilized, halogen and red phosphorus free flame retardant, for injection moulding

General

Feature	UL V0 Heat-aging stabilized	Halogen and red phosphorus free flame retardant
Polymer type	PA6 (Polyamide 6)	
Processing technology	Injection molding	
Certification	RoHS EC 1907/2006 (REACH)	UL-Yellow Card
Colors available	Black Grey	Natural White
Forms	Pellets	

Product identification

ISO 1043 abbreviation	PA6 FR(30)
ISO 16396 designation	PA6,FR(30),M1H,S14-030

Physical properties

	Condition	Standard	Unit	Value
Density		ISO 1183	g/cm³	1.16
Humidity absorption	T=23°C, 50% RH	ISO 62	%	2.85 - 2.95
Molding shrinkage, parallel		ISO 294-4, 2577	%	0.9 - 1.1
Molding shrinkage, normal		ISO 294-4, 2577	%	0.85 - 1.05

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	Condition	Standard	Unit	Value
Mechanical properties				**dam / cond.***
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	3400 / 1200
Stress at break		ISO 527-1/-2	MPa	80 / 40
Strain at break	50 mm/min	ISO 527-1/-2	%	3.5 / > 50
Yield stress	50 mm/min	ISO 527-1/-2	MPa	80 / 40
Yield strain		ISO 527-1/-2	%	3.5 / 28
Flexural modulus, ISO 178	2 mm/min	ISO 178	MPa	2800 / 1000
Flexural strength, ISO 178	2 mm/min	ISO 178	MPa	120 / 60
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m²	65 / NB
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m²	3 / 10
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m²	2.5 / -
Izod impact strength, +23°C	+23°C	ISO 180/1U	kJ/m²	70 / NB
Izod notched impact strength, +23°C	+23°C	ISO 180/1A	kJ/m²	3.5 / 10
Thermal properties				
Melting temperature, 10°C/min		ISO 11357-1	°C	221
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	70
Vicat softening temperature	50°C/h - 50N	ISO 306	°C	205
Electrical properties				
Volume resistivity		IEC 62631-3-1	ohm.m	1E+016
Surface resistivity		IEC 62631-3-1	ohm	1E+014
Comparative tracking index	Solution A	IEC 60112	V	600
CTI performance level category		Sol A		PLC 0
Burning behaviour				
UL Yellow Card availability (UL)	Click here to have access to the UL Yellow Card → E170540-225453			
Flammability, 1.5 mm	1.5 mm	UL 94		V0
Glow-wire flammability index, GWFI	1-3 mm	IEC 60695-2-12	°C	960
Glow-wire ignition temperature, GWIT	1-3 mm	IEC 60695-2-13	°C	750
Burning rate, FMVSS, Thickness 1 mm		FMVSS 302		< 100 mm/min

Test run at 23°C if not differently specified, DAM state (dry as moulded), valid for natural colored products.
**: conditioned according to ISO 1110*

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Processing conditions

Drying temperature/time	75-85°C / 2-4h (with dew point of dried air < -30 °C)
Recommended melt temperature	230 - 250 °C
Recommended mould temperature	60 - 80 °C

These parameters are typical of the product but should be related to the type of machinery used and to the type of moulded part.

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.