

# TECHNYL® PROTECT

Flame retardants

## TECHNICAL DATA SHEET

### TECHNYL PROTECT A 20 V35 BK 25

(Previously TECHNYL A 20 V35 BLACK 25)

TECHNYL PROTECT A 20 V35 BK 25 is a Red Phosphorous flame retardant polyamide 66, reinforced with 35% of glass fiber, heat stabilized, for injection moulding. This grade provides robust UL 94 V-0 and a full UL yellow card while offering good mechanical properties. This grade is suitable for moulding insulating parts for electrical devices, and more generally for thin parts under stress.

#### General

Feature	halogen free flame retardant	
Polymer type	PA66 (Polyamide 66)	
Processing technology	Injection molding	
Certification	RoHS EC 1907/2006 (REACH)	UL-Yellow Card
Applications	Connectors White Goods & Small Appliances	Electrical/Electronic Applications
Colors available	Black	Natural
Forms	Pellets	

#### Product identification

ISO 1043 abbreviation	PA66-GF35 FR(52)
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Condition	Standard	Unit	Value
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#### Physical properties

Density		ISO 1183	g/cm <sup>3</sup>	1.46
Water absorption	24 hr, 23°C	ISO 62	%	0.6
Molding shrinkage, parallel		ISO 294-4, 2577	%	0.25
Molding shrinkage, normal		ISO 294-4, 2577	%	1

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	Condition	Standard	Unit	Value dam / cond.*
<b>Mechanical properties</b>				
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	12500 / 8200
Stress at break		ISO 527-1/-2	MPa	175 / 110
Strain at break		ISO 527-1/-2	%	2.1 / 3.2
Flexural modulus, ISO 178	2 mm/min	ISO 178	MPa	11000 / 7500
Flexural strength, ISO 178	2 mm/min	ISO 178	MPa	260 / 200
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m <sup>2</sup>	60 / 70
Charpy impact strength, -30°C	-30°C	ISO 179/1eU	kJ/m <sup>2</sup>	55 / -
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m <sup>2</sup>	10 / 12
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m <sup>2</sup>	8 / -
Izod notched impact strength, +23°C	+23°C	ISO 180/1A	kJ/m <sup>2</sup>	10 / 12
<b>Thermal properties</b>				
Melting temperature, 10°C/min		ISO 11357-1	°C	263
Temp. of deflection under load, 1.80 MPa	1.80 MPa	ISO 75	°C	244
<b>Electrical properties</b>				
Volume resistivity		IEC 62631-3-1	ohm.m	1E+013
Surface resistivity		IEC 62631-3-1	ohm	1E+014
Comparative tracking index	Solution A	IEC 60112	V	400
CTI performance level category		Sol A		PLC 1
Dielectric strength	1 mm	IEC 60243-1	kV/mm	32
<b>Burning behaviour</b>				
UL Yellow Card availability 	Click here to have access to the UL Yellow Card → <a href="#">QMFZ2.E44716</a>			
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, 1.5 mm	1.5 mm	IEC 60695-2-13	°C	725
Oxygen index			%	31

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Condition	Standard	Unit	Value
<i>*: conditioned according to ISO 1110</i>			
Drying temperature/time	80 °C		
Suggested max moisture	0.2 %		
Rear temperature	265 - 275 °C		
Middle temperature	270 - 280 °C		
Front temperature	280 - 290 °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.

### Disclaimer

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