

EXPERIMENTAL DATASHEET

TECHNYL 4EARTH A1E 60G1 V30 NC

Polyamide 66, 30% glass fiber reinforced, halogen and red phosphorus free flame retardant, heat-aging stabilized, for injection moulding

TECHNYL 4EARTH A1E 60G1 V30 NC is a partially recycled polyamide 66 based on a non-halogenated flame retardant system, reinforced with 30% of glass fiber, heat stabilized, for injection moulding. This partially recycled material has been developed to reduce its environmental footprint (3,4 kg CO2 eq. according to IPCC 2013 100a methodology) with respect to first-choice materials while offering excellent & identical flame retardant properties (UL 94 V0 - GWFI 960°C all at 0.8 mm thickness). It also offers unchanged mechanical and electrical performances with respect to virgin materials. It is already all colors UL yellow card registered for short-term properties (UL 94, 5VA, HWI, HAI, CTI) waiting for RTI ratings completion.

General

Feature	UL V0 Heat-aging stabilized	Halogen and red phosphorus free flame retardant
Polymer type	PA66 (Polyamide 66)	
Processing technology	Injection molding	
Certification	RoHS EC 1907/2006 (REACH)	UL-Yellow Card
Applications	Automotive Applications Electrical/Electronic Applications	Connectors
Colors available	Natural	
Forms	Pellets	

Product identification

ISO 1043 abbreviation	PA66-GF30(R50) FR(40)
ISO 16396 designation	PA66,GF30FR(40)(R50),M1,S14-110

	Condition	Standard	Unit	Value
Density		ISO 1183	g/cm³	1.43
Water absorption	24 hr, 23°C	ISO 62	%	0.6 - 0.65
Water absorption, saturation			%	4
Molding shrinkage, parallel		ISO 294-4, 2577	%	0.2 - 0.3
Molding shrinkage, normal		ISO 294-4, 2577	%	0.75 - 0.85


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	Condition	Standard	Unit	Value
Mechanical properties				dam / cond.*
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	11000 / -
Stress at break	5 mm/min	ISO 527-1/-2	MPa	160 / -
Strain at break	5 mm/min	ISO 527-1/-2	%	2.6 / -
Charpy impact strength, +23°C	+23°C	ISO 179/1eU	kJ/m²	60 / -
Charpy impact strength, -30°C	-30°C	ISO 179/1eU	kJ/m²	55 / -
Charpy notched impact strength, +23°C	+23°C	ISO 179/1eA	kJ/m²	10.5 / -
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m²	10 / -

Thermal properties				
Melting temperature, 10°C/min		ISO 11357-1	°C	262
Temp. of deflection under load, 1.80 MPa	1.80 MPa	ISO 75	°C	248

Electrical properties				
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	36

Burning behaviour				
UL Yellow Card availability 	Click here to have access to the UL Yellow Card → QMFZ2.E44716			
Flammability, 0.75 mm	0.75 mm	UL 94		V0
Flammability, 1.5 mm	1.5 mm	UL 94		V0, 5VA
Flammability, 3.0 mm	3.0 mm	UL 94		V0, 5VA
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	750
Glow-wire ignition temperature, GWIT, 1.5 mm	1.5 mm	IEC 60695-2-13	°C	775
Glow-wire ignition temperature, GWIT, 3.0 mm	3.0 mm	IEC 60695-2-13	°C	800
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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	Condition	Standard	Unit	Value
Processing conditions				
Drying temperature/time	75-85°C / 2-4h (with dew point of dried air < -30 °C)			
Suggested max moisture	0.2 %			
Rear temperature	265 - 275 °C			
Middle temperature	265 - 275 °C			
Front temperature	270 - 280 °C			
Recommended melt temperature	265 - 280 °C			
Recommended mould temperature	60 - 90 °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.

Disclaimer

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