

EXPERIMENTAL DATASHEET

TECHNYL 4EARTH A1E 60G1 V30 GY R7035
(Previously XA4E 1780 R7035)

TECHNYL 4Earth A1E 60G1 V30 GY R7035 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 halogen free flame retardant	Glow wire resistant
Polymer type	PA66 (Polyamide 66)	
Processing technology	Injection molding	
Certification	UL-Yellow Card European Railways Certifications EN 45545-2	EC 1907/2006 (REACH)
Applications	Electrical/Electronic Applications	
Colors available	Grey	
Forms	Pellets	

Product identification

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

Physical properties

	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	%	0.9 - 0.95

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	Condition	Standard	Unit	Value
Mechanical properties				dam / cond.*
Tensile modulus	1 mm/min	ISO 527-1/-2	MPa	10900 / -
Stress at break		ISO 527-1/-2	MPa	149 / -
Strain at break		ISO 527-1/-2	%	2.3 / -
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	9 / -
Charpy notched impact strength, -30°C	-30°C	ISO 179/1eA	kJ/m²	9 / -

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	31

Burning behaviour

UL Yellow Card availability 	Click here to have access to the UL Yellow Card → YC TECHNYL 4EARTH A1E 60G1 V30 GY R7035			
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, 0.75 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	775
Oxygen index			%	33
Burning rate, FMVSS, Thickness 1 mm		FMVSS 302		<100

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Condition	Standard	Unit	Value
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*: conditioned according to ISO 1110

Processing conditions

Drying temperature/time	80 °C
Suggested max moisture	0.2 %
Rear temperature	265 - 275 °C
Middle temperature	265 - 275 °C
Front temperature	270 - 280 °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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