Preliminary Datasheet

Ultramid® Advanced

N3U42G6

09/2024

PA9T-GF30 FR(40)

Product description

Polyphthalamide, light colorable, with a high melting point, halogen-free flame-retardant, very low water absorption, good mechanical and dielectrical properties at elevated temperatures as well as excellent chemical resistance, soldering bath resistant.

Markets & applications
Automotive: Automotive electrics & electronics (E&E), sensors, fuel cell, e-mobility
E&E: Connectors, SMT (surface mount technology) applications, energy distribution
Consumer goods: Home appliances, consumer electronics, cell phone parts

Physical form and storage

The product is supplied in the form of granules with a bulk density of approx. 0.7 g/cm³. Standard packs are bag and bulk container (octagonal IBC=intermediate bulk container made from corrugated board with a liner bag). Other packaging materials and shipping in road or rail silo wagons are possible by agreement. The containers should only be opened immediately before processing or drying. To ensure that the delivered product absorbs as little moisture as possible, the containers should be stored in dry rooms and always carefully closed again after partial quantities have been withdrawn. In principle, the product can be stored for a long period of time. Containers stored in cold rooms should be equalized to ambient temperature before opening in order to avoid condensation on the granules. Regardless of the storage conditions, the product should be pre-dried according to our recommendations and the machine should preferably be loaded using a closed conveyor system.

Product safety

In case processing is done under conditions as recommended (cf. processing data sheet) melts are thermally stable and do not generate hazards by molecular degradation or the evolution of gases and vapors. Like all thermoplastic polymers the product decomposes on exposure to excessive thermal load, e.g. when it is overheated or as a result of cleaning by burning off. Further information is available from the safety data sheet.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
In order to check the availability of products please contact us or our sales agency.

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67056 Ludwigshafen, Germany

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Preliminary Datasheet [3)]

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Typical values for uncoloured product at 23 °C[1)]	Test method	Unit	Values[2)]
Properties			
Polymer abbreviation	-	-	**PA9T-GF30 FR(40)**
Density	ISO 1183	kg/m³	**1440**
Viscosity number (0.5% in 96% H_2SO_4)	ISO 307, 1157, 1628	cm³/g	**100**
Processing			
Melting temperature, DSC	ISO 11357-1/-3	°C	**300**
Melt temperature, injection moulding/extrusion	-	°C	**310 - 340**
Mould temperature, injection moulding	-	°C	**100 - 160**
Molding shrinkage (parallel)	ISO 294-4	%	**0.30**
Molding shrinkage (normal)	ISO 294-4	%	**1.00**
MVR 325 °C/5 kg	ISO 1133	cm³/10min	**30**
Test specimen production, injection moulding, melt temp.	ISO 294	°C	**330**
Test specimen production, injection moulding, mould temp.	ISO 294	°C	**140**
Flammability			
UL 94 rating at 0.4 mm thickness	IEC 60695-11-10	class	**V-0**
UL 94 rating at 0.4 mm thickness	UL-94, IEC 60695	class	**V-0**
Glow Wire Flammability Index, GWFI	IEC 60695-2-12	°C	**960**
Thickness GWFI	IEC 60695-2-12	mm	**0.8**
Glow Wire Ignition Temperature, GWIT	IEC 60695-2-13	°C	**775**
Thickness GWIT	IEC 60695-2-13	mm	**0.8**
Mechanical properties			**dry / cond.**
Tensile modulus (23°C)	ISO 527-1/-2	MPa	**10500 / 10500**
Stress at break (23°C)	ISO 527-1/-2	MPa	**140 / 130**
Strain at break (23°C)	ISO 527-1/-2	%	**2.2 / 2.2**
Flexural modulus (23°C)	ISO 178	MPa	**10500 / 10500**
Flexural strength	ISO 178	MPa	**220 / 210**
Charpy unnotched impact strength (-30°C)	ISO 179/1eU	kJ/m²	**60 / -**
Charpy unnotched impact strength (23°C)	ISO 179/1eU	kJ/m²	**60 / 50**
Charpy notched impact strength (23°C)	ISO 179/1eA	kJ/m²	**7 / 7**
Thermal properties			
Deflection temp. under load 1.8 MPa (HDT A)	ISO 75-1/-2	°C	**265**
Electrical properties			**dry / cond.**
Electric strength K20/K20, (60*60*1 mm³)	IEC 60243-1	kV/mm	**45 / -**
Comparative tracking index, CTI, test liquid A	IEC 60112	-	**- / 600**

Footnotes
1) If product name or properties don't state otherwise.
2) The asterisk symbol '*' signifies inapplicable properties.
3) The typical values of preliminary datasheets are not statistically firm.

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Ultramid® Advanced N3U42G6

UL - Yellow Card

Component - Plastics E41871

BASF SE

Performance Materials Europe, PMD/EX - H201, Ludwigshafen 67056 DE

Advanced N3U42G6 (t)

Polyamide 9T (PA9T), flame retardant "Ultramid", furnished as pellets

Color	Min. Thk (mm)	Flame Class	HWI	HAI	RTI Elec (°C)	RTI Imp (°C)	RTI Str (°C)
ALL	0.25	V-0	2	1	85	85	85
	0.40	V-0	1	0	85	85	85
	0.75	V-0	0	0	85	85	85
	1.5	V-0, 5VA	0	0	85	85	85
	3.0	V-0, 5VA	0	0	85	85	85

Comparative Tracking Index (CTI):	0	Inclined Plane Tracking (IPT) kV:	1.5
Dielectric Strength (kV/mm):	35	Volume Resistivity (10^xohm-cm):	-
High-Voltage Arc Tracking Rate (HVTR):	-	Surface Resistivity (10^xohms/square):	-
Dimensional Change (%):	-	High Volt, Low Current Arc Resis (D495):	-

(t) - May be followed by the letters LS and a color code indicating laser sensitive coloring.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2022-01-11

Last Revised: 2022-04-28

IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10, IEC 60695-11-20	Class (color)	0.25	V-0 (ALL)
			0.40	V-0 (ALL)
			0.75	V-0 (ALL)
			1.5	V-0, 5VA (ALL)
			3.0	V-0, 5VA (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	°C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	°C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC AC Dielectric Strength (AC DS)	IEC 60243-1	kV/mm	-	-
IEC DC Dielectric Strength (DC DS)	IEC 60243-2	kV/mm	-	-
IEC Volume Resistivity (VR)	IEC 62631-3-1	10x ohm-m	-	-
IEC Surface Resistivity (SR)	IEC 62631-3-2	10x ohms	-	-
IEC Inclined Plane Tracking (IPT)	IEC 60587	kV	-	-

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IEC Ball Pressure	IEC 60695-10-2	°C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	°C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m2	-	-
ISO Izod Impact	ISO 180	kJ/m2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m2	-	-

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