

Product Information Ultramid®

T KR 4355 G10 bk 23215

11/2014

PA6T/6-GF50

**Product description**

Glass fibre reinforced partially aromatic polyamide for injection moulding. High toughness, stiffness and strength, low water absorption, high melting point (285 °C).

Physical form and storage

The product is supplied extensively dry in moisture-proof packaging in the form of cylindrical or flat pellets. Its bulk density is about 0,7g/cm³. Standard packs are the special 25kg bag and the 1000kg bulk container (octagonal IBC= intermediate bulk container made from corrugated board with a liner bag). Subject to agreement other forms of packaging and shipment in tankers by road or rail are also possible. All containers are tightly sealed and should be opened only immediately prior to processing. To ensure that the material delivered cannot absorb moisture from the air the containers must be stored in dry rooms and always carefully sealed again after portions of material have been withdrawn. The product can be kept indefinitely in the undamaged bags. Experience has shown that product supplied in IBCs can be stored for about 3 months without any adverse effects on processing properties due to moisture absorption. Containers stored in cold rooms should be allowed to equilibrate to normal temperature so that no condensation forms on the pellets.

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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Product Information

Typical values for uncoloured product at 23 °C ¹⁾	Test method	Unit	Values ²⁾
Properties			
Polymer abbreviation	-	-	PA6T/6-GF50
Density	ISO 1183	kg/m ³	1620
Viscosity number (0.5% in 96 % H ₂ SO ₄)	ISO 307, 1157, 1628	cm ³ /g	135
Water absorption, saturation in water at 23°C	similar to ISO 62	%	3.5 - 4.5
Moisture absorption, equilibrium 23°C/50% r.h.	similar to ISO 62	%	0.40 - 0.80
Colour: black (bk), uncoloured (un), coloured (co), transparent (tr)	-		bk
Processing			
Melting temperature, DSC	ISO 11357-1/-3	°C	285
Melt temperature, injection moulding/extrusion	-	°C	310 - 330
Mould temperature, injection moulding	-	°C	80 - 120
Moulding shrinkage, constrained ³⁾	-	%	0.29
Molding shrinkage (parallel)	ISO 2577, 294-4	%	0.20
Molding shrinkage (normal)	ISO 2577, 294-4	%	0.66
Flammability			
UL 94 rating at 1,6 mm thickness	IEC 60695-11-10	class	HB
Automotive materials (Thickness >= 1mm) ⁴⁾	FMVSS 302	-	+
Mechanical properties			
			dry / cond.
Tensile modulus	ISO 527-1/-2	MPa	17000 / 16000
Stress at break	ISO 527-1/-2	MPa	240 / 190
Strain at break	ISO 527-1/-2	%	2.4 / 2.5
Tensile creep modulus, 1000 h, strain <= 0.5%, 23°C	ISO 899-1	MPa	* / 10500
Charpy unnotched impact strength (23°C)	ISO 179/1eU	kJ/m ²	90 / 80
Charpy unnotched impact strength (-30°C)	ISO 179/1eU	kJ/m ²	85 / 75
Charpy notched impact strength (23°C)	ISO 179/1eA	kJ/m ²	13 / -
Thermal properties			
HDT A (1.80 MPa)	ISO 75-1/-2	°C	245
Max. service temperature (short cycle operation)	-	°C	260
Temperature index at 50% loss of tensile strength after 5000 h	IEC 60216	°C	170
Temperature index at 50% loss of tensile strength after 20000 h	IEC 60216	°C	145
Coefficient of linear thermal expansion, longitudinal (23-55)°C	ISO 11359-1/-2	E-6/K	18
Coefficient of linear thermal expansion, transverse (23-55)°C	ISO 11359-1/-2	E-6/K	50 - 60
Thermal conductivity	DIN 52612-1	W/(m K)	0.32
Specific heat capacity	-	J/(kg*K)	1000
Electrical properties			
			dry / cond.
Relative permittivity (1 MHz)	IEC 60250	-	4.7 / 4.8
Dissipation factor (1 MHz)	IEC 60250	E-4	200 / 300
Volume resistivity	IEC 60093	Ohm*m	1E15 / 1E14
Surface resistivity	IEC 60093	Ohm	* / >1E15
Comparative tracking index, CTI, test liquid A	IEC 60112	-	600
Electric strength K20/K20, (60*60*1 mm ³)	IEC 60243-1	kV/mm	33 / 31

Footnotes

1) If product name or properties don't state otherwise.

2) The asterisk symbol "*" signifies inapplicable properties.

3) Test box with central gating, dimensions of base (107*47*1,5) mm, processing condition: TM = 320°C (unreinforced) or 330°C (reinforced), TW = 80°C

4) + = passed

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