

Product description

Glass fibre reinforced injection moulding grade with optimised heat ageing performance for industrial articles having very high rigidity.

Physical form and storage

Ultramid® is supplied dry and ready to use 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 perfectly dry 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air the containers must be stored in dry rooms and always carefully sealed again after portions of material have been withdrawn. Ultramid® 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

Ultramid® melts are thermally stable at the usual temperature for PA66, PA6 and PA66/6 up to 310°C and 330°C for PA6/6T and do not give rise to hazards due to molecular degradation or the evolution of gases and vapors. Like all thermoplastic polymers Ultramid® decomposes on exposure to excessive thermal load, e.g. when it is overheated or as a result of cleaning by burning off. In such cases gaseous decomposition products are formed. Decomposition accelerates above 310°C (PA6/6T >350°C) approximately, the initial products formed being mainly carbon monoxide and ammonia, and caprolactam too in the case of Ultramid® PA6. At temperatures above about 350°C (PA6/6T >400°C) small quantities of pungent smelling vapors of aldehydes, amines and other nitrogenous decomposition products are also formed. Further safety information see safety data sheet of the individual product.

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.

Product Information ⁴⁾

Typical values for uncoloured product at 23 °C ¹⁾	Test method ²⁾	Unit	Values ³⁾
Properties			
Polymer abbreviation	-	-	PA66-GF50
Density	ISO 1183	kg/m ³	1550
Viscosity number (0.5% in 96 % H ₂ SO ₄)	ISO 307, 1157, 1628	cm ³ /g	140
Moisture absorption, equilibrium 23°C/50% r.h.	similar to ISO 62	%	1 - 1.4
Water absorption, saturation in water at 23°C	similar to ISO 62	%	3.7 - 4.3
Processing			
Melting temperature, DSC	ISO 11357-1/-3	°C	260
MVR 275 °C/5 kg	ISO 1133	cm ³ /10min	10
Melt temperature, injection moulding/extrusion	-	°C	280 - 310
Mould temperature, injection moulding	-	°C	80 - 90
Moulding shrinkage, constrained ⁴⁾	-	%	0.35
Molding shrinkage (parallel)	ISO 2577, 294-4	%	0.30
Molding shrinkage (normal)	ISO 2577, 294-4	%	0.85
Flammability			
UL 94 rating at 1,6 mm thickness	IEC 60695-11-10	class	HB
Automotive materials (Thickness >= 1mm)	FMVSS 302	-	+
Mechanical properties			
Tensile modulus	ISO 527-1/-2	MPa	16000 / -
Stress at break	ISO 527-1/-2	MPa	255 / -
Strain at break	ISO 527-1/-2	%	2.8 / -
Charpy unnotched impact strength (23°C)	ISO 179/1eU	kJ/m ²	110 / -
Thermal properties			
HDT A (1.80 MPa)	ISO 75-1/-2	°C	250
HDT B (0.45 MPa)	ISO 75-1/-2	°C	250
Max. service temperature (short cycle operation) ⁵⁾	-	°C	240

Footnotes

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

2) Specimens according to CAMPUS.

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

4) Test box with central gating, dimensions of base (107*47*1,5) mm, processing conditions: TM = 290°C, TW = 80°C

5) Empirical values determined on articles repeatedly subjected to the temperature concerned for several hours at a time over a period of several years. Provisio Proper design and processing according to our recommendations.

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