

Product description

Halogen- and phosphorus-free injection molding grade with very high rigidity, low smoke density and outstanding electrical properties.

Physical form and storage

Ultramid® B grades are supplied pre-dried and ready for processing as a cylindrical or spherical pellet in moisture-proof packaging. The bulk density is approximately 0,75g/cm³. Standard packaging 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 types and road or rail bulk shipment are also available. All containers are tightly sealed and should be opened only immediately prior to processing. To avoid moisture absorption from the air, the containers must be stored in dry rooms and always carefully be sealed again once the container has been opened. Containers stored in cold rooms should be allowed to equilibrate to normal temperature before opening to avoid condensation. 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.

Product safety

Ultramid® B melts are thermally stable in the usual temperature range up to 310°C and do not cause hazards due to molecular degradation or the evolution of gases and vapors. Like all thermoplastic polymers Ultramid® decomposes if exposed to excessive heat, 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 approximately 310°C, the products formed being mainly carbon monoxide and ammonia and caprolactam. At temperatures above about 350°C small quantities of pungent smelling vapors of aldehydes, amines and other nitrous decomposition products are 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.

Typical values at 23°C 1)	Test method	Unit	Values
Properties			
Symbol	ISO 1043	-	PA6-GF10 M50 Fr
Melting temperature, DSC	ISO 3146	°C	220
Density	ISO 1183	g/cm ³	1.67
Melt volume rate MVR 275/5	ISO 1133	cm ³ /10 min	25
Moulding shrinkage, Test box 1.5mm	-		0.5
Moisture absorption, equilibrium 23°C/50% r.h.	ISO 62	%	1-1,4
Thermal properties			
Deflection temperature 1.8 MPa (HDT A)	ISO 75-2	°C	195
Deflection temperature 0.45 MPa (HDT B)	ISO 75-2	°C	215
RTI electrical (thickness 1,5 mm)	UL 746 B	°C	130
Flammability			
UL94 rating (thickness)	UL 94	class (mm)	V-2 (0,75) V-0 (≥1,5)
Hot wire ignition (HWI)	ASTM D 3874-88	class (mm)	2 (≥0,75)
High-current arc ignition (HAI)	UL746A	class (mm)	0 (≥0,75)
Fire/ignition performance (UL94+HAI+HWI), min. thickness ²⁾	UL746C	mm	0.75
GWFI (thickness)	IEC 60695-2-12	°C (mm)	960 (1)
GWIT (thickness)	IEC 60695-2-13	°C (mm)	-
French railway standard, fire and smoke classification ³⁾	NF F 16-101	-	I3 / F2
Limiting Oxygen Index (LOI)	ISO 4589-2	%	> 45
Spec. optical density of smoke D _S (max, 20 min), 25 kW/m ²	EN ISO 5659-2	-	10
Conventional index of toxicity CIT (8 min), 25 kW/m ²	EN ISO 5659-2	-	0.4
Electrical properties			
dry/cond.			
Dielectric constant at 1 MHz	IEC 60250	-	4,5 / 5
Dissipation factor at 1 MHz	IEC 60250	E-4	150 / 500
Volume resistivity	IEC 60093	Ω * m	1E13/1E10
Surface resistivity	IEC 60093	Ω	*/1E13
CTI, solution A	IEC 60112	-	600
Mechanical properties			
dry/cond.			
Tensile modulus	ISO 527-2	MPa	11000 / 6500
Yield stress *, Stress at break	ISO 527-2	MPa	110 / 80
Yield strain	ISO 527-2	%	
Strain at break	ISO 527-2	%	1,8 / 2,5
Charpy unnotched impact strength	ISO 179/1eU	kJ/m ²	30 / 30

¹⁾ The data are based on uncolored grades or selected colors

²⁾ For Electrical Insulation/Barrier with close proximity (< 0,8 mm) to uninsulated live parts according to UL 746C

³⁾ Limited validity period