Product Information **Ultramid®**

A3X2G5

03/2007 **PA66-GF25 FR (52)**

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Product description

Glass fibre reinforced injection moulding grade with improved flame retardance and enhanced long-term stability. Flame retardant based on red phosphorus; outstanding mechanical and electrical properties.

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air the containers must be stored in dry rooms and always carefully sealed again after portions of material have been withdrawn.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 A, B and C up to 310°C and 350°C for T and do not give rise to hazards due to molecular degradation or the evolutionon 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 (T >350°C) approximately, the initial products formed being mainly carbon monoxide and ammonia, and caprolactam too in the case of Ultramid® B. At temperatures above about 350°C (T>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.

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Typical values at 23°C 1)	Test method	Unit	Values
Properties			
Symbol	ISO 1043	-	**PA66-GF25 FR**
Melting temperature, DSC	ISO 3146	°C	**260**
Density	ISO 1183	g/cm3	**1.34**
Melt volume rate MVR 275/5	ISO 1133	cm3/10 min	**40**
Moulding shrinkage,Test box 1.5mm	-		**0.5**
Moisture absorption, equilibrium 23°C/50% r.h.	ISO 62	%	**1,2-1,6**
Thermal properties			
Deflection temperature 1.8 MPa (HDT A)	ISO 75-2	°C	**250**
Deflection temperature 0.45 MPa (HDT B)	ISO 75-2	°C	**250**
RTI electrical (thickness 1,5 mm)	UL 746 B	°C	**120**
Flammability			
UL94 rating (thickness)	UL 94	class (mm)	**HB (≥0,45)** **V-0 (≥0,8)**
Hot wire ignition (HWI)	ASTM D 3874-88	class (mm)	**2 (≥0,6)**
High-current arc ignition (HAI)	UL746A	class (mm)	**0 (≥0,4)**
Fire/ignition performance (UL94+HAI+HWI), min. thickness [2)]	UL746C	mm	**0.6**
GWFI (thickness)	IEC 60695-2-12	°C (mm)	**960 (0,8)**
GWIT (thickness)	IEC 60695-2-13	°C (mm)	**-**
French railway standard, fire and smoke classification [3)]	NF F 16-101	-	**I4 / F2**
Limiting Oxygen Index (LOI)	ISO 4589-2	%	**27**
Spec. optical density of smoke D_S (max, 20 min), 25 kW/m²	EN ISO 5659-2	-	**-**
Conventional index of toxicity CIT $_{(8\ min)}$, 25 kW/m²	EN ISO 5659-2	-	**-**
Electrical properties			**dry/cond.**
Dielectric constant at 1 MHz	IEC 60250	-	**3,7 / 5**
Dissipation factor at 1 MHz	IEC 60250	E-4	**200 / 1000**
Volume resistivity	IEC 60093	Ω ∗ m	**1E13/1E10**
Surface resistivity	IEC 60093	Ω	***/1E10**
CTI, solution A	IEC 60112	-	**550**
Mechanical properties			**dry/cond.**
Tensile modulus	ISO 527-2	MPa	**8000 / 6000**
Yield stress *, Stress at break	ISO 527-2	MPa	**140 / 100**
Yield strain	ISO 527-2	%	
Strain at break	ISO 527-2	%	**3 / 4,5**
Charpy unnotched impact strength	ISO 179/1eU	kJ/m2	**65 / 70**

[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

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