Product Information **Ultramid®**

B3S

06/2008 **PA6**

Product description

Easy flowing, finely crystalline injection moulding grade for very fastprocessing. Uses include thin-walled technical parts (eg housing, fittings, grips, small parts and fixing clamps).

Physical form and storage

Ultramid® PA6 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 absoprtion 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® PA6 melts are thermally stable in the usual temperature range up to 310°C and do not cause hazards due to molecular degradation or the evolutionon 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.

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BASF
The Chemical Company

Typical values for uncoloured product at 23 °C[1)]	Test method [2)]	Unit	Values[3)]
Properties			
Polymer abbreviation	-	-	**PA6**
Density	ISO 1183	kg/m³	**1130**
Viscosity number (0.5% in 96 % H2SO4)	ISO 307, 1157, 1628	cm³/g	**145**
Water absorption, saturation in water at 23°C	similar to ISO 62	%	**9 - 10**
Moisture absorption, equilibrium 23°C/50% r.h.	similar to ISO 62	%	**2.6 - 3.4**
Processing			
Melting temperature, DSC	ISO 11357-1/-3	°C	**220**
MVR 275 °C/5 kg	ISO 1133	cm³/10min	**175**
Melt temperature, injection moulding/extrusion	-	°C	**250 - 270**
Mould temperature, injection moulding	-	°C	**40 - 80**
Moulding shrinkage, constrained [4)]	-	%	**0.55**
Flammability			
UL 94 rating at 1,6 mm thickness	UL-94	class	**V-2**
Automotive materials (Thickness >= 1mm)	-	-	**+**
Mechanical properties			**dry / cond.**
Tensile modulus	ISO 527-1/-2	MPa	**3400 / 1200**
Yield stress, 50 mm/min	ISO 527-1/-2	MPa	**90 / 45**
Yield strain, 50 mm/min	ISO 527-1/-2	%	**4 / 20**
Nominal strain at break, 50 mm/min	ISO 527-1/-2	%	**10 / >50**
Tensile creep modulus, 1000 h, strain <= 0.5%, 23°C	ISO 899-1	MPa	*** / 1100**
Flexural modulus	ISO 178	MPa	**3000 / -**
Charpy unnotched impact strength (23°C)	ISO 179/1eU	kJ/m²	**250 / N**
Charpy unnotched impact strength (-30°C)	ISO 179/1eU	kJ/m²	**200 / -**
Charpy notched impact strength (23°C)	ISO 179/1eA	kJ/m²	**4 / 50**
Charpy notched impact strength (-30°C)	ISO 179/1eA	kJ/m²	**3 / -**
Izod notched impact strength (23°C)	ISO 180/A	kJ/m²	**5 / N**
Izod notched impact strength (-30°C)	ISO 180/A	kJ/m²	**5 / -**
Thermal properties			
HDT A (1.80 MPa)	ISO 75-1/-2	°C	**65**
HDT B (0.45 MPa)	ISO 75-1/-2	°C	**180**
Max. service temperature (short cycle operation)	-	°C	**180**
Temperature index at 50% loss of tensile strength after 5000 h	IEC 216	°C	**97**
Temperature index at 50% loss of tensile strength after 20000 h	IEC 216	°C	**87**
Coefficient of linear thermal expansion, longitudinal (23-80)°C	ISO 11359-1/-2	E-4/°C	**0.7 - 1**
Thermal conductivity	DIN 52612-1	W/(m K)	**0.33**
Specific heat capacity	-	J/(kg*K)	**1700**
Electrical properties			**dry / cond.**
Relative permittivity (1 MHz)	IEC 60250	-	**3.3 / 7**
Dissipation factor (1 MHz)	IEC 60250	E-4	**300 / 3000**
Volume resistivity	IEC 60093	Ohm*m	**1E13 / 1E10**
Surface resistivity	IEC 60093	Ohm	*** / 1E10**
Comparative tracking index, CTI, test liquid A	IEC 60112	-	**600**

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 condition: TM = 260°C, TW = 60°C

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