

# Technical Data Sheet

## Ultrasint PA6 X028

### Components

BASF Polyamide 6-based powder for Laser Sintering

### Product Description

High modulus, high strength and excellent thermal distortion stability are the key features of Ultrasint PA6 X028. These properties ensure precise feature control, very good mechanical properties and simple surface reprocessing of 3D printed parts, in particular for complex shapes or structures. Parts built of this material have similar properties to those of injection molded PA6.

Ultrasint PA6 X028 can fulfill the requirements of functional applications regarding high accuracy and mechanical strength as well as a high heat distortion temperature – properties, where existing 3D printing materials often show limitations.

### Delivery form and warehousing

Ultrasint PA6 X028 powder should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

### Product safety

Mandatory and recommended industrial hygiene procedures and the relevant industrial safety precautions must be followed whenever this product is being handled and processed. Product is sensitive to humid environment conditions. For additional information please consult the corresponding material safety data sheets.

### For your information

Ultrasint PA6 X028 comes in its natural white/ivory color. Chemical properties (e.g. resistance against particular substances) and tolerance for solvents can be made available if these factors are relevant for a specific application. Generally, these properties correspond to publicly available data on polyamides.

### Notice

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.

The safety data given in this publication is for information purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). The relevant MSDS can be obtained upon request from your supplier or you may contact BASF directly at [3d-printing@basf.com](mailto:3d-printing@basf.com).

# Technical Data Sheet

## Ultrasint PA6 X028



We create chemistry

General Properties	Test method	Typical values	
Bulk Density	ISO 696	520 kg/m <sup>3</sup> / 32.5 lb/ft <sup>3</sup>	
Printed Part Density	ISO 1183-1	1150 kg/m <sup>3</sup> / 72 lb/ft <sup>3</sup>	
Particle Size Distribution			
D10	Laser Diffraction	45 µm	
D50		75 µm	
D90		120 µm	

  

Mechanical Properties <sup>1)</sup>	Test method	Typical values x-direction	Typical values z-direction
Tensile Strength	ISO 527-2	78 MPa / 11.3 ksi	70 MPa / 10.2 ksi
Tensile Modulus	ISO 527-2	3550 MPa / 515 ksi	3550 MPa / 515 ksi
Tensile Elongation @ break	ISO 527-2	13.0%	3.2%
Flexural Strength	ISO 178	121 MPa / 17.5 ksi	111 MPa / 16.1 ksi
Flexural Modulus	ISO 178	3300 MPa / 480 ksi	3300 MPa / 480 ksi
Flexural Elongation @ break	ISO 178	6.1 %	4.1 %
Impact Strength Charpy (notched)	ISO 179-2	3.0 kJ/m <sup>2</sup>	2.3 kJ/m <sup>2</sup>
Impact Strength Charpy (unnotched)	ISO 179-2	12.6 kJ/m <sup>2</sup>	7.4 kJ/m <sup>2</sup>
Impact Strength Izod (notched)	ISO 180	3.1 kJ/m <sup>2</sup>	3.0 kJ/m <sup>2</sup>
Impact Strength Izod (unnotched)	ISO 180	9.7 kJ/m <sup>2</sup>	6.9 kJ/m <sup>2</sup>

  

Thermal Properties	Test method	Typical values x-direction	Typical values z-direction
HDT A (1.8 MPa) <sup>2)</sup>	ISO 75-2	100 °C / 212 °F	
HDT B (0.45 MPa) <sup>2)</sup>	ISO 75-2	190 °C / 374 °F	
Vicat Softening Temperature A (10 N) <sup>2)</sup>	ISO 306	199 °C / 390 °F	
Vicat Softening Temperature B (50 N) <sup>2)</sup>	ISO 306	201 °C / 393 °F	
Melting Temperature (20 K/min)	ISO 11357	220 °C / 428 °F	
Crystallization Temperature (20 K/min)	ISO 11357	172 °C / 342 °F	
Melt Volume Flow Rate (240°C; 2.16kg)	ISO 1133	25 cm <sup>3</sup> /10 min / 1.5 in <sup>3</sup> /10 min	
Coefficient of thermal expansion	ISO 11359-2	135 µm/m °C (@ 90°C)	
Flammability	UL 94	HB	
	FMVSS No 302	Certified	

  

Electrical Properties <sup>1)</sup>	Test method	Typical values	
Comparative Tracking Index	IEC 60112	575 – 1,2	
Dielectric strength	IEC 60243-1	27 kV/mm	
Volume Resistivity	ISO 3915	1.5E+14 Ωcm	
Volume Resistivity	IEC 60093	3.1E+13 Ωcm	
Surface Resistivity	IEC 60093	1.7E+16 Ωcm	

Contact: [3d-printing@basf.com](mailto:3d-printing@basf.com)

<sup>1)</sup> measured after drying 2 days at 105°C / vacuum and conditioned at 23°C / 50 % r.H. for 7 days

<sup>2)</sup> measured after drying 14 days at 80°C / vacuum

All values measured with virgin material.