Technical Data Sheet

Ultrasint® TPU01
for HP Jet Fusion Printers

Technical Data Sheet for Ultrasint® TPU01 | Version No.: 3.2, revised 08/2021

General information

Components

Thermoplastic polyurethane powder for HP Jet Fusion Printers

Product Description

Ultrasint® TPU01 is a multi-purpose material for application in Multi Jet Fusion. Parts produced with this material offer a balanced property profile with good flexibility, shock absorption and the possibility to print very fine structures with a high level of detail. In addition, the material is easy to print, and has good UV and hydrolysis resistance. Ultrasint® TPU01 is only processable in HP Multi Jet Fusion printers.

Typical applications are:

- Sports & Leisure
- Footwear
- Transportation Industry
- Jigs & Fixtures

Delivery Form & Warehousing

Ultrasint® TPU01 should be stored at 15 – 35°C in its originally sealed package in a clean and dry environment.

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® TPU01 comes in white color. Chemical properties (e.g. resistance against particular substances) and tolerance for solvents are available upon request. Generally, these properties correspond to publicly available data on polyurethanes.

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 Forward AM directly at sales@basf-3dps.com.

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General Properties	Test Method	Typical Values
Bulk Density / g/cm³	DIN EN ISO 60	0.5
Printed Part Density / g/cm³	DIN EN ISO 1183-1	1.1
Mean Particle Size d50 / µm	ISO 13320	70-90
Glass Transition Temperature / °C	ISO 11357 (20 K/min)	- 48
Melting Temperature / °C	ISO 11357 (20 K/min)	120-150

Thermal Properties	Test Method	Typical Values[1] X-Direction	Typical Values[1] Z-Direction
UL Flammability	UL 94	HB (1.6-4.2 mm)	HB (1.6-4.2 mm)
Vicat/A (10 N) / °C	DIN EN ISO 306	97	98

Skin Contact	Test Method	Typical Value
Cytotoxicity	ISO 10993-5 (2009)	Pass
In vitro Skin Irritation Testing	OECD Guideline No. 439	Pass
In vivo Sensitization Testing	ISO 10993-10 (2013), OECD Guideline No. 429	Pass

Mechanical Properties	Test Method	Typical Values[1] X-Direction	Typical Values[1] Z-Direction
Hardness Shore A	DIN ISO 7619-1	88-90	88-90
Tensile Strength / MPa	DIN 53504, S2	9	7
Tensile Elongation at Break / %	DIN 53504, S2	280	150
Tensile Modulus / MPa	ISO 527-2, 1A	85	85
Flexural Modulus / MPa	DIN EN ISO 178	75	75
Tear Resistance (propagation, Trouser) / kN/m	DIN ISO 34-1, A	21	18
Tear Resistance (initiation, Graves) / kN/m	DIN ISO 34-1, B	38	32
Compression Set B (23°C, 72h) / %	DIN ISO 815-1	23	24
Rebound Resilience / %	DIN 53512	63	63
Abrasion Resistance / mm³	DIN ISO 4649	96	100
Charpy Impact Strength (notched, 23°C) / kJ/m²	DIN EN ISO 179-1	No break	No break
Charpy Impact Strength (notched, -10°C) / kJ/m²	DIN EN ISO 179-1	46	44
Fatigue Behavior (Rossflex, 100k cycles, 23°C)	ASTM D1052	No cut growth	
Fatigue Behavior (Rossflex, 100k cycles, -10°C)	ASTM D1052	No cut growth	

Detailed material data and support for FEA simulations available on request (sales@basf-3dps.com).

1) Measured after conditioning 3 days at 23°C and 50% r.h.

All values represent the stable part performance obtained when using the recommended refresh rate of 20% fresh + 80% recycled powder.