

Ultrasint® TPU 88A Black

**Rubber like | Strong and flexible |
Easy to use**

Extended TDS

**Complete Technical Documentation
and Testing Summary**

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Are you looking for an updated TDS version? [Check out the latest online version here.](#)

Technical Data Sheet

Rubber like material for all Desktop and large format SLS machines to print parts that require shock-absorption, high flexibility and resistance to fatigue.

The data contained in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, this data does not relieve processors from carrying out their own investigations and tests; neither does this 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 informational purposes only and does not constitute a legally binding MSDS. The relevant MSDS can be obtained upon request from your supplier or you may contact Mass Additive Manufacturing GmbH directly at sales@forward-am.com.

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

Tensile Properties ¹⁾	Method	Typical Values	
		X-Direction	Z-Direction
Tensile Modulus	ISO 527-2, 1A	85 MPa	85 MPa
Ultimate Tensile Strength	DIN 53504, S2	8 MPa	5 MPa
Elongation at Break	DIN 53504, S2	280%	130%

Flexural Properties ¹⁾	Method	Typical Values	
		X-Direction	Z-Direction
Compression Set B (23°C, 72h)	DIN ISO 815-1	24%	28%
Rebound Resilience	DIN 53512	63%	64%
Fatigue Behavior (Rossflex, 100 cycles, 23°C)	ASTM D1052	No cut growth	Not tested

Impact Properties ¹⁾	Method	Typical Values	
		X-Direction	Z-Direction
Charpy Notched, -30°C	DIN EN ISO 179-1	No break	No break
Thermal Properties ¹⁾	Method	Typical Values	
Vicat/A (10 N)	DIN EN ISO 306	101°C	
Hardness and Abrasion ¹⁾	Method	Typical Values	
		X-Direction	Z-Direction
Shore Hardness A	DIN ISO 7619-1	86-88	86-88
Abrasion Resistance	DIN ISO 4649	121 mm ³	123 mm ³
Biocompatibility	Method	Typical Values	
Cytotoxicity - Neutral Red	EN ISO 10993-5 (2009)	PASS ²⁾	

Mechanical properties overview

- 1) Measured after conditioning 3 days at 23°C and 50% r.h.
- 2) For the statement on Biocompatibility data see Chapter: [Biocompatibility](#).
- 3) If not noted otherwise, all specimens are 3D printed. Samples were tested at room temperature, 23°C. All values represent the stable part performance obtained when using the recommended refresh rate of 20% fresh + 80% recycled powder.

Printing Performance

The combination of 3D printer and material has a huge impact on the quality of the parts produced.

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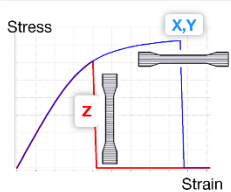
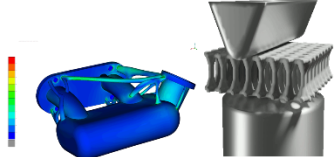
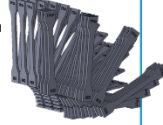
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Material Model & FEA Simulation

FEA simulation can be used to predict how different parameters such as temperature and mechanical stress affect the final printed parts. This information can be used to significantly expedite application development, and to optimize the part design to ensure all performance requirements for the application are met. In order to run simulations with a specific material, a material model is required. This model is generated based on a wide range of testing data under different loads and at different temperatures and other relevant conditions.

We can support you with 3D simulation in different ways, ranging from simply supplying you with raw test data, to doing the full simulation for you. These are the 3 options we offer:

Raw Material Data	3D Simulation	Material Model as a Service
Starter: Get the curves behind our TDS data to start basic simulation work. 	Premium: We run the simulation for you. We help you to speed up your engineering process and increases confidence in part performance using a digital twin of your part. 	Enterprise: Use our in-house developed material models for 3D-Printing incl. anisotropy of the process and FEA support of our experienced virtual engineers. ■ Anisotropic ■ Nonlinear ■ Strain-rate sensitive ■ Tensile-compression asymmetry ■ Failure modelling ■ Temperature dependent 

Specifically for Ultrasint® TPU 88A Black, below you can find some of the data (at specific temperatures / mechanical loads) we have available in our Ultrasim® Material Model or that we could provide to you for your own simulations. More information is available on request (sales@forward-am.com).

	Available temperatures			Strain rate / loads		Print Orientation / Anisotropy
	Low	23°C	High	Quasi static	High speed	
Ultrasint® TPU 88A		●		●		●

- Validated, available as Material Data Set (can be converted into a Ultrasim® Material Model)
- Validated, available via Ultrasim® Material Model
- Preliminary

Biocompatibility

Product: Ultrasint® TPU 88A Black

Revision: 17th of April 2025

3D printed test items of the above stated product have fulfilled the requirements of tests as stated below:

Cytotoxicity Testing- Neutral Red:

(EN ISO 10993-5 (2009))

Sampling preparation: The test specimens were dry ice blasted and handled only with disposable medical gloves. The test specimens were wrapped in aluminum foil for shipment to the testing laboratory.

The biocompatibility tests were recorded on test specimen of the referenced product to show compatibility of the material in general. The biocompatibility tests listed are not part of any continuous production protocol. The test assessments reflect only the test specimen and have to be retested on the final product. It remains the responsibility of the de-vice manufacturers and /or end-users to determine the suitability of all printed parts for their respective application.

For notice:

We give no warranties, expressed or implied, concerning the suitability of mentioned product for use in any medical device and pharmaceutical applications.

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