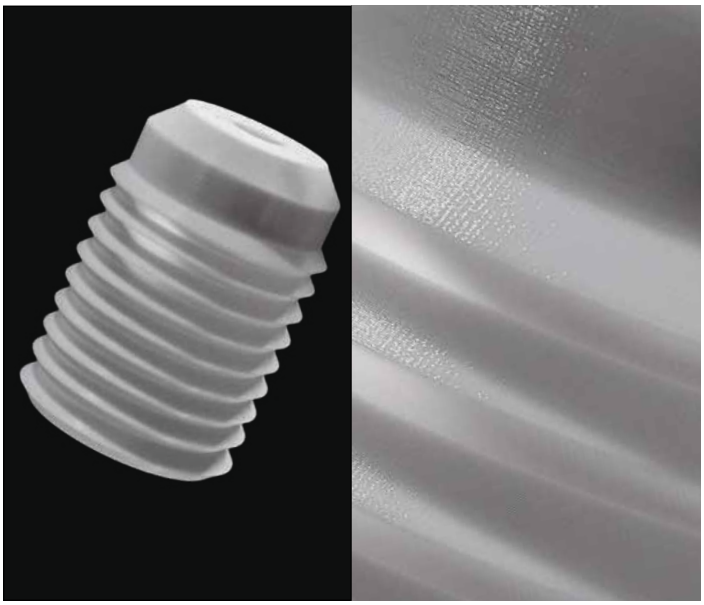
MATERIAL DATASHEET

Smooth TPU 95A

Smooth TPU (Thermoplastic Polyurethane) is an elastomeric material ideal for functional parts requiring elongation and flexibility. You can print drive belts, bumpers, protective coverings, gaskets, and more with a smooth surface finish and high reliability. Markforged S-TPU is available in black and white colors.

	Test (ASTM)	S-TPU Result
Shore Hardness (Shore A)	D2240-15 (Type A)	95
Tensile Modulus at 2% Strain (MPa)	D412-16	98
Tensile Modulus at 100% Strain (MPa)	D412-16	13
Tensile Stress at Break (MPa)	D412-16	26
Tensile Strain at Break (%)	D412-16	550
Flexural Modulus (MPa)	D790	90
Density (g/cm ^{3})	D792-20 (Method A)	1.2

S-TPU in Black



S-TPU in White

Test Specimens:

All data were provided by an accredited third-party test facility. These represent typical values.

Markforged test plaques are uniquely designed to maximize test performance. Plastic test plaques are printed with full infill. To learn more about specific testing conditions or to request test parts for internal testing, contact a Markforged representative. All customer parts should be tested in accordance with customer's specifications.

Part and material performance will vary by layout design, part design, specific load conditions, test conditions, build conditions, and the like. This representative data was tested, measured, or calculated using standard methods and are subject to change without notice. Markforged makes no warranties of any kind, express or implied, including but not limited to the warranties of merchantability, fitness for a particular use, or warranty against patent infringement; and assumes no liability in connection with the use of this information. The data listed here should not be used to establish design, quality control, or specification limits, and are not intended to substitute for your own testing to determine suitability for your particular application. Nothing in this sheet is to be construed as a license to operate under, or a recommendation to infringe upon, any intellectual property right.

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Storage Modulus E′ and Loss Modulus E′′ vs Temperature

The chart below illustrates the stiffness of Smooth TPU 95A over an increasing temperature. S-TPU experiences a gradual reduction of stiffness up to approximately 130°C, the point at which the material starts to transition from a rubbery to melt state. The storage modulus of S-TPU remains well above 10 MPa over a wide temperature range. Depending on the load case, one can infer the application-specific maximum use temperature from the data. See support.markforged.com/S-TPU-Testing-Procedures for testing method information.