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1 *TPU combines elasticity and toughness.*

TPU GENERATIVE POLYURETHANE FOR SELECTIVE LASER SINTERING (SLS)

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Fraunhofer UMSICHT develops polymeric materials for generative production processes. Test plants in different dimensions are available. Therefore compounding, micronization and testing of polymers in applications is possible in a very effective way.

One result is a thermoplastic polyurethane (TPU) for SLS process. The combination of high toughness and flexibility allow new applications for generative processing. Flexible parts that are able to work under high mechanical loads can be generated within a few hours. The production of gradient materials is also possible.

Keywords

- Generative manufacturing
- Material development
- Thermoplastic polyurethane (TPU)
- Strength and flexibility
- Prototyping
- Small-scale series

Industrial sectors

- Automobile industry
- Engineering
- Orthopaedics
- Design
- Household goods



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- 1 Sintering process TPU.
- 2 Outer sole of a running shoe sintered from TPU.

Our service

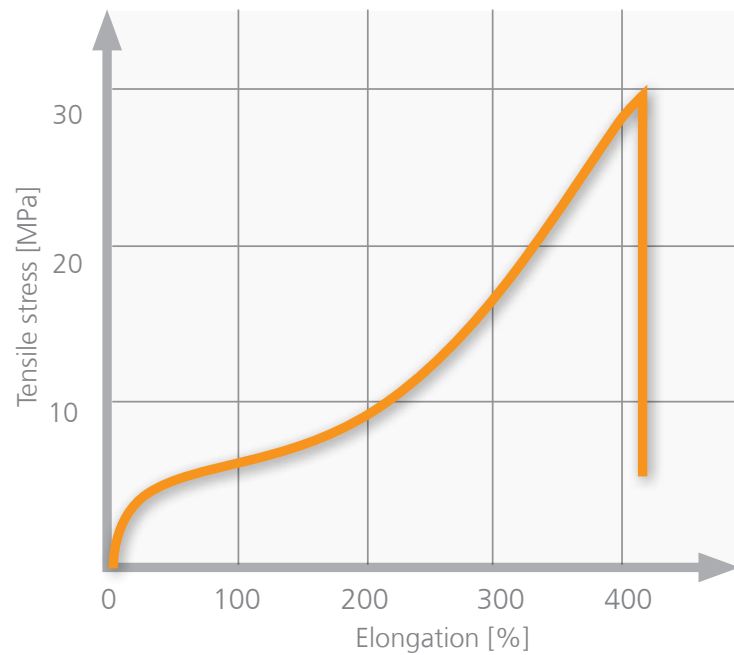
- Formulation development
- Compounding
- Micronisation
- From idea to prototype
- Material testing
- Provision of samples

Your benefit

- Technological advantage by innovative solutions
- Cost effective products
- Safety in applications
- Fast and economic production of small-scale series

Technological specifications

- High strength up to 30 MPa
- High elongation up to 400 %
- High stability
- Hardness 90 Shore-A
- Density 1.2 g/cm³
- Cake-powder 100 % re-usable
- Samples available as of 01/2012



stress-strain diagram TPU Generative, DIN 53504, shouldered test bar S1, SLS-manufactured, x-y-direction