

POLYMER SOLUTIONS

EOS TPU 1301

Material Data Sheet

EOS TPU 1301

Product Description

The part properties such as flexibility and level of damping of this TPU can be adjusted via structural design with lattice structure, or by adapting the process parameters

MAIN CHARACTERISTICS

- Great resilience
- Good hydrolysis resistance
- High UV-stability
- Very good shock absorption
- Shore hardness 86 A
- Low refresh rate

TYPICAL APPLICATIONS

- Footwear & lifestyle parts that demand elastomeric properties, e. g. handles, shoe soles
- Automotive & industry parts, e.g. tubes, bellows, seals, gaskets
- Protective sports gear, e.g. helmet cushioning
- Applications usually made from foam can be replaced by lattice structures in EOS TPU 1301

| MECHANICAL PROPERTIES | DRY / CONDITIONED | UNIT | TEST STANDARD |
|---|-------------------|-------------------|-------------------------------|
| Tensile Modulus | | | ISO 527-1/-2 |
| X Orientation | 60 / - | MPa | |
| Y Orientation | 60 / - | MPa | |
| Z Orientation | 60 / - | MPa | |
| Tensile Strength | | | ISO 527-1/-2 |
| X Orientation | 7 / - | MPa | |
| Y Orientation | 7 / - | MPa | |
| Z Orientation | 5 / - | MPa | |
| Nominal Strain at Break | | | ISO 527-1/-2 |
| X Orientation | 250 / - | % | |
| Y Orientation | 250 / - | % | |
| Z Orientation | 90 / - | % | |
| Nominal Strain at Break, EOS P 770 | | | ISO 527-1/-2 |
| Z Orientation | 60 / - | % | |
| Flexural Modulus | | | ISO 178 |
| X Orientation | 64 / - | MPa | |
| Y Orientation | 64 / - | MPa | |
| Z Orientation | 69 / - | MPa | |
| Charpy Impact Strength (+23°C) | | | ISO 179/1eU |
| X Orientation | N / - | kJ/m ² | |
| Y Orientation | N / - | kJ/m ² | |
| Z Orientation | N / - | kJ/m ² | |
| Charpy Notched Impact Strength (+23°C) | | | ISO 179/1eA |
| X Orientation | N / - | kJ/m ² | |
| Y Orientation | N / - | kJ/m ² | |
| Z Orientation | N / - | kJ/m ² | |
| Charpy Notched Impact Strength (-30°C) | | | ISO 179/1eA |
| X Orientation | N / - | kJ/m ² | |
| Y Orientation | N / - | kJ/m ² | |
| Z Orientation | N / - | kJ/m ² | |
| Rebound Resilience | | | DIN 53512 |
| X Orientation | 62 / - | | |
| Y Orientation | 62 / - | | |
| Z Orientation | 62 / - | | |
| Abrasion Resistance | | | ISO 4649 |
| X Orientation | 86 / - | mm ³ | |
| Z Orientation | 95 / - | mm ³ | |
| Compression Set | | | ISO 815-1/B (72h 23°C 30 min) |
| X Orientation | 24 / - | % | |
| Z Orientation | 25 / - | % | |
| Compression Set | | | ISO 815-1/B (24h 70°C 30 min) |
| X Orientation | 65 / - | % | |
| Z Orientation | 72 / - | % | |

| THERMAL PROPERTIES | DRY / CONDITIONED | UNIT | TEST STANDARD |
|---|-------------------|------|----------------|
| Melting Temperature | 138 | °C | ISO 11357-1/-3 |
| Temperature of Deflection under Load 0.45 MPa | | | ISO 75-1/-2 |
| X Orientation | 50 | °C | |
| Z Orientation | 52 | °C | |
| Vicat Softening Temperature | | | ISO 306/A120 |
| X Orientation | 98 | °C | |
| Z Orientation | 98 | °C | |

| OTHER PROPERTIES | VALUE | UNIT | TEST STANDARD |
|------------------|-------|-------------------|-------------------|
| Water Absorption | 0.85 | % | sim. to ISO 62/7d |
| Density | 1.11 | g/cm ³ | EOS Method |
| Powder Color | white | - | - |
| Components Color | white | - | - |

HEADQUARTERS

| | | |
|---|---|---|
| EOS GmbH Electro Optical Systems | Robert-Stirling-Ring 1 82152 Krailling / Munich Germany | Tel.: +49 89 893 36-0 Email: info@eos.info URL: www.eos.info |
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