

POLYMER SOLUTIONS

PA 1101 ClimateNeutral

Material Data Sheet

PA 1101 CLIMATE NEUTRAL

Product Description

PA 1101 ClimateNeutral is a PA 11 based powder for processing in laser sintering systems. The whitish, slightly translucent, additively manufactured parts are characterized by high impact resistance and elongation at break. Even under high mechanical loads they do not splinter.

PA 1101 ClimateNeutral is a bio-based material made from castor oil and is an EOS Responsible Product. PA 1101 ClimateNeutral combines climate neutrality with the well-known technical properties of PA 1101.

MAIN CHARACTERISTICS

- High ductility
- High impact resistance
- Balanced property profile
- Biobased material

TYPICAL APPLICATIONS

- Impact-resistant applications, which may not splinter when applied with a load, e.g. coverings or housings
- Functional parts that require a high elongation at break, e.g. clips or buckles
- Eyewear in the consumer goods industry

| MECHANICAL PROPERTIES | DRY / CONDITIONED | UNIT | TEST STANDARD |
|--|-------------------|-------------------|---------------|
| Tensile Modulus | | | ISO 527-1/-2 |
| X Orientation | 1650 / - | MPa | |
| Y Orientation | 1650 / - | MPa | |
| Z Orientation | 1650 / - | MPa | |
| Tensile Strength | | | ISO 527-1/-2 |
| X Orientation | 50 / - | MPa | |
| Y Orientation | 50 / - | MPa | |
| Z Orientation | 48 / - | MPa | |
| Nominal Strain at Break | | | ISO 527-1/-2 |
| X Orientation | 30 / - | % | |
| Y Orientation | 30 / - | % | |
| Z Orientation | 15 / - | % | |
| Nominal Strain at Break, FORMIGA P 110 Velocis | | | ISO 527-1/-2 |
| Z Orientation | 22 / - | % | |
| Nominal Strain at Break, EOS P 770 | | | ISO527-1/-2 |
| Z Orientation | 12 / - | % | |
| Charpy Impact Strength (+23°C) | | | ISO 179/1eU |
| X Orientation | N / - | kJ/m ² | |
| Y Orientation | N / - | kJ/m ² | |
| Z Orientation | 85 / - | kJ/m ² | |
| Charpy Impact Strength (+23°C), FORMIGA P 110 Velocis | | | ISO 179/1eU |
| Z Orientation | N / - | kJ/m ² | |
| Charpy Impact Strength (-30°C) | | | ISO 179/1eU |
| X Orientation | N / - | kJ/m ² | |
| Y Orientation | N / - | kJ/m ² | |
| Z Orientation | 70 / - | kJ/m ² | |
| Charpy Impact Strength (-30°C), FORMIGA P 110 Velocis | | | ISO 179/1eU |
| Z Orientation | N / - | % | |
| Charpy Notched Impact Strength (+23°C) | | | ISO 179/1eA |
| X Orientation | 6.9 / - | kJ/m ² | |
| Y Orientation | 7.3 / - | kJ/m ² | |
| Z Orientation | 5.5 / - | kJ/m ² | |
| Charpy Notched Impact Strength (-30°C) | | | ISO 179/1eA |
| X Orientation | 6.3 / - | kJ/m ² | |
| Y Orientation | 5.8 / - | kJ/m ² | |
| Z Orientation | 5.1 / - | kJ/m ² | |
| Shore D Hardness | | | ISO 7619-1 |
| X Orientation | 75 / - | - | |

| THERMAL PROPERTIES | DRY / CONDITIONED | UNIT | TEST STANDARD |
|--|-------------------|------|----------------|
| Melting Temperature | 201 | °C | ISO 11357-1/-3 |
| Temperature of Deflection under Load 1.80 MPa | | | ISO 75-1/-2 |
| X Orientation | 46 | °C | |
| Y Orientation | 46 | °C | |
| Z Orientation | 47 | °C | |
| Temperature of Deflection under Load 0.45 MPa | | | ISO 75-1/-2 |
| X Orientation | 180 | °C | |
| Y Orientation | 180 | °C | |
| Z Orientation | 181 | °C | |

| ELECTRICAL PROPERTIES | DRY / CONDITIONED | UNIT | TEST STANDARD |
|---------------------------------------|-------------------|------|---------------|
| Comparative Tracking Index CTI | | | IEC 60112 |
| X Orientation | ≥600 / - | | |
| Y Orientation | ≥600 / - | | |
| Z Orientation | ≥600 / - | | |

| OTHER PROPERTIES | VALUE | UNIT | TEST STANDARD |
|-------------------------|---------|-------------------|---------------|
| Density | 1.03 | g/cm ³ | ISO 1183-1 |
| Powder Color | natural | - | - |
| Components Color | natural | - | - |

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

This powder has not been developed, tested or certified as a medical device according to Directive 93/42/EEC (MDD) or Regulation (EU) 2017/745 (MDR) and is not intended to be used as a medical device, in particular for the purposes specified in Art. 2 No. 1 MDR. Insofar as you intend to use the powder as raw material for the manufacture of pharmaceutical products or medical devices (e.g. as raw material which as a material must meet the requirements of Annex 1, Chapter II MDR), the responsibility and liability for all analyses, tests, evaluations, procedures, risk assessments, conformity assessments, approval and certification procedures as well as for all other official and regulatory measures required for this purpose shall lie solely with you both with regard to the pharmaceutical product and/or medical device manufactured by you and with regard to the properties, suitability, testing, evaluation, risk assessment, other requirements for use of the powder as raw material. In this respect, the limitations of liability pursuant to our General Terms and Conditions and the system sales or material contracts shall apply.

Part properties are provided for information purposes only and EOS makes no representation or warranty, and disclaims any liability, with respect to actual part properties achieved. Part properties are dependent on a variety of influencing factors and therefore, actual part properties achieved by the user may deviate from the information stated herein. This document does not on its own represent a sufficient basis for any part design, neither does it provide any agreement or guarantee about the specific properties of a material or part or the suitability of a material or a part for a specific application.

The achievement of certain part properties as well as the assessment of the suitability of this material for a specific purpose is the sole responsibility of the user. Any information given herein is subject to change without notice.

Status as of 19.08.2024. Subject to technical modifications. EOS is certified according to ISO 9001.

EOS®, Additive Minds®, Alumide®, AMQ®, CarbonMide®, DirectMetal®, DMLS®, EOSAME®, EOSINT®, EOSIZE®, EOSPACE®, EOSPRINT®, EOSTATE®, EOSTYLE®, FORMIGA®, LaserProFusion®, PA 2200®, PrimeCast® and PrimePart® are registered trademarks of EOS GmbH Electro Optical Systems in some countries. For more information visit www.eos.info/trademarks.