

# EOS PA 2200 Balance 1.0

Polyamide 12

EOS GmbH

## Message:

This whitish fine powder PA 2200 on the basis of polyamide 12 serves with its very well-balanced property profile a wide variety of applications. Laser-sintered parts made from PA 2200 possess excellent material properties:

- high strength and stiffness
- good chemical resistance
- excellent long-term constant behaviour
- high selectivity and detail resolution
- various finishing possibilities (e.g. metallisation, stove enamelling, vibratory grinding, tub colouring, bonding, powder coating, flocking)
- bio compatible according to EN ISO 10993-1 and USP/level VI/121 °C
- approved for food contact in compliance with the EU Plastics Directive 2002/72/EC (exception: high alcoholic foodstuff)

Typical applications of the material are fully functional plastic parts of highest quality. Due to the excellent mechanical properties the material is often used to substitute typical injection moulding plastics. The biocompatibility allows its use e.g. for prostheses, the high abrasion resistance allows e.g. the realisation of movable part connections.

120 µm layer thickness:

The advantage of the Balance parameter set is equilibrium. The layer thickness of 120 µm offers a perfect balance between production costs, mechanical properties, surface quality and accuracy. It is therefore suitable for parts with varying geometries, dimensions and requirements.

| General Information |                                      |                   |                 |
|---------------------|--------------------------------------|-------------------|-----------------|
| Features            | Biocompatible                        |                   |                 |
|                     | Food Contact Acceptable              |                   |                 |
|                     | Good Abrasion Resistance             |                   |                 |
|                     | Good Chemical Resistance             |                   |                 |
|                     | Good Surface Finish                  |                   |                 |
|                     | High Stiffness                       |                   |                 |
|                     | High Strength                        |                   |                 |
|                     |                                      |                   |                 |
| Uses                | Engineering Parts                    |                   |                 |
|                     | Medical/Healthcare Applications      |                   |                 |
|                     | Prosthetics                          |                   |                 |
|                     | Prototyping                          |                   |                 |
| Agency Ratings      | EU 2002/72/EC                        |                   |                 |
|                     | ISO 10993                            |                   |                 |
|                     | USP Class VI                         |                   |                 |
| Appearance          | White                                |                   |                 |
| Forms               | Powder                               |                   |                 |
| Processing Method   | 3D Printing, Laser Sintering/Melting |                   |                 |
| Physical            | Nominal Value                        | Unit              | Test Method     |
| Density             | 0.930                                | g/cm <sup>3</sup> | Internal Method |
| Thickness - Layer   | 120.0                                | µm                |                 |
| Hardness            | Nominal Value                        | Unit              | Test Method     |

| Shore Hardness (Shore D, 15 sec)                     | 75            |                   | ISO 868     |
|--|---------------|-------------------|-------------|
| Mechanical   | Nominal Value | Unit              | Test Method |
| Tensile Modulus <sup>1</sup>                         | 1650          | MPa               | ISO 527-2   |
| Tensile Stress                                       |               |                   |             |
| -- <sup>2</sup>                                      | 42.0          | MPa               | ISO 527-2   |
| -- <sup>3</sup>                                      | 48.0          | MPa               | ISO 527-2   |
| Tensile Strain                                       |               |                   |             |
| Break <sup>4</sup>                                   | 18            | %                 | ISO 527-2   |
| Break <sup>5</sup>                                   | 4.0           | %                 | ISO 527-2   |
| Flexural Modulus <sup>6</sup> (23°C)                 | 1500          | MPa               | ISO 178     |
| Impact   | Nominal Value | Unit              | Test Method |
| Charpy Notched Impact Strength <sup>7</sup> (23°C)   | 4.8           | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy Unnotched Impact Strength <sup>8</sup> (23°C) | 53            | kJ/m <sup>2</sup> | ISO 179/1eU |
| Notched Izod Impact Strength (23°C)                  | 4.4           | kJ/m <sup>2</sup> | ISO 180/1A  |
| Thermal  | Nominal Value | Unit              | Test Method |
| Vicat Softening Temperature                          | 163           | °C                | ISO 306/B50 |
| Melting Temperature                                  | 176           | °C                | ISO 11357   |
| NOTE   |               |                   |             |
| 1.   | X Direction   |                   |             |
| 2.   | Z Direction   |                   |             |
| 3.   | Y Direction   |                   |             |
| 4.   | X Direction   |                   |             |
| 5.   | Z Direction   |                   |             |
| 6.   | X Direction   |                   |             |
| 7.   | X Direction   |                   |             |
| 8.   | X Direction   |                   |             |

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