



## Material for Powder Bed Fusion

# ASPHIA-PA6+GF

## Material Overview : Glass Fiber-Reinforced Spherical Nylon 6

### Description / Benefits

Nylon 6 mixed with glass fiber.

The grain shape of nylon 6 is spherical, resulting in excellent powder flowability and printed parts has high density and surface smoothness.

The high density provides excellent mechanical properties and airtightness (0.3 MPa at 2 mm plate thickness).

High heat resistance. (load deflection temperature: 219°C)

### Applications

<Characteristics> The high density of the printed product provides excellent airtightness, durability, surface smoothness, and heat resistance.

<Applications> Digital spares for automotive parts, defense industry related parts, aerospace parts, etc.

<Example> Oil strainers, agricultural machinery and equipment, pumps, impellers, air conditioner parts, fans

## ASPHIA-PA6+GF Material properties

| Properties                 |                                | ASPHIA-PA6+GF                    | Test method    |
|----------------------------|--------------------------------|----------------------------------|----------------|
| General properties         | Surface roughness              | Top surface(Ra)10.2μm,(Rz)63.0μm |                |
|                            | Density of parts               | 1.334g/cm <sup>3</sup>           |                |
|                            | Water absorption rate          | —                                |                |
|                            | Powder color                   | Brown                            |                |
|                            | Filler compounding ratio       | Glass fiber 30%                  |                |
| Thermal properties         | Melting point                  | 223°C                            |                |
|                            | Recrystallization point        | 188°C                            |                |
|                            | Process window                 |                                  |                |
|                            | Load deflection temp.<0.45MPa> | 217°C (Tentative value)          | JIS K7191-2    |
|                            | Load deflection temp.<1.8MPa>  | 183°C (Tentative value)          | JIS K7191-2    |
|                            | Linear expansion coefficient   | 119.94x10 <sup>-6</sup> /K       | JIS K7197-1991 |
| Printing temp              | Thermal conductivity           | 0.238W/(m·K)                     | JIS A1412-2    |
|                            | Guideline                      | 207°C                            |                |
| Mechanical properties      | Maximum tensile strength       | 68MPa                            | JIS K7161      |
|                            | Tensile modulus                | 6600MPa                          | JIS K7161      |
|                            | Elongation at break            | 2.8%                             | JIS K7161      |
|                            | Maximum bending stress         | 115MPa                           | JIS K7171      |
|                            | Bending strain                 | 3.1%                             | JIS K7171      |
|                            | Bending modulus                | 5920MPa                          | JIS K7171      |
|                            | Impact strength (with notch)   | 1.7KJ/m <sup>2</sup>             | JIS K7111-1    |
| Electrical characteristics | Dielectric constant            | —                                |                |

1.The shelf life of this material is expected to be at least 12 months under stored at appropriate environmental temperature and dry conditions.

2.The data contained in this document is subject to change without notice.

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