HP 3D High Reusability PA 11

Ductile,¹ quality parts

Produce strong, ductile,¹ functional parts

• Thermoplastic material delivering optimal mechanical properties.
• Provides excellent chemical resistance² and enhanced elongation-at-break.¹
• Impact resistance and ductility¹ for prostheses, insoles, sports goods, snap fits, living hinges, and more.

Minimize waste with a renewable raw material³

• Renewable raw material from vegetable castor oil (reduced environmental impact).³
• Minimize waste—reuse surplus powder batch after batch and get functional parts, no throwing away anymore.⁴
• Get consistent performance while achieving 70% surplus powder reusability.⁵
• Optimize cost and part quality—cost-efficient material with industry-leading surplus powder reusability.⁴

Engineered for HP Multi Jet Fusion technology

• Designed for production of functional and final parts across a variety of industries.
• Provides the best balance between performance and reusability.⁶
• Easy-to-process material enables high productivity and less waste.⁷
• Engineered to reliably produce final parts and functional prototypes with fine detail, dimensional accuracy.

For more information, please visit

cimquest-inc.com
866-277-8778
Technical specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Measurement</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>General properties</td>
<td>Powder melting point (T50)</td>
<td>202 °C/396 °F</td>
<td>ASTM D3418</td>
</tr>
<tr>
<td></td>
<td>Particle size</td>
<td>54 μm</td>
<td>ASTM D3451</td>
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<tr>
<td></td>
<td>Bulk density of powder</td>
<td>0.48 g/cm³/0.17 lb/in³</td>
<td>ASTM D1995</td>
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<tr>
<td></td>
<td>Density of parts</td>
<td>1.05 g/cm³/0.03 lb/in³</td>
<td>ASTM D792</td>
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<tr>
<td>Mechanical properties</td>
<td>Tensile strength, max load, XY, XZ, Y2, Z2</td>
<td>52 MPa/754 psi</td>
<td>ASTM D638</td>
</tr>
<tr>
<td></td>
<td>Tensile strength, max load, 2X, 2Z, Z2</td>
<td>52 MPa/754 psi</td>
<td>ASTM D638</td>
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<tr>
<td></td>
<td>Tensile modulus, XY, XZ, Y2, Z2</td>
<td>1800 MPa/261 ksi</td>
<td>ASTM D638</td>
</tr>
<tr>
<td></td>
<td>Tensile modulus, 2X, 2Z, Z2</td>
<td>1800 MPa/261 ksi</td>
<td>ASTM D638</td>
</tr>
<tr>
<td></td>
<td>Elongation at break, XY, X2, Y2, Z2</td>
<td>50%</td>
<td>ASTM D638</td>
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<tr>
<td></td>
<td>Elongation at break, 2X, 2Z</td>
<td>35%</td>
<td>ASTM D638</td>
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<td>Flexural strength, IP 5%N/L, XY, X2, Y2, Z2, 2Z</td>
<td>70 MPa/1015 psi</td>
<td>ASTM D790</td>
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<td>Flexural modulus, 2X, Y2, X2, Z2, 2Z</td>
<td>1800 MPa/264 kpsi</td>
<td>ASTM D638</td>
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<tr>
<td></td>
<td>Izod impact notched, @ 3.2 mm, 23°C, XY, X2, Y2</td>
<td>5.0 kJ/m²</td>
<td>ASTM D256 Test Method A</td>
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<tr>
<td></td>
<td>Izod impact notched, @ 3.2 mm, 23°C, Z2, Z2</td>
<td>4.5 kJ/m²</td>
<td>ASTM D256 Test Method A</td>
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<tr>
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<td>Shore Hardness D, XY, X2, Y2, Z2</td>
<td>80</td>
<td>ASTM D2240</td>
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<tr>
<td>Thermal properties</td>
<td>Heat deflection temperature, @ 0.45 MPa, 66 psi, XY, X2, Y2, Z2, Z2</td>
<td>155 °C/315 °F</td>
<td>ASTM D648 Test Method A</td>
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<tr>
<td></td>
<td>Heat deflection temperature, @ 1.82 MPa, 264 psi, XY, X2, Y2, Z2</td>
<td>54 °C/129 °F</td>
<td>ASTM D648 Test Method A</td>
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<td>Tensile modulus, @ 54 °C, 16 mm, 35%</td>
<td>1900 MPa/280 ksi</td>
<td>ASTM D256 Test Method A</td>
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<td>Shore Hardness D, XY, X2, Y2, Z2</td>
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<td>ASTM D2240</td>
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<tr>
<td></td>
<td>Reusability Refresh ratio for stable performance</td>
<td>30%</td>
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<td>Recommended environmental conditions</td>
<td>Recommended relative humidity</td>
<td>50-70% RH</td>
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<tr>
<td>Certification</td>
<td>USP Class I-VI and US FDA guidance for Intact Skin Surface Devices</td>
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Ordering information

HP 3D High Reusability PA 1112
Product number
V1R12A
V1R18A
V1R36A
Weight
14 kg/30.9 lb
140 kg/308.6 lb
140 kg/308.6 lb
Capacity
30L11
30L11
30L11
Dimensions (wxd)
600 x 333 x 302 mm
800 x 600 x 1205 mm
800 x 600 x 1205 mm
Printer compatibility
HP Jet Fusion 3D 4210/4200 Printing Solution
HP Jet Fusion 3D 4210/4200 Printing Solution
HP Jet Fusion 3D 4210 Printing Solution
Fast cooling compatibility
Not recommended
Not recommended
Not recommended

Dynamic security enabled printer. Only intended to be used with cartridges using an HP original chip. Cartridges using a non-HP chip may not work, and those that work today may not work in the future.

More at: hp.com/go/learnaboutsupplies

HP 3D High Reusability PA11 production material 11, 12
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V1R18A
V1R36A
Weight
14 kg/30.9 lb
140 kg/308.6 lb
140 kg/308.6 lb
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30L11
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HP Jet Fusion 3D 4210/4200 Printing Solution
HP Jet Fusion 3D 4210 Printing Solution
Fast cooling compatibility
Not recommended
Not recommended
Not recommended

Eco Highlights
- Powders and agents are not classified as hazardous 11, 12
- Cleaner, more comfortable workplace—enclosed printing system, and automatic powder management
- Minimal waste due to industry-leading reusability of powder 11, 12

Find out more about HP sustainable solutions at hp.com/go/ecosolutions

1. Testing according to ASTM D638, ASTM D256, and ASTM D4648 using HP3T at different loads with a 3D scanner for dimensional accuracy. Testing monitored using statistical process controls.
2. Tested with diluted alkalies, concentrated alkalies, chlorine salts, alcohol, ether, ethers, ketones, aliphatic hydrocarbons, unleaded petrol, motor oil, aromatic hydrocarbons, toluene, and DOT 3 brake fluid.
3. HP 3D High Reusability PA 11 powder is made with 100% renewable carbon content derived from castor plants grown without GMOs and in areas that do not compete with food crops. HP 3D High Reusability PA 11 is made using renewable sources, and may be made together with certain non-renewable sources.
4. A renewable resource is a natural organic resource that can be renewed at the same speed in which it is consumed. Renewable materials may include wood, castor oil, and other natural organic materials.
5. Processing times may vary with different models and printing conditions.
6. Printed specimens in the plot was 10 mm. Modulus has been calculated using the slope of the regression line.
7. Nothing herein should be construed as constituting an additional warranty. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services and/or in a written agreement between you and HP for such HP products and services. HP makes no warranty of any kind, whether express or implied, as to the accuracy, completeness, non-infringement, merchantability or fitness for a particular purpose even if HP is aware of such purpose with respect to any information provided. HP shall not be liable for technical or editorial errors or omissions contained herein and the information herein is subject to change without notice. In no event shall HP be liable for damages or losses of any kind or nature that result from the use of or reliance upon this information. The HP Jet Fusion 3D Materials have not been designed, manufactured or tested by HP for compliance with legal requirements for 3D printed parts and their uses and recipients are responsible for making their own determination as to the suitability of HP Jet Fusion 3D Materials for their purposes and uses.