

SELECTIVE LASER SINTERING POWDERS



ProMaker **P SERIES** compatible powders **2019**

A WIDE RANGE OF POSSIBILITIES

Our thermally-stable selective laser sintering technology is designed to work with premium powders allowing for access to new applications with great promise for your industry and with impressive performance with regards to mechanical, physical and aesthetic properties.

INNOVATION AND EXPERTISE

Prodways has a team of experts with the knowledge and experience to push materials technology into new territory. In addition, strong partnerships with established materials developers has allowed Prodways to be even more effective at providing innovative solutions for rapid manufacturing applications.



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Laser sintering materials have been developed by Prodways and our partners to work in combination with ProMaker printers, offering an effective additive manufacturing solution for many applications, including functional prototyping and industrial needs.

| | TPU-70 A ⁽¹⁾ | PP 1200 ⁽¹⁾ | PA12-L 1600 ⁽¹⁾⁽³⁾ | PA12-S 1550 ⁽¹⁾ | PA12-GFX 2550 ⁽¹⁾ |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification | <ul style="list-style-type: none"> Elastomeric material with 70 shore A Elongation at break > 300% No need for infiltration Possibility to adjust shore based on energy input High resolution | <ul style="list-style-type: none"> Bringing the Polypropylene mechanical characteristics to the SL5® market, allowing the development of new applications Easy to process and with a 30% Refresh rate | <ul style="list-style-type: none"> General purpose material with excellent mechanical properties and high elongation at break Low water absorption and easy to process Good recyclability | <ul style="list-style-type: none"> Fine granulometry for excellent outline and surface quality Low porosity, UV stable High recyclability for lower operating costs | <ul style="list-style-type: none"> Glass beads & aluminium filled nylon for reinforced strength Excellent behavior in temperature and good chemical resistance Similar to PP20% injected parts Low and homogeneous shrinkage High recyclability for lower operating costs |
| Typical Application Examples | Prototypes and final parts for elastic structures, hoses, grips, bellows, bumpers, gaskets and seals, tubes, toys and modeling for Footwear, Automotive, Aerospace and Luxury | Parts that need ductility, Living hinges, Low friction elements, Chemical resistant needs, Low density parts (lighter) | Wide range of prototyping and rapid manufacturing applications | Prototyping and small series for a wide range of applications including Formula 1, Automotive, Medical, Aerospace, Military, Luxury industry | Mechanical parts in engine resisting temperature, parts for pumps, complex end-use parts with improved strength properties for a wide range of applications. |
| Appearance | White Glow in the dark Green/Blue | White/translucent | White | Natural + mass coloring Black/Blue/Red/Grey | Grey |
| Average particle size | 62 µm | 70 µm | N.A | 42 µm | 46 µm |
| Bulk Density | 1.2 g/cm ³ | 0.33 g/cm ³ | 0.48 g/cm ³ | 0.50 g/cm ³ | 1.05 g/cm ³ |
| Density of parts | 1.12 g/cm ³ | 0.89 g/cm ³ | 0.95 g/cm ³ | 0.98 g/cm ³ | 1.35 g/cm ³ |
| Moisture absorption | N.A | N.A | N.A | 0.50% (ASTM D570) | 0.33% (ASTM D570) |
| Melting Point | 105 °C to 122°C | 136°C | 183°C | 181°C - 183 °C | 181°C - 183 °C |
| Heat Deflection 1.8 MPa | N.A | 53°C | 83.5°C | 86°C | 116°C |
| Tensile Strength | 7 MPa | 28 MPa | 46 MPa | 44 MPa | 30 MPa |
| Tensile Modulus | 65 MPa | 1250 MPa | 1602 MPa | 1550 MPa | 2550 MPa |
| Elongation @ break | 350% | 25% | 36% | 15% | 8% |
| Flexural Strength | 21% | / | 46.3 MPa | N.A | N.A |
| Flexural Modulus | N.A | 1150 MPa | 1300 MPa | 1350 MPa | 2275 MPa |
| Impact Strength (unnotched Izod) | No break | 25 kJ/m ² | 13.2 kJ/m ² | 68 kJ/m ² | 80 kJ/m ² |
| Shore Test | 70 Shore A | 72 Shore D | N.A | 68 Shore D | 77 Shore D |
| Resistivity domain | Insulator | / | Insulator | Insulator | Antistatic |
| Upper facing processed & blasting, Surface Ra | N.A | / | N.A | 7 µm | 8 µm |
| Upper facing after Finishing, Surface Ra | N.A | / | N.A | 7 µm | 1 µm |
| Testing standard / Certification | ISO | ISO | GB/T | ISO | ISO |
| By | Prodways Materials | Prodways Materials | Prodways Materials by Farsoon | Prodways Materials | Prodways Materials |

| | PA11-SX 1350 ⁽¹⁾ | PA11-SX 1450 ⁽¹⁾ | PA11-GF 3450 ⁽¹⁾ | Ultrasint PA6 - X028 ⁽¹⁾ |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification | <ul style="list-style-type: none"> Fine granulometry Ductility, elongation and impact resistance Resistance in extreme low and high temperatures Possible use in continuous-shifting regenerating cycles | <ul style="list-style-type: none"> Medical grade USP Class VI ** Fine granulometry Ductility, elongation and shock resistance Refresh rate at 50% for medical applications, limited to 8-10 cycles | <ul style="list-style-type: none"> Fine granulometry Similar to injected PA6-MD30 or PP-GB Resistance in extreme temperatures Low shrinkage, adapted for big parts Refresh rates at 50% (limited to 8-10 cycles) for lower operating costs | <ul style="list-style-type: none"> Excellent thermal distortion stability High tensile modulus and strength Friction and torque resistance High burst resistance Precise feature control Processing at 220°C on Prodways high temperature printers |
| Typical Application Examples | Mechanical parts in engine, fuel or oil tanks, complex end-use parts with snap fit and living hinges for a wide range of applications from Aerospace to Automotive industry | End-use parts for Medical and Dental industry: orthotics, prosthetics, surgical tools, drill guides, etc... | Mechanical parts in the engine compartment, complex end-use parts for a wide range of applications from Automotive, Aerospace to Military industries | High performance functional parts parts requiring high accuracy, strength and thermal distortion stability in automotive or industrial sector: motor components, air intake systems, door handles, etc... |
| Appearance | Matte black | Natural + mass coloring Black/Blue/Red/Grey | Light grey | White or black |
| Average particle size | 50 µm | 50 µm | 55 µm | 75 µm |
| Bulk Density | 0.55 g/cm ³ | 0.55 g/cm ³ | 0.95 g/cm ³ | 0.52 g/cm ³ |
| Density of parts | 1.02 g/cm ³ | 1.02 g/cm ³ | 1.40 g/cm ³ | 1.15 g/cm ³ |
| Moisture absorption | 1.12% (ASTM D570) | 1.12% (ASTM D570) | 0.85% (ASTM D570) | 2.65% |
| Melting Point | 199 °C | 200 °C | 200 °C | 218°C |
| Heat Deflection 1.8 MPa | 46°C (ASTM D648) | 47°C (ASTM D648) | 133°C (ASTM D648) | 100°C |
| Tensile Strength | 45 MPa | 45 MPa | 33 MPa | 78 MPa |
| Tensile Modulus | 1350 MPa | 1450 MPa | 3450 MPa | 3550 MPa |
| Elongation @ break (XY) | 45% | 45% | 12% | 13% |
| Elongation @ break (Z) | 21% | 21% | 9% | 3.2% |
| Flexural Strength | N.A | N.A | N.A | 121 MPa |
| Flexural Modulus | 1250 MPa | 1300 MPa | 2300 MPa | 3300 MPa |
| Impact Strength (unnotched Izod) | No break | No break | N.A | 12.6 kJ/m ² |
| Shore Test | 75 Shore D | 74 Shore D | N.A | N.A |
| Resistivity domain | Insulator | Insulator | Antistatic | N.A |
| Upper facing processed & blasting, Surface Ra | 9 µm | 10 µm | 11 µm | N.A |
| Upper facing after Finishing, Surface Ra | 7 µm | 8 µm | 8 µm | N.A |
| Testing standard / Certification | ISO | ISO / USP Class VI certification(2) | ISO | ISO |
| By | Prodways Materials | Prodways Materials | Prodways Materials | Powered by BASF |

Essential materials
Advanced materials

(1) Performance characteristics of these materials may change according to product application, operating conditions, material combined or end use.

(2) Under reference innovPA 1450 from ExcelTec

(3) Polyamid composite simulating PA12 mechanical properties

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