SELECTIVE LASER SINTERING MATERIALS FOR UNLIMITED POSSIBILITIES



POLYMER POWDERS FOR LASER SINTERING

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A WIDE RANGE OF POSSIBILITIES

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

in meaning

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 solutions.

ProMaker **P SERIES** COMPATIBLE MATERIALS

	PA12-S 1300*	PA	A12-S 1550*	PA12-GF	F 2500*	PA12-GFX 2550	*	PA12-MF 6150*	PA12-CF 6500*
Appearance	Natural cream		l + mass coloring /Blue/Red/Grey	Natural	cream	Grey color in ma	55	Natural cream	Black
Average particle size	N.A		42 μm	N.	A	46 µm		N.A	N.A
Bulk Density	0.45 g/cm3	0	0.50 g/cm ³	0.67 g	0	1.05 g/cm3		0.55 g/cm ³	0.51 g/cm ³
Density of parts	0.95 g/cm3		0.98 g/cm3	1.26 g	2	1.35 g/cm3		1.20 g/cm ³	1.08 - 1.10 g/cm ³
Moisture absorption	N.A		% (ASTM D570)	N.		0.33% (ASTM D57	70)	N.A	N.A
Melting Point	180°C		31°C - 183 °C	180		181°C - 183 °C		183°C	180°C
Heat Deflection 1.8 MPa	58°C	10	86°C	88		116°C		N.A.	72°C
ensile Strength	42 MPa		44 MPa	37 N		30 MPa		51 MPa	63 MPa
Tensile Modulus	1300 MPa		1550 MPa	2500		2550 MPa		6150 MPa	6500 MPa
Elongation @ break	30%		15%	5.0		8%		5%	3%
Exural Strength	40 MPa		N.A	54 N		N.A		76 MPa	85 MPa
Flexural Modulus	1200 MPa		1350 MPa	2200		2275 MPa		4633 MPa	3870 MPa
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mpact Strength (unnotched Izod)	34 KJ/m ²		68 KJ/m ²	19 KJ		80 KJ/m ²		20.78 KJ/m ²	15 KJ/m ²
hore Test (shore D)	NA.		68 Shore D	N.		77 Shore D		N.A.	N.A.
esistivity domain	Insulator		Insulator	N.		Antistatic		N.A.	N.A.
Ipper facing processed & blasting, Surface Ra	N.A.		7 µm	NJ		8 µm		N.A.	N.A.
pper facing after Finishing, Surface Ra	NA		7 µm	N.		1 µm		N.A.	N.A.
esting standard / Certification	GB/T Excellent mechanical		ISO Iulometry #42 μm	GB Higher modulu		ISO Similar to PP 20% inject		GB/T Stable size, smooth surface	GB/T
pecification	properties Lowest p Good recyclability Refreshi Color stability in contin			ständard PA12 Higher heat de	2 nylon parts Fine granulometry # Lower porosity rema composite Refreshing allows a u in continuous sifting regenerating cycles Economic cost of exp Excellent behavior in temperature and goo chemical resistance		ing for a	Good recyclability High resistance to thermal deformation Small contractive rate Good mechanical properties due to the addition of mineral fabric	Good heat deflection rate: Good modulus range (475 6500Mpa) Uniform black color
fypical Application Examples	Spare parts manufacturing or big parts joining with adhesives Complex production and prototype plastic parts Making car's oil pipe and brake pipe	arts joining with es production and pe plastic parts car's oil pipe and application from co goods to aerospace industry pe and application from co goods to aerospace		om consumer industries		which complex parts which Improved and reliable pro		Wide range of application for aerospace and automotive industry	Wide range of application aerospace and automoti industry
Зу	Prodways Materials by Farsoon	Prodv	ways Materials	Prodways N Fars		Prodways Materia	ls	Prodways Materials by Farsoon	Prodways Materials Farsoon
Зу	Farsoon	Prodv		Fars	oon			Farsoon	Farsoon
	Farsoon PA11-SX 1350*		PA11-SX 1	Fars:	oon PA	11-GF 3450*		Farsoon PA11-GF 3450 Black*	Farsoon FR 106*
ppearance	Farsoon PA11-SX 1350* Mat black color in mas		PA11-SX 1 Natural creat	Farsı 450* m color	oon PA	11-GF 3450*		Farsoon PA11-GF 3450 Black* Mat black	Farsoon FR 106* Natural cream color
ppearance verage particle size	Farsoon PA11-SX 1350* Mat black color in mas 50 μm		PA11-SX 1 Natural creat	450* m color	oon PA Natural cre	11-GF 3450* eam to light grey color 55 μm		Farsoon PA11-GF 3450 Black* Mat black 55 µm	Farsoon FR 106* Natural cream color 95 μm
Appearance Average particle size Julk Density	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3		PA11-SX 1 Natural creat 50 μm 0.55 g/ct	Farso 450* m color n m3	oon PA Natural cre	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3
ppearance verage particle size iulk Density	Farsoon PA11-SX 1350* Mat black color in mas 50 μm		PA11-SX 1 Natural creat	Farso 450* m color n m3	oon PA Natural cre	11-GF 3450* eam to light grey color 55 μm		Farsoon PA11-GF 3450 Black* Mat black 55 µm	Farsoon FR 106* Natural cream color 95 μm
ppearance werage particle size wulk Density Pensity of parts	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3		PA11-SX 1 Natural creat 50 μm 0.55 g/ct	Farso 450* m color m3 m3	oon PA Natural cre	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3
ppearance werage particle size wulk Density bensity of parts Aoisture absorption	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3		PA11-SX 1 Natural creat 50 μm 0.55 g/ct 1.02 g/ct	450* 450* m color m3 m3 4 D570)	oon PA Natural cre	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3 1.40 g/cm3	Farsoon FR 106* Natural cream color 95 µm 0.45 g/cm3 1.07 g/cm3
ppearance verage particle size ulk Density ensity of parts foisture absorption felting Point	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM DS70)		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM	450* 450* m color m3 m3 4 D570) C	PA Natural cre	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570)		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570)	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A
ppearance verage particle size ulk Density ensity of parts foisture absorption felting Point leat Deflection 1.8 MPa	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C	450* 450* m color m3 m3 4 D570) c D648)	PA Natural cre	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C		Farsoon PA11-GF 3450 Black* Mat black 55 μm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C
ppearance verage particle size ulk Density ensity of parts foisture absorption felting Point leat Deflection 1.8 MPa ensile Strength	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C 46°C (ASTM D648)		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C 47°C (ASTM	450* 450* m color m m m m m m 4 D570) - D648) a	PA Natural cre 0.850 133°	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C C (ASTM D648)		Farsoon PA11-GF 3450 Black* Mat black 55 μm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C 133°C (ASTM D648)	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C 70°C (ASTM D648)
ppearance verage particle size ulk Density ensity of parts foisture absorption felting Point leat Deflection 1.8 MPa ensile Strength ensile Modulus	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C 46°C (ASTM D648) 45 MPa		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C 47°C (ASTM 45 MP	450* 450* m color m m m m m m 4 D570) - D648) a	PA Natural cre 0.850 133°	11-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C C (ASTM D648) 33 MPa		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C 133°C (ASTM D648) 33 MPa	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C 70°C (ASTM D648) 26 MPa
ppearance verage particle size ulk Density ensity of parts foisture absorption felting Point leat Deflection 1.8 MPa ensile Strength ensile Modulus longation @ break (XY)	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C 46°C (ASTM D648) 45 MPa 1350 MPa		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C 47°C (ASTM 45 MP 1450 M	450* 450* m color m m m m m m 4 D570) - D648) a	PA Natural cre 0.850 133°	All-GF 3450* eam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C C (ASTM D648) 33 MPa 3450 MPa		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C 133°C (ASTM D648) 33 MPa 3450 MPa	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C 70°C (ASTM D648) 26 MPa N.A
ppearance verage particle size ulk Density rensity of parts foisture absorption felting Point leat Deflection 1.8 MPa ensile Strength ensile Modulus longation @ break (X)	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C 46°C (ASTM D648) 45 MPa 1350 MPa 45%		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C 47°C (ASTM 45 MP 1450 M 45%	450* 450* m color m m m m m m 4 D570) - D648) a	PA Natural cre 0.850 133°	11-GF 3450* aam to light grey color 55 µm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C C (ASTM D648) 33 MPa 3450 MPa 12%		Farsoon PA11-GF 3450 Black* Mat black 55 µm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C 133°C (ASTM D648) 33 MPa 3450 MPa 12%	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C 70°C (ASTM D648) 26 MPa N.A 38%
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	Farsoon PA11-SX 1350* Mat black color in mas 50 μm 0.55 g/cm3 1.02 g/cm3 1.12% (ASTM D570) 199 °C 46°C (ASTM D648) 45 MPa 1350 MPa 45% 21% N.A 1250 MPa No break 75 Shore D Insulator 9 μm		PA11-SX 1 Natural creat 50 µm 0.55 g/ct 1.02 g/ct 1.12% (ASTM 200 °C 47°C (ASTM 45 MP 1450 M 45% 21% NA 1300 M No bre, 74 Short Insulate 10 µm	Fars 450* m color n m3 4 D570) C 1 D648) a Pa ak e D or n	oon PA Natural cre 0.850 133° 133°	A11-GF 3450* sam to light grey color 55 μm 0.95 g/cm3 1.40 g/cm3 % (ASTM D570) 200 °C C (ASTM D648) 33 MPa 3450 MPa 12% 9% N.A 2300 MPa N.A Antistatic 11 μm		Farsoon PA11-GF 3450 Black* Mat black 55 μm 0.95 g/cm3 1.40 g/cm3 0.85% (ASTM D570) 199 °C 133°C (ASTM D648) 33 MPa 3450 MPa 12% 9% N.A 2300 MPa N.A N.A N.A N.A 11 μm	Farsoon FR 106* Natural cream color 95 μm 0.45 g/cm3 1.07 g/cm3 N.A 189°C 70°C (ASTM D648) 26 MPa N.A 38% 21% N.A 1345 MPa N.A INA NA NA 1345 MPa N.A Insulator NA
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*Preliminary data. Performance characteristics of these materials may change according to product application, operating conditions, material combined or end use.

** Under reference Innov/PA 1450 from ExcelTec *** Under reference FR 106 from ALM



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