Laser Sintering Materials Selector Guide: Property Summary

Material	Material Base	Colour	Bulk Density g/cm^3	Sintered Density g/cm^3	Melting Point ^{0}C	Flexural Modulus MPa	Elongation at Break (XY) %	Tensile Strength (XY) MPa	Tensile Modulus (XY) MPa	HDT @0.45 MPa ^{0}C	Impact Notched IZOD J/m
PA 250	Nylon 12	White	0.50	1.01	181	1,500	22	46	1,740	179	32
PA 250-ACF	Nylon 12, filled	Dark Grey	0.62	1.35	184	5,040	3.9	58	5,019	178	56
PA 415-GS	Nylon 12, filled	Light Grey	0.68	1.49	181	3,106	3.0	40	2,700	179	41
PA 550-ACF	Nylon 12, filled	Dark Grey	0.62	1.35	184	5,040	4.0	58	5,019	178	56
PA 601-CF	Nylon 12, filled	Dark Grey	0.44	1.07	184	*	4.0	71	5,000	177	*
PA 602-CF	Nylon 12, filled	Dark Grey	0.44	1.07	184	5,040	5.0	66	4,907	175	54
PA 603-CF	Nylon 12, filled	Black	0.41	1.10	184	9,170	4.0	85	7,900	179	84
PA 605-A	Nylon 12, filled	Metallic Grey	0.67	1.47	181	3,517	3.0	43	3,709	180	*
PA 606 FR	Nylon 12	White	0.46	1.02	181	1,500	24	48	1,700	180	32
PA 614-GS	Nylon 12, filled	Light Grey	0.63	1.22	186	2,900	9.0	51	3,200	157	65
PA 615-GS	Nylon 12, filled	Light Grey	0.67	1.49	179	3,300	2.0	38	5,910	179	96
PA 616-GS	Nylon 12, filled	Light Grey	0.67	1.49	179	3,300	2.0	38	5,910	179	96
PA 617-GS	Nylon 12, filled	Black	0.67	1.49	179	3,300	2.0	38	5,910	179	96
PA 620-MF	Nylon 12, filled	White	0.46	1.20	184	4,550	5.0	51	5,725	184	*
PA 625-MF	Nylon 12, filled	White	0.46	*	184	4,500	4.0	52	5,500	177	*
PA 635-GSL	Nylon 12, filled	Black	0.37	0.77	184	2,179	3.0	41	2,199	*	*
PA 640-GSL	Nylon 12, filled	Dark Grey	0.37	0.82	184	5,040	3.0	49	3,816	180	*
PA 650	Nylon 12	White	0.46	1.02	181	1,500	24	48	1,700	180	32
PA 703-CF	Nylon 6, filled	Dark Grey	0.45	1.26	200	6,771	2.0	53	6,398	*	*
PA 802-CF	Nylon 11, filled	Black	0.48	1.11	200	4,978	11	70	6,388	186	*
PA 803-CF	Nylon 11, filled	Black	0.48	1.17	200	5,860	8.0	88	8,211	186	*
PA 815-GS	Nylon 11, filled	Black	0.48	1.30	200	1,724	10.4	36	2,661	*	*
PA 820-MF	Nylon 11, filled	Light Grey	0.48	1.25	200	1,751	7.0	54	3,662	*	*
PA 840-GSL	Nylon 11, filled	Black	0.42	0.87	200	*	4.0	48	3,378	*	*
PA 850 Black	Nylon 11	Black	0.50	1.03	200	1,310	51	48	1,475	188	74
PA 860 Natural	Nylon 11	White	0.5	1.03	201	1,310	51	48	1,475	188	74
PA D80	Nylon 11	White	0.45	1.07	186	1,345	38	46	1,392	186	69
PA D80-ST	Nylon 11	White	0.45	1.07	186	1,345	38	46	1,392	186	69
PA FR-106	Nylon 11	White	0.45	1.07	186	1,345	38	46	1,392	186	69
PA FR-109	Nylon 11	White	0.45	1.07	186	1,345	34	46	1,392	186	69
PS 100"	Polystyrene	White	0.61	0.80	<250	*	0.5	5.50	1,600	*	*
PS 200#	Polystyrene	White	0.46	0.86	>63	*	110	2.84	1,604	33	11
TPE 210-S	Thermoplastic Elastomer	White	0.37	1.03	178	13	110	*	8	*	*

* testing in progress

" all data shown without wax infiltration

all data shown infiltrated with red wax #2-D504

ALM LLC
ADVANCED LASER MATERIALS
www.alm-llc.com

RP Support Limited
14 Bridgegate Business Park
Gatehouse Way, Aylesbury
Buckinghamshire HP19 8XN
44 (0)1296 425665
44 (0)1296 425665
support@rpsupport.co.uk
www.rpsupport.co.uk

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Application	Nylon 6	Nylon 11	Nylon 11 Filled	Nylon 12	Nylon 12 Filled	Poly-styrene	Elastomer	PEEK
Prototype Parts Thermoplastic-like modulus with excellent mechanical properties Materials are for general use		PA D80-ST PA 860 Natural						
Functional Prototype Parts Thermoplastic-like modulus with excellent mechanical properties Materials are easy to process, display fine detail resolution & good surface finish		PA D80 PA 860		PA 250 PA 650				
Black Functional Prototype Parts Thermoplastic-like modulus with outstanding mechanical properties For parts with a matt black appearance		PA 850 Black						
Accurate, Easy to Finish Parts Glass spheres add stiffness and make parts easier to polish and finish Parts exhibit excellent dimensional accuracy			PA 815-GS PA 840-GSL		PA 415-GS PA 614-GS PA 615-GS PA 616-GS PA 617-GS PA 640-GSL			
Accurate, High Strength Parts Aluminium filler adds strength and produces parts with excellent surface detail Parts exhibit excellent dimensional accuracy					PA 250-ACF PA 605-A			
Light-weight, Reinforced Parts Carbon, glass and mineral fibres add stiffness and reinforcement Often used for light-weight Aerospace applications	PA 703-CF		PA 802-CF PA 803-CF PA 820-MF		PA 601-CF PA 620-MF PA 625-MF PA 635-GSL			
Wind Tunnel Models Very rigid, very high flexural modulus, carbon fibre reinforced Typically used for wind tunnel, high quality surface finish applications					PA 602-CF PA 603-CF PA 550-ACF			
Fire Retardant High levels of fire retardancy Meets burn, smoke and toxicity specifications		PA FR-106 PA FR-109		PA 606 FR				
Investment Casting For complex casting patterns, Materials can be infiltrated with wax						PS 100 PS 200		
Flexible Parts Rubber-like parts with good feature definition Can be infiltrated with a polyurethane to impart toughness and abrasion							TPE 210-S	
High Temperature For use in high temperature sintering platforms Offer superior mechanical properties								PEEK HP3

* further laser sintering materials are available, contact RP Support for details

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