



SLS 3D printing powders



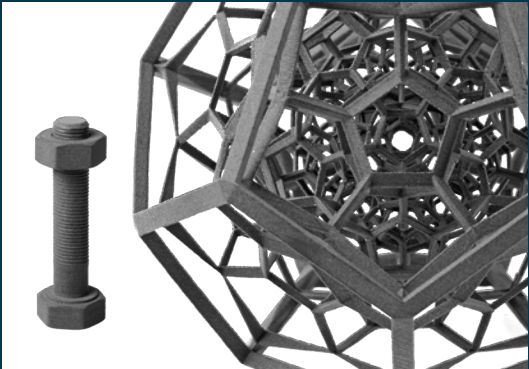


The nature of additive manufacturing is important because it determines the geometry you can print. But it is the materials that determine what properties printed elements will have and in what applications they can be used - what kind of role they will play.

Konrad Kobus,
Mechanical engineer, Sinterit

Widest offer for compact SLS

Print whatever you want



General information

Material type	Nylon 12
Granulation	18 - 90 µm
Color	Navy Grey
Material refreshing ratio ¹	30 %
Compatible with	Lisa & Lisa PRO

Parameters

Tensile Strength	41 MPa
Elongation at Break	13 %
Impact resistance (Charpy test / unnotched)	15 - 20 KJ/m²
Shore hardness in type D scale	74

PA12 Smooth

A cost effective, rigid polyamide 12 powder (nylon based compound) with excellent surface resolution. Perfect for detailed objects.

Applications:

- Rapid prototyping
- Assembled models with interlocking components
- Mechanisms
- Functional parts of highest quality
- Detailed objects
- Low volume production of low stress parts
- Elements with sharp edges

Features:

- High precision
- Smooth surface
- High stiffness
- High chemical resistance



Watch the movie about PA12

High precision



A tough one



Watch the movie about PA11

General information

Material type	Nylon 11
Granulation	20 - 80 µm
Color	Black
Material refreshing ratio ¹	50 %
Compatible with	Lisa PRO

Parameters

Tensile Strength	54 MPa
Elongation at Break	40 %
Impact resistance (Charpy test / unnotched)	min. 150 KJ/m²
Shore hardness in type D scale	76

Applications:

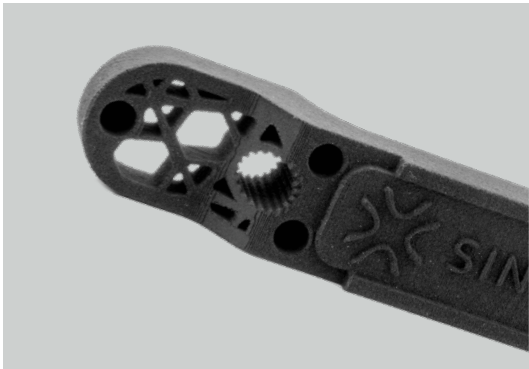
- Final prototypes
- All elements that need to work under load
- Spare parts
- Jigs, fixtures
- Snap-fit designs

Features:

- High mechanical, impact, wear and chemical resistance
- More elastic than PA12

PA11 Onyx

Nylon powder with superior mechanical and thermal resistance. Great for elements working in difficult conditions.



¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material



General information

Material type	TPU
Granulation	20 - 105 µm
Color	Grey
Material refreshing ratio ¹	0 %
Compatible with	Lisa & Lisa PRO

Parameters

Tensile Strength	3.7 MPa
Elongation at Break	137 %
Shore hardness in type A scale	70 / 90 ³

Flexa Grey

General purpose elastic TPU material for prototyping and final parts.

Applications:

- Prototyping elastic parts
- Washers
- Gaskets
- Elastic sleeves
- Vibration dampers and isolators

Features:

- Elasticity
- Adjustable hardness (set up in Sinterit Studio)

For all elastic parts

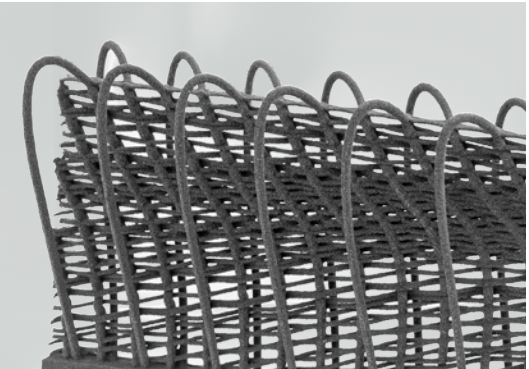
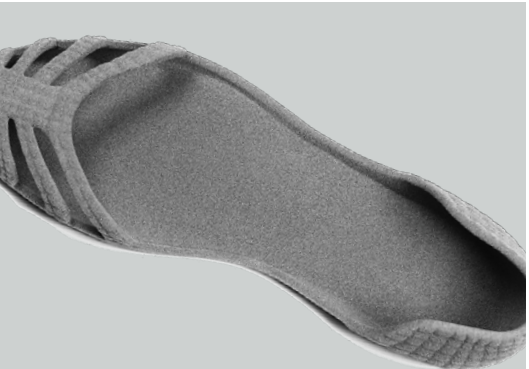
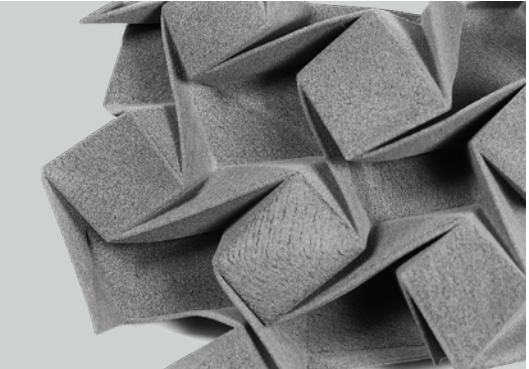


Soft to the touch



Flexa Soft

Low Shore-A material that could be used in design, art and simulation of highly soft materials.



General information

Material type	TPU
Granulation	50 - 80 µm
Color	Light Grey
Material refreshing ratio ¹	0 %
Compatible with ²	Lisa ³ & Lisa PRO

Parameters

Tensile Strength	1.8 MPa
Elongation at Break	137 %
Shore hardness in type A scale	45 - 56 ⁴

Applications:

- Elastic elements that don't need high mechanical resistance
- Soft elements
- Housing elements that need to be soft to touch
- Fashion design

Features:

- Elastic
- Soft to touch

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material

² Can be used only with Sinterit Studio Profiles or Advanced

³ Compatible only with Lisa 1.5 or higher versions

⁴ Depending on the model shape and size



General information

Material type	TPU
Granulation	26 - 117 µm
Color	Oyster White
Material refreshing ratio ¹	0 %
Compatible with ²	Lisa & Lisa PRO

Parameters

Tensile Strength	10.0 MPa
Elongation at Break	317 %
Shore hardness in type A scale	79

Flexa Bright

A functional rubber material that can be dyed to other colors.

Applications:

- Prototyping elastic elements that need to be colored
- Mock ups
- Prototyping clothing parts
- Elastic printouts with higher mechanical resistance
- Vibration dampers and isolators
- Gaskets
- Pre-surgery and training printouts in the medical industry

Features:

- High mechanical resistance as for TPU
- Dyeable

Color it!



Rubber applications



Watch the movie about TPE

General information

Material type	TPE
Granulation	50 - 80 µm
Color	Grey
Material refreshing ratio ¹	10 %
Compatible with ²	Lisa & Lisa PRO

Parameters

Tensile Strength	6.0 MPa
Elongation at Break	196 %
Shore hardness in type A scale	90

Applications:

- Elastic mechanically resistant elements
- Final prototypes
- Spare parts
- Low volume production of elastic parts
- Water/airtight elements
- Gaskets

Features:

- Water/airtight after sealing with Sinterit Sealer
- Durable
- Elastic



TPE

Elastic and mechanically resistant multi-purpose material, also for air/watertight applications.



¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material

² Can be used only with Sinterit Studio Profiles or Advanced

Comparison table

	PA12	PA11	FLEXA SOFT
	High surface quality	Superior durability and resistance	Elastic and soft
Material type	Nylon 12	Nylon 11	TPU
Status	Available	Available	Available

GENERAL PROPERTIES

Granulation	18 - 90 µm	20 - 80 µm	50 - 80 µm
Average granulation	38 µm	40 µm	65 µm
Color	Navy Grey	Black	Light Grey
Material refreshing ratio¹	30 %	50 %	0 %
Compatible with	Lisa & Lisa PRO	Lisa PRO	Lisa ³ & Lisa PRO ²

PARAMETERS

Tensile Strength	31 MPa⁵	46 MPa⁵	1.8 MPa
Flexural Strength	47.4 MPa	61.9 MPa	-
Elongation at Break	6 %⁵	34 %⁵	137 %
Impact resistance at 7.5 J (Charpy test / unnotched)	16 KJ/m²	179 KJ/m²	-
Shore Hardness in scale	D 70	D 74	A 45 / 58⁴

THERMAL PROPERTIES

Softening point (Vicat method type A50)	-	-	60.0 °C
Melting point	186 °C	201 °C	150 °C⁶
Heat deflection temperature at 1.8 MPa	68.4 °C	47.3 °C	-
Printout density	1.03 g/cm³	0.92 g/cm³	0.77 g/cm³
Printout water absorption	8.7 %	0.5 %	12.2 %

APPLICATIONS

Functional prototypes	✓	✓	✓
Final products	✓	✓	✓
Detailed objects	✓	✓	✓
Complex spatial shapes	✓	✓	✓
Parts printed for environments with high mechanical stress	-	✓	-
High temperature resistant objects	-	✓	-
Chemical resistant objects	✓	✓	-
Flexible objects	-	-	✓
Vibration dampers	-	-	✓
Shock absorbers	-	-	✓

FLEXA BRIGHT	FLEXA GREY	TPE
Flexible and dyeable	Functional flexibility	Dense, elastic and strong
TPU	TPU	TPE
Available	Available	Available

26 - 117 µm	20 - 105 µm	50 - 80 µm
72 µm	50 µm	65 µm
Oyster White	Grey	Grey
0 %	0 %	10 %
Lisa & Lisa PRO ²	Lisa & Lisa PRO	Lisa & Lisa PRO ²

Method			
10.0 MPa	3.7 MPa	6.0 MPa	PN-EN ISO 37:2007
-	-	-	PN-EN ISO 178:2011
318 %	137 %	196 %	PN-EN ISO 37:2007
-	-	-	PN-EN ISO 179-1/1eU:2010
A 79	A 70 / 90⁴	A 90	PN-EN ISO 868:2005
75.1 °C	67.6 °C	n.d.a	PN-EN ISO 306:2014-02
160 °C⁶	160 °C⁶	190 °C⁶	PN-EN ISO 11357-3:2018
-	-	-	PN-EN ISO 75-2:2013-06
0.95 g/cm³	0.74 g/cm³	0.70 g/cm³	PN-EN ISO 845:2010
3.0 %	9.1 %	n.d.a	PN-EN ISO 62:2008

✓	✓	✓
✓	✓	✓
-	-	-
✓	✓	✓
-	-	✓
-	-	-
-	-	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material. FLEXA has 100 % usability.

² Can be used only with Sinterit Studio Profiles or Advanced.

³ Compatible only with Lisa 1.5 or higher versions.

⁴ Depending on printing settings.

⁵ Tested according to ISO 527-2:2012

⁶ Internal procedure

Information provided within this document are average values for reference and comparison only. Parameters presented in this specification are subject to change. Final part properties may vary based on printed part design and print orientation.



Sinterit Lisa PRO is the most accessible device to produce precise constraint-free solutions to modern problems.

Maurice Briggs, Lazerthrust