



Complete 3D



SINTERIT

POWDERS CATALOGUE

The **widest range** of materials
for compact SLS solution



Print whatever you want

with 7 ready to use materials and possibility to use 3rd party materials



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

PA12 Smooth
Standard Prototyping



PA11
Performance



PA11 ESD
Special Applications



Flexa BRIGHT
Flexible



Flexa SOFT
Flexible



Flexa GREY
Flexible



TPE
Flexible



3rd Party materials

The most powerful 3D technology accessible to you

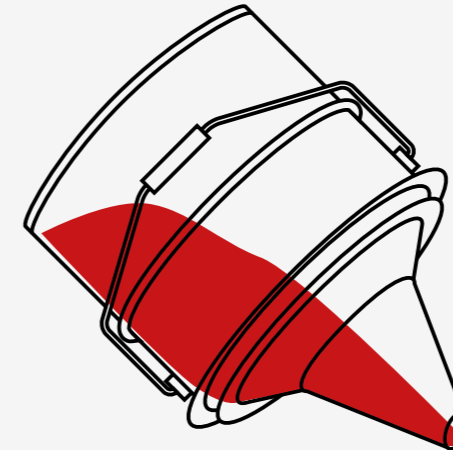
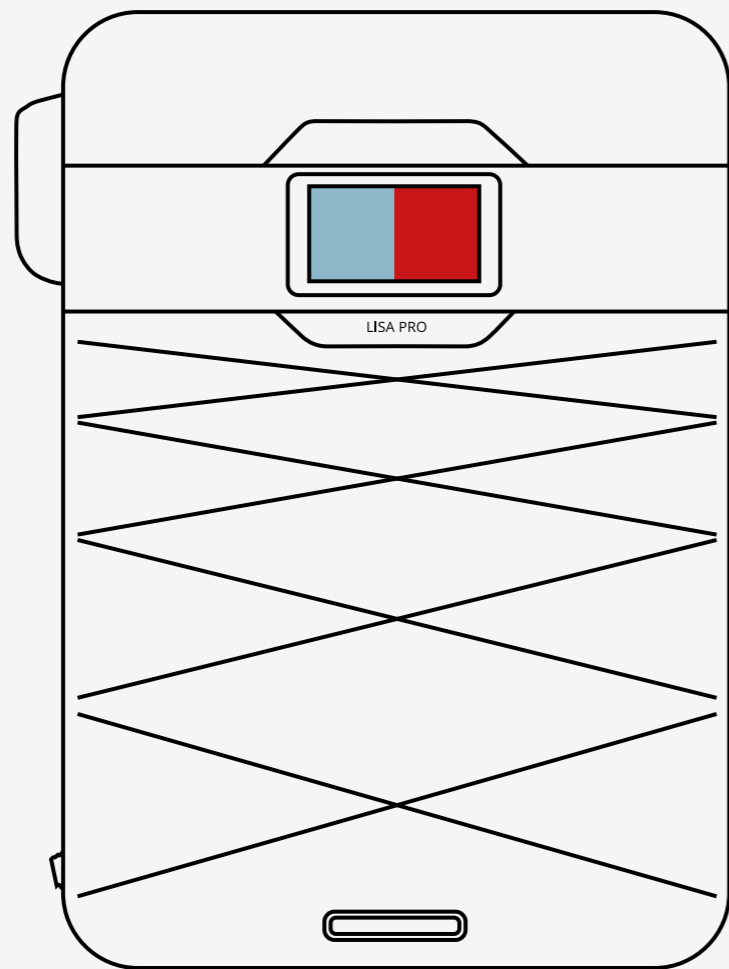


Lifecycle of the powder

All unused powder can be reused. Powder is not a throw-away thing - it can be reused when mixed with proper amount of fresh powder.

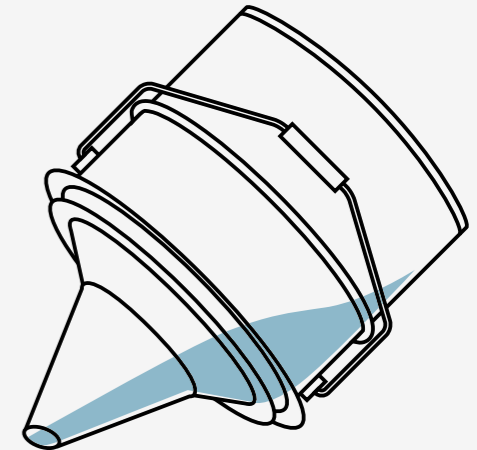
Refresh ratio of our materials is the best in our segment.

Removing powder after process



**USED
POWDER**

MIXING
You can do this with help of PHS or a Powder Sieve



**FRESH
POWDER**



*Filling Machine
Preparation for printing*



SLS: the most powerful 3D technology



Our customers' printing applications surprise us constantly. We try to answer all of them. That's why our offer is and will remain the widest on the compact SLS. So... expect more this year.

Konrad Głowacki
Chief Business Development Officer,
Sinterit

www.sinterit.com



General information

Material type	Nylon 12
Granulation	18 - 90 µm
Color	Navy Grey
Material refreshing ratio ¹	26 %
Compatible with	Lisa & Lisa PRO

Mechanical Properties

Tensile Strength	32 MPa
Elongation at Break	10 %
Impact resistance (Charpy test / unnotched)	16 kJ/m ²
Shore hardness in type D scale	74

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material. This amount might vary depending on storing, handling and printing conditions.

PA12 Smooth

A cost effective, rigid polyamide 12 with excellent surface resolution. Perfect for detailed objects and general prototypes.

Applications:

- Rapid prototyping
- Detailed objects
- Functional parts of the highest quality
- Low volume production of low stress parts
- Working mechanisms

Functions:

- High details
- Smooth Surface
- High chemical resistance
- Regular mechanical properties



Watch the movie about PA12 Smooth

High precision



Low refresh ratio



Watch the movie about PA11 Onyx

A tough one



PA11 Onyx

Nylon powder with great mechanical properties and impact strength. Great for elements working in difficult conditions.



General information

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

Parameters

Tensile Strength	48 MPa
Elongation at Break	55 %
Impact resistance (Charpy test / unnotched)	179 kJ/m ²
Shore hardness in type D scale	76

Applications:

- Final prototypes with great mechanical properties
- Snap-fit designs
- End-use parts
- Living hinges
- Jigs, fixtures and tooling

Functions:

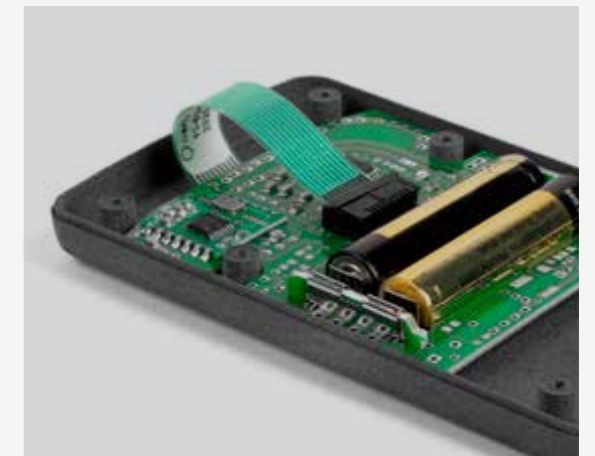
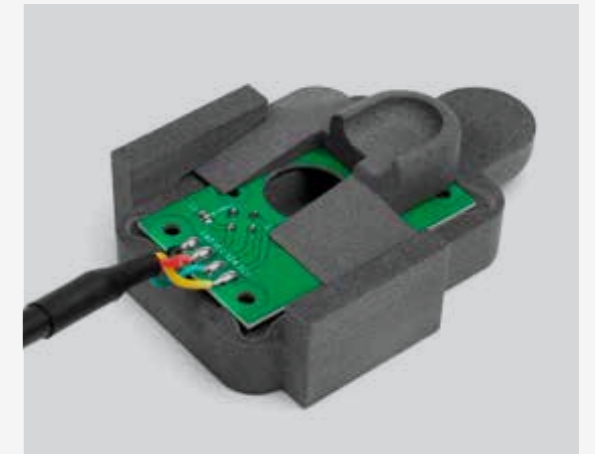
- High mechanical strength
- High toughness (impact strength)
- Dimension stability
- High ductility
- Bio-sourced (castor oil)

ESD Safe



PA11 ESD

Bio-sourced nylon material that is heat resistant and ESD safe. Dedicated for electrostatic safe parts for electronic and automotive industries.



General information

Material type	Nylon 11
Granulation	20 - 80 µm
Color	Grey
Material refreshing ratio ¹	60 %
Compatible with ²	Lisa PRO

Parameters

Tensile Strength ³	46/50 MPa
Tensile modulus (Young) ⁷	1850 / 2080 MPa
Heat deflection temperature at 1.8 MP	103 °C
Elongation at Break	27 %
Impact resistance (Charpy test / unnotched)	59 kJ/m ²
Specific volume resistance	1.0x10 ⁵ Ω
Specific surface resistance	5.3x10 ⁴ Ω

Applications:

- Electronic casing
- Tools and testers in electronics production
- Automotive prototyping
- High-accuracy parts

Functions:

- ESD safe material
- Better thermal properties
- Dimensional stability
- Bio-sourced (castor oil)

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material. This amount might vary depending on storing, handling and printing conditions.

² Can be used only with Sinterit Studio Profiles or Advanced

³ Depending on the model shape and size

⁷ Tested on virgin powder

Parameters presented in this specification are subject to change without notice. Final part properties may vary based on printed part design and print orientation.



Flexa Grey

General purpose elastic TPU material for prototyping. Reasonable elongation with the ease of use.

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	136 %
Shore hardness in type A scale	70 / 90 ⁴

Applications:

- Easy elastic parts
- Vibrations dampers
- General prototyping of elastic parts

Functions:

- Easy to process rubber
- Adjustable hardness (set up in Sinterit Studio)

For all elastic parts →

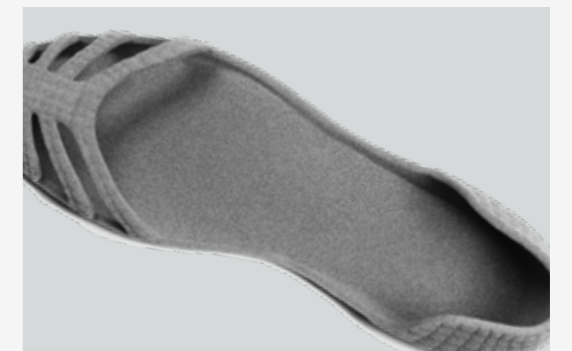
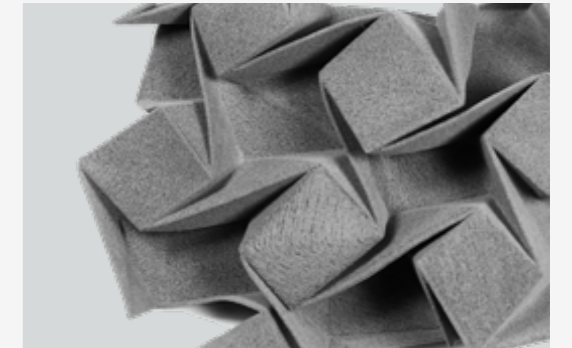


Soft to the touch



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 - 48 ⁴

Applications:

- Haptic-touch parts
- Vibration dampers
- Soft elements
- Fashion design

Functions:

- Low Shore hardness
- Elasticity

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material. This amount might vary depending on storing, handling and printing conditions.

² Can be used only with Sinterit Studio Profiles or Advanced

³ Compatible only with Lisa rev. B or higher versions.

⁴ Depending on the model shape and size

Flexa Bright

Dedicated rubber for high-elongation parts with possibility to dye it various colors.

Applications:

- Visual aids for medical industry
- Elastic printouts with higher mechanical resistance
- High-elongation parts
- Prototyping wearables
- Cosmetic prototypes

Functions:

- High mechanical properties as for TPU
- Dyeable
- High-elongation
- Bright colour



Color it!



General information

Material type	TPU
Granulation	26 - 117 µm
Color	Oyster White
Material refreshing ratio ¹	0 % ⁹
Compatible with ²	Lisa & Lisa PRO

Parameters

Tensile Strength	10 MPa
Elongation at Break	318 %
Shore hardness in type A scale	79 ³

¹ Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material. This amount might vary depending on storing, handling and printing conditions.
² Can be used only with Sinterit Studio Profiles or Advanced.
³ Depending on the model shape and size.
⁹ It might need additional refresh with 50% in case of drop of surface quality (every few to over a dozen printouts).

Skin-friendly



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

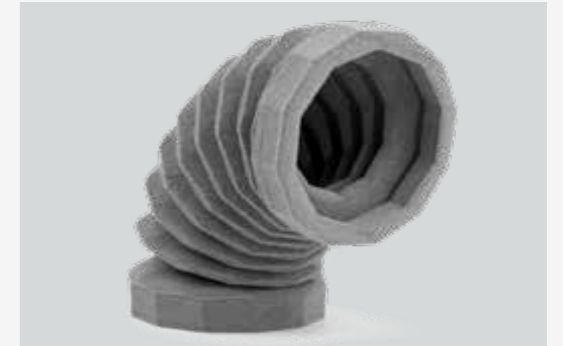
Tensile Strength	6.0 MPa
Elongation at Break	196 %
Shore hardness in type A scale	90 ³

Applications:

- Hoses, gaskets
- Skin-touch applications
- Water/airtight elements
- Rubber-like functional prototypes

Functions:

- Durable
- Water/airtight after sealing with Sinterit Sealer



TPE

Elastic and mechanically resistant material with ability to become air/watertight.

Comparison table

	PA12 Smooth	PA11 Onyx	PA11 ESD
KEY FEATURES	Cost-efficient rigid polyamide. Best surface quality.	Great mechanical and impact resistance. High elongation at break.	ESD material for cases. Bio-sourced material.
Material base	Polyamide 12	Polyamide 11	Polyamide 11
Dedicated for	Lisa, Lisa Pro	Lisa Pro	Lisa Pro
Software	All	All	Advanced
Status	Available	Available	Available

FUNCTIONS			
Stiff / rigid	■ ■ ■	■ ■ ■	■ ■ ■
Non-rigid / durable-tough	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■
Elastomeric / rubber-like			
High-temperature resistance	■ ■ ■		■ ■ ■ ■
High elongation		■ ■ ■	
High-impact strength	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■
Surface Finish	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■
Color	Navy Grey	Black	Grey

APPLICATIONS			
Production parts	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■
Snap-fits / Living Hinges	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■
Automotive design	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■
Aerospace parts and ducting		■ ■ ■ ■	■ ■ ■ ■
Medical applications	■ ■ ■		
Jigs / fixtures / tools	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■
Gaskets, seals and hoses			
Footwear			
Visual aid	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■

GENERAL PROPERTIES			
Refresh Ratio ¹	26%	50%	60%
Nitrogen needed	No	Yes	Yes
Color	Navy Grey	Black	Grey
Granulation	18 - 90 µm	20 - 80 µm	20 - 80 µm
Average granulation	38 µm	40 µm	40 µm
Printout density	0.92 g/cm ³	1.03 g/cm ³	1.03 g/cm ³
Printout water absorption	8.7 %	0.5 %	0.16%

MECHANICAL PROPERTIES			
Tensile Strength	32 MPa	48 MPa	46 / 50 MPa ⁷
Tensile modulus (Young)	1470 MPa	1680 MPa	1850 / 2080 MPa ⁷
Flexural Strength	47 MPa	62 MPa	56 MPa
Flexural Modulus	1160 MPa	1420 MPa	1240 MPa
Elongation at Break	10%	55%	27%
Impact strength Charpy method - unnotched	16	179+	59
Shore Hardness in scale	D74	D76	D76

THERMAL PROPERTIES			
Softening point (Vicat method type A50, 10N)	-	-	-
Melting point	185 °C	200 °C	204 °C
Heat deflection temperature at 1.8 MPa	68 °C	47 °C	103 °C / 171 °C ⁸

Flexa Grey	Flexa Soft	Flexa Bright	TPE
Rubber material for prototypes. Standard material for TPU parts.	Softest material for SLS. Pleasant to touch rubber.	Visual prototypes possible to dye. Best elongation rubber.	Possibility to make it water/air tight. Final products that can be skin-touch certified.
TPU	TPU	TPU	Block Polyester
Lisa, Lisa Pro	Lisa ³ , Lisa Pro	Lisa, Lisa Pro	Lisa, Lisa Pro
All	Profiles & Advanced	Profiles & Advanced	Profiles & Advanced
Available	Available	Available	Available

■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■
■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■
■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
Grey	Light Grey	Oyster White	Grey

■ ■ ■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
			■ ■ ■
			■ ■ ■
		■ ■ ■	■ ■ ■ ■
■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■ ■
■ ■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■

0%	0%	0%	10%
No	No	No	No
Grey	Light Grey	Oyster White	Grey
20 - 105 µm	50 - 80 µm	26 - 117 µm	50 - 80 µm
50 µm	72 µm	65 µm	65 µm
0.74 g/cm ³	0.77 g/cm ³	0.95 g/cm ³	0.70 g/cm ³
9.1 %	12.2 %	3.0 %	-

3.7 MPa ⁵	1.8 MPa ⁵	10 MPa ⁵	6 MPa ⁵	PN-EN ISO 527-2:2012
-	-	-	-	PN-EN ISO 527-2:2012
-	-	-	-	PN-EN ISO 178:2011
-	-	-	-	PN-EN ISO 178:2011
136%	137%	318%	196%	PN-EN ISO 37:2007
-	-	-	-	PN-EN ISO 179-1/1eU:2010
A70-A90 (4)	A45-A58 (4)	A79	A90	PN-EN ISO 868:2005

67.6 °C	60.0 °C	75.1 °C	-	PN-EN ISO 306:2014-02
160 °C ⁶	150 °C ⁶	160 °C ⁶	190 °C ⁶	PN-EN ISO 11357-3:2018
-	-	-	-	PN-EN ISO 75-2:2013-06

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 rev. B or higher versions.

⁴ Depending on printing settings and the design

⁵ Tested according to ISO 37:2007

⁶ Internal procedure

⁷ Tested on virgin powder

⁸ HDT B at 0.455 MPa

⁹ It might need additional refresh with 50% in case of drop of surface quality (every few to over a dozen printouts).

Information provided within this document are average values for reference and comparison only. Parameters presented in this specification are subject to change without notice. Final part properties may vary based on printed part design and print orientation.

■ ■ ■ ■ — good
 ■ ■ ■ ■ ■ — better
 ■ ■ ■ ■ ■ ■ — best

METHOD

PN-EN ISO 845:2010
PN-EN ISO 62:2008



Complete 3D



SINTERIT

If you have any questions or need support, feel free to contact us

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