nanovia COMPOSITE MATERIALS *for* ADVANCED INDUSTRIALS

Nanovia PLA Flax :

Flax fiber reinforced

Nanovia PLA Flax is entirely bio sourced, biodegradable, and certified without endocrine disruptors. The non-abrasive flax fibres, sourced in the north of France, improve the material's mechanical properties and reduce PLA's warping tendencies. By varying the temperature it's possible to brown the fibres and alter the part's colour.

Advantages

- Easy to print
- Biocourced and biodegradable
- Certified endocrine disruptor free

Application recommendations

Storage

- Store in airtight container with desiccant, out of direct sunlight.
- Dehydrate for 4h at 50°C prior to printing after prolonged exposure to humidity.

Post treatment

- Standard PPE recommended (dust mask, gloves)

Properties

3D Printing

Extrusion temperature	200 – 230	°C	
Plate temperature	50 – 70	°C	
Enclosure temperature	20	°C	
Nozzle (minimal)	0.5	mm	
Diameter	1.75 & 2.85	mm	+/- 50 µm
Colours	Native (brown), black		

Mechanical properties

Physical

Density	1,25	g/cm^3	ISO 1183
Hardness	77	Shore D	

Tensile

Test performed at 1mm/min on 3D printed test specimins at 0°, along with the tension stress.

Young modulus's	3100	MPa	ISO 527-2/1A
Ultimate strength	41	MPa	ISO 527-2/1A
Elongation ultimate strength	2.5	%	ISO 527-2/1A

Health and safety

Printing

- We recommend printing Nanovia PLA Flax in a room equipped with air extraction or by using appropriate breathing equipment.

Post treatment

- We recommend wearing standard safety equipment during the post treatment of your prints made with Nanovia PLA Flax.

1 Method OEDT – SERPBIO Laboratory. Sample : NANOVIA 3D filament PLA Flax.

Study: Measuring the activity of the human estrogenic receptors expressed in S. cerevisiae (SW303.1B)

Every measurement is reproduced 3 times independently with the different contents of the tested sample

Results: The obtained data shows that the tested product does not influence the measured activity

Note on the ratio of circulating plasmic œstradiol: With menopaused women / with men: * [4×10-11M – 2×10-10M] with pre menopaused women (excluding ovulation): [1×10-10M – 5×10-10M] / with women (ovulation): [2×10 -9m] * a value is considered critical when it exceeds [2×10-11M].

CONCLUSION: The tested material can be considered absent of endocrine disruptors.

Certifications

- Certification RoHS Nanovia PLA Flax :

Links

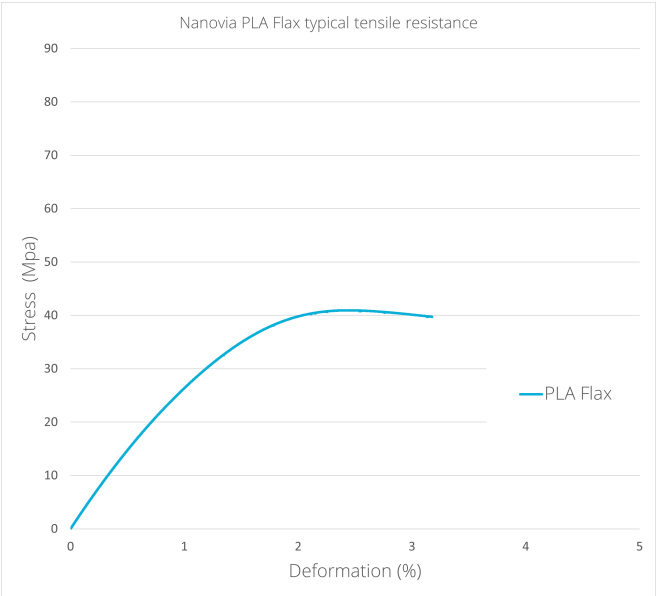
- Ultimaker Cura slicer material profile: Link

Test performed at 1mm/min on 3D printed test specimins successively at 45° and -45° per layer.

Young's modulus	2830	MPa	ISO 527-2/1A
Ultimate strength	37	MPa	ISO 527-2/1A
Elongation ultimate strength	2.4	%	ISO 527-2/1A

Test performed at 1mm/min on 3D printed test specimins at 90°, oposite to the tension stress.

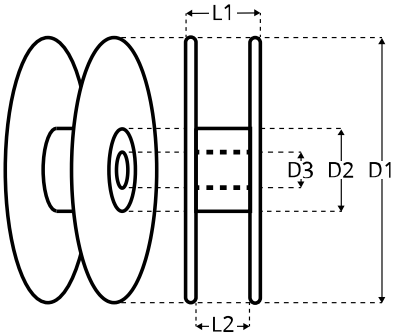
Young's modulus	2270	MPa	ISO 527-2/1A
Ultimate strength	26	MPa	ISO 527-2/1A
Elongation ultimate strength	2.1	%	ISO 527-2/1A



Thermal properties

Tg	55 – 60	°C	
DTUL	50	°C	
Melt Flow rate (MFR)	7 – 9	g / 10 min	ISO 1133
HDT B (0.45 MPa)	80 – 90	°C	E2092

last updated : 08/03/2023



Packaging

Vacuum packed spools, with desicant, packed in individual boxes with engraved serial number.

Other formats available on demand.

Spool	L1	L2	D1	D2	D3	Weight
500g	53	46	200	90	52	182 g
2kg	92	89	300	175	52	668 g

www.nanovia.tech/ref/pla-flax