

# Technical Data Sheet

## Innofil3D PLA

Filament suitable for all commercially available leading brands 3D FDM/FFF printers

### IDENTIFICATION OF THE MATERIAL

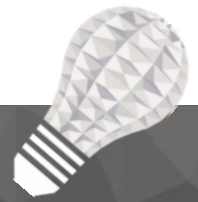
Trade name	Innofil3D PLA
Chemical name	Polylactic Acid
Chemical family	Thermoplastic Polylactic Acid
Use	3D-Printing
Company	Innofil3D BV


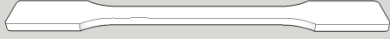
### GUIDELINE FOR PRINT SETTINGS

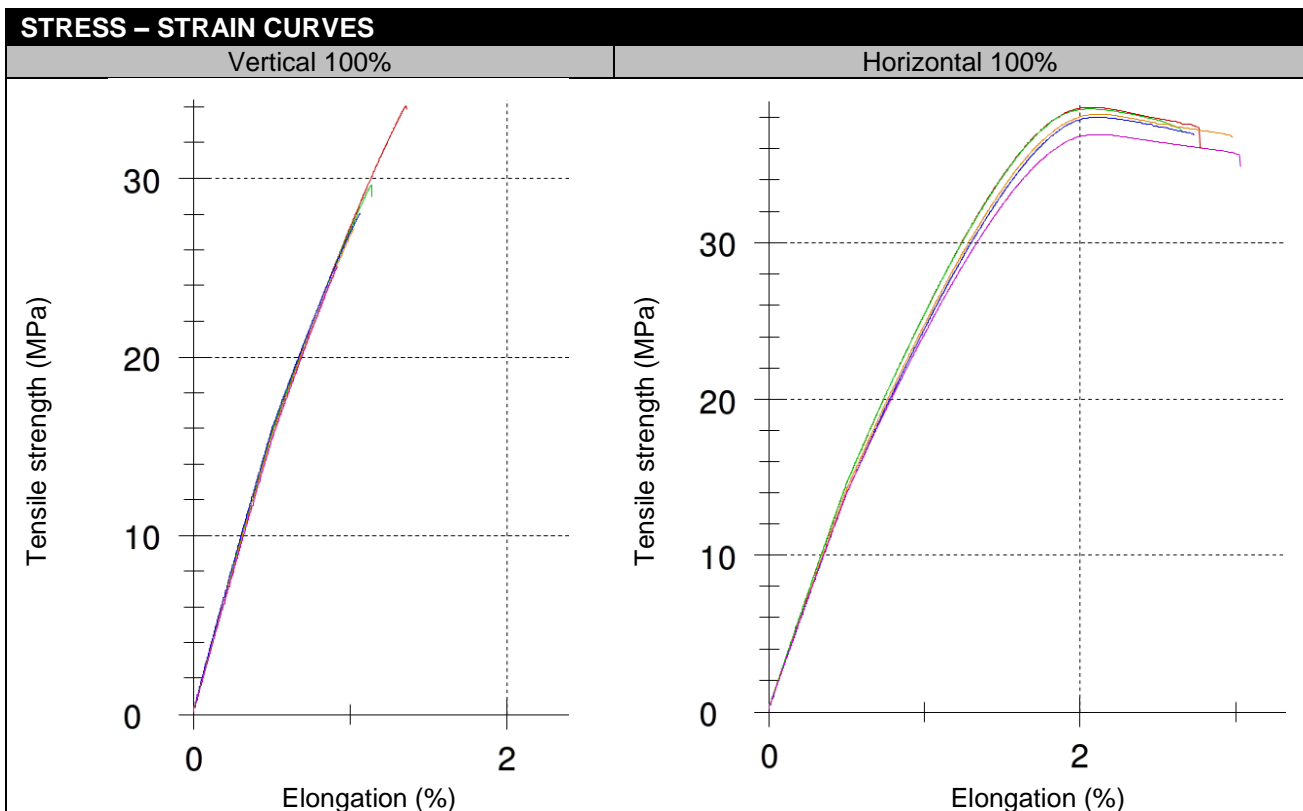
		Test Method
Nozzle temperature	220 ± 10 °C	Innofil3D
Bed temperature	Approx. 60 °C	Innofil3D
Bed modification	Tape or glue below 60 °C	Innofil3D
Active cooling fan	YES	Innofil3D
Layer height	0.08 – 0.2 mm	Innofil3D
Shell thickness	0.4 – 0.8 mm	Innofil3D
Print speed	40 – 80 mm/s	Innofil3D

### MATERIAL PROPERTIES

		Test Method
Melt temperature	145 – 160 °C	ASTM D3418
Glass transition temperature Tg	~ 60 °C	ASTM D3418
MFR	6.09 g/10min	T=210°C; m=2.16kg
MVR	6.73 cm <sup>3</sup> /10min	T=210°C; m=2.16kg
Density	1.2560 g/cm <sup>3</sup>	ASTM D1505
Odor	Odorless	/
Solubility	Insoluble in water	/



MECHANICAL PROPERTIES			Test Method ISO 527		
All test specimens were printed using an Ultimaker 2 under the following conditions: printing temperature = 210°C, heated bed temperature = 75°C, print speed = 40 mm/s, number of shells = 2, Infill under 45°	 Printed vertical (Z-axis)		 Printed horizontal (X,Y-axis)		
	Infill	50%	100%	50%	100%
	Tensile strength (MPa)	14.68 ± 3.29	28.84 ± 4.20	24.12 ± 0.58	38.08 ± 0.89
Force at break (MPa)	14.45 ± 3.19	28.64 ± 4.07	23.86 ± 0.63	36.28 ± 1.14	
Elongation at max force (%)	0.85 ± 0.32	1.10 ± 0.23	2.16 ± 0,07	2.10 ± 0,00	
Elongation at break (%)	0.85 ± 0.32	1.10 ± 0.23	2.40 ± 0.12	2.84 ± 0.19	
Relative tensile strength (MPa/g)	1.59 ± 0,40	2.35 ± 0,36	2.72 ± 0,06	3.25 ± 0,08	
Emodulus (MPa)	2027 ± 44	3150 ± 54	1760 ± 38	2852 ± 88	





FILAMENT SPECIFICATIONS		Test Method
Diameter 1.75	1.75 ± 0.05 mm	Innofil3D
Diameter 2.85	2.85 ± 0.05 mm	Innofil3D
Diameter 3.00	3.00 ± 0.05 mm	Innofil3D
Max. roundness deviation 1.75	0.05 mm	Innofil3D
Max. roundness deviation 2.85	0.10 mm	Innofil3D
Max. roundness deviation 3.00	0.10 mm	Innofil3D
Net weight on reel	750 g ± 2%	Innofil3D

### LIST OF COLORS AND CERTIFICATIONS\*

Colour	Code	RAL nr.	Certifications/approvals				
			10/2011 <sup>1</sup>	FDA <sup>2</sup>	BfR <sup>3</sup>	2011/65 <sup>4</sup>	EN 71-3 <sup>5</sup>
Naturel	0001	N/A	Yes	Yes	Yes	Yes	Yes
Black	0002	9005	Yes	Yes	Yes	Yes	Yes
White	0003	9010	Yes	Yes	Yes	Yes	Yes
Red	0004	3020	Yes	<u>No</u>	Yes	Yes	Yes
Blue	0005	5002	Yes	Yes	Yes	Yes	Yes
Yellow	0006	1003	Yes	Yes	Yes	Yes	Yes
Green	0007	6018	Yes	Yes	Yes	Yes	Yes
Orange	0009	2008	Yes	<u>No</u>	Yes	Yes	Yes
Pearl White	0011	1013	Yes	Yes	Yes	Yes	Yes
Chocolate Brown	0013	8017	Yes	Yes	Yes	Yes	Yes
Gold	0014	1036	Yes	Yes	Yes	Yes	Yes
Light Blue	0015	5012	Yes	Yes	Yes	Yes	Yes
Violet	0016	4008	Yes	Yes	Yes	Yes	Yes
Pink	0020	N/A	Yes	<u>No</u>	<u>No</u>	Yes	Yes
Silver	0021	9006	Yes	Yes	Yes	Yes	Yes
Magenta	0022	4010	Yes	<u>No</u>	Yes	Yes	Yes
Grey	0023	7045	Yes	<u>No</u>	Yes	Yes	Yes
Bronze	0032	8008	Yes	Yes	Yes	Yes	Yes
Sky Blue	0035	N/A	Yes	Yes	Yes	Yes	Yes
Orange Translucent	0010	1028**	Yes	Yes	Yes	Yes	Yes
Blue Translucent	0024	5022**	Yes	Yes	Yes	Yes	Yes
Dark Green Translucent	0025	6005**	Yes	Yes	Yes	Yes	Yes
Ice Blue Translucent	0026	5024**	Yes	Yes	Yes	Yes	Yes
Ocean Blue Translucent	0027	5001**	Yes	Yes	Yes	Yes	Yes

\* This overview is generated using information obtained from the raw material suppliers.

\*\* RAL number used to manufacture the transparent colour.



Certifications/approvals	Description
<sup>1</sup> Regulation EU No 10/2011:	Union Guidelines on Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food (Europe)
<sup>2</sup> FDA:	Food and Drug administration approval (U.S.A.)
<sup>3</sup> BfR-empfehlung:	No migration of substances with a health risk occurs from the contact materials to the foods (Germany)
<sup>4</sup> Directive 2011/65/EU:	The restriction of the use of certain hazardous substances in electrical and electronic equipment (Europe)
<sup>5</sup> Directive 2009/48/EC; EN 71-3:	Safety of toys – Part 3: Migration of certain elements (Europe)