



Technical Data Sheet

EPR InnoPET by Innofil3D BV

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

IDENTIFICATION OF THE MATERIAL

Trade name	EPR InnoPET
Chemical name	MonoPET Polyethylene Terephthalate
Chemical family	Amorphous Thermoplastic Polyester
Use	3D-Printing
Origin	Innofil3D BV

GUIDELINE FOR PRINT SETTINGS

Nozzle temperature	220 ± 10 °C
Bed temperature	Approx. 75 °C
Bed modification	Tape or glue below 60 °C
Active cooling fan	YES; 100%
Layer height	0.08 - 0.2 mm
Shell thickness	0.4 - 0.8 mm
Print speed	40 - 80 mm/s

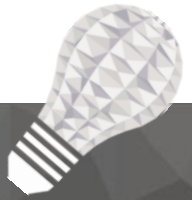
Settings are based on a 0.4 mm nozzle

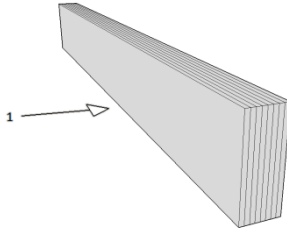
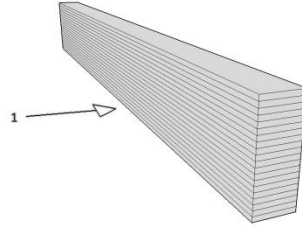
MATERIAL PROPERTIES		Test Method
Melt temperature	Not applicable	ASTM D3418
Glass transition temperature	62°C	ASTM D3418
Density	1.34 g/cm ³	ASTM D1505
Odor	Odorless	/
Solubility	Insoluble in water	/



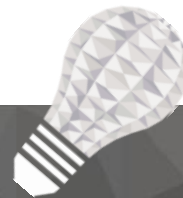
MECHANICAL PROPERTIES TENSILE TEST			Test Method	ISO 527
<p>All test specimens were printed using an Ultimaker 2+ under the following conditions: Printing temperature: 210 °C Heated bed temperature: 75 °C Print speed: 40 mm/s Number of shells: 2 Infill under 45°</p>	 Printed vertical (Z-axis)		 Printed horizontal (X,Y-axis)	
	Infill	50%	100%	50%
Tensile strength (MPa)	11.1 ± 2.2	22.8 ± 4.9	27.7 ± 1.4	40.9 ± 1.9
Force at break (MPa)	11.0 ± 2.0	22.7 ± 4.9	27.3 ± 1.8	39.9 ± 1.5
Elongation at max force (%)	1.0 ± 0.3	1.3 ± 0.4	3.0 ± 0.1	3.0 ± 0.2
Elongation at break (%)	1.0 ± 0.3	1.3 ± 0.4	3.3 ± 0.4	3.1 ± 0.3
Relative tensile strength (MPa/g)	1.2 ± 0.3	1.8 ± 0.4	2.9 ± 0.1	3.3 ± 0.2
Emodulus (MPa)	1328 ± 43	2140 ± 65	1470 ± 58	2264 ± 97

MECHANICAL PROPERTIES IMPACT TEST		Test Method	ISO 179
<p>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° 1 → impact direction</p>	 Charpy (en)	 Charpy (ep)	
	Infill	100%	100%
Impact strength (kJ/m ²)	5.2 ± 0.6	12.4 ± 1.4	
Impact energy (mJ)	199.3 ± 23.7	472.6 ± 54.1	



MECHANICAL PROPERTIES FLEXURAL TEST		Test Method	ISO 178
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° 1 →: bending direction	 <p>Normal</p>	 <p>Parallel</p>	
	Infill	100%	100%
	Flexural modulus (MPa)	2280.8 ± 87.4	2089.3 ± 77.5
	Maximum force (MPa)	76.7 ± 2.2	93.0 ± 1.5
	Deformation (%)	4.1 ± 0.1	4.5 ± 0.1

FILAMENT SPECIFICATIONS		Test Method
Diameter 1.75	1.75 ± 0.05 mm	Innofil3D
Diameter 2.85	2.85 ± 0.10 mm	Innofil3D
Max. roundness deviation 1.75	0.05 mm	Innofil3D
Max. roundness deviation 2.85	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 ¹	FDA ²	2011/65 ³	EN 71-3 ⁴
Naturel	0301	N/A	Yes	Yes	Yes	Yes
Black	0302	9005	Yes	Yes	Yes	Yes
White	0303	9010	Yes	Yes	Yes	Yes
Red	0304	3020**	Yes	<u>No</u>	Yes	Yes
Blue	0305	5022**	Yes	Yes	Yes	Yes
Yellow	0306	1003**	Yes	Yes	Yes	Yes
Green	0307	6018**	Yes	Yes	Yes	Yes
Orange	0309	2008**	Yes	<u>No</u>	Yes	Yes
Pearl White	0311	1013**	Yes	Yes	Yes	Yes
Gold	0314	1036**	Yes	Yes	Yes	Yes

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

** RAL number used to manufacture the (semi-)transparent colour.

Certifications/approvals	Description
¹ 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)
² FDA:	Food and Drug administration approval (U.S.A.)
³ Directive 2011/65/EU:	The restriction of the use of certain hazardous substances in electrical and electronic equipment (Europe)
⁴ Directive 2009/48/EC; EN 71-3:	Safety of toys - Part 3: Migration of certain elements (Europe)