

Material Data Sheet

PLA



General Information

Extruded Polylactic Acid (PLA) for easy 3D printing from renewable resources. This high definition filament conforms to tight diameter and ovality tolerances and enables print details with precision, very good surface and high resolution. Its high quality and resiliency (non-brittleness) avoid unwanted breakages or deformation of the filament on the spool. This odourless material is available in various colours and exhibits excellent colour coverage and batch-to-batch colour consistency. It is industrially compostable.

3D processing method: FFF (Fused Filament Fabrication)

Form: wound on a spool

Packaging: packed in a hermetically sealed plastic bag with silica gel

Colours (with RAL code where applicable): Transparent, White (9016), Light Concrete Grey, Elephant Grey, Metallic Grey, Dark Grey (7011), Black (9017), Dark Blue (5002), Light Blue (5015), Light Green (6018), Dark Green (6002), Red (3020), Orange (2008), Yellow (1023), Coral Pink

Physical Properties	Conditions	Value	Unit	Standard
Density	23°C	1,27	g/cm ³	ISO 1183-1
Melt Flow Rate	190°C / 2,16 kg	2,13	g/10 min.	ISO 1183-1

Thermal Properties	Conditions	Value	Unit	Standard
Glass Transition Temperature	n/a	58	°C	ISO 11357-1
Onset Melting Point	n/a	144	°C	ISO 11357-1
Melting Point	n/a	148	°C	ISO 11357-1
Oxidative Decomposition Temperature	n/a	321	°C	ISO 11357-6
Thermal Decomposition Temperature	n/a	321	°C	ASTM E2550

Mechanical Properties (Injection Moulded)	Conditions	Value	Unit	Standard
Tensile Modulus	23°C	2971	MPa	ISO 527-1
Tensile Yield Strength	23°C	68	MPa	ISO 527-1
Elongation at Tensile Yield	23°C	3,3	%	ISO 527-1
Tensile Strength at Break	23°C	52	MPa	ISO 527-1
Elongation at Tensile Break	23°C	4,6	%	ISO 527-1
Flexural Strength	23°C	192	MPa	ISO 178:2003
Strain at Flexural Yield	23°C	1,4	%	ISO 178:2003
Flexural Strength at Break	23°C	115	MPa	ISO 178:2003
Strain at Flexural Break	23°C	10	%	ISO 178:2003
Charpy Impact Strength Unnotched	23°C	30	kJ/m ²	ISO 179-1eU

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Printing Conditions

Processing Method: FFF (Fused Filament Fabrication)

Nozzle Temperature (°C): 200 ± 10

Speed (mm/s): 50 ± 30

Bed temperature (°C): 55 ± 5 (depending on the conditions and complexity of the print, bed heating can be turned off).

Compliance

This material is compliant with:

- **REACH:** Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the *Registration, Evaluation, Authorisation and Restriction of Chemicals* (REACH)
- **RoHS 2:** Directive 2011/65/EU

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