

PrintPlace

Materials Datasheet (EN)



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PrintPlace Standard Production Technology: FDM

Standard 3D Printing Technology: Fused Deposition Modelling (FDM) / Free Form Fabrication (FFF). This 3D Printing technology is also described as “an additive manufacturing process in which material is selectively deposited through a nozzle or orifice. [FDM] machines force material through a nozzle as the extrusion head or the build platform moves in the x-y plane. After a layer is completed, the build platform moves down, or the extrusion head moves up, and the next layer is extruded and adhered to the previous layer”¹. More information can also be found on [Wikipedia](#).

Standard Part Dimensions: The maximum dimensions for one part amounts 20cm x 20cm x 20cm. Dimensions are bigger when the part is composed out of sub-parts.

Standard Surface Finish: The standard surface finish of a 3D printed part shows very tiny layers as a remnant of the “additive” manufacturing process. This is also proof that the part has been 3D printed. There are possibilities to ‘smooth’ the part in order to smoothen the touch of a printed part. This treatment is not performed in a standard way, but can be looked into on request.

Standard Tolerance: ± 0.10mm (depending on part dimensions).

PrintPlace Standard Material: Poly-Lactic Acid (PLA)

Standard 3D Printing Material: Poly-Lactic Acid (PLA). Poly-Lactic Acid is a “biodegradable thermoplastic polyester (biodegradable plastic) derived from renewable resources, such as corn starch, tapioca roots, starch or sugarcane. In 2010, PLA had the second highest consumption volume of any bioplastic of the world”². More information can also be found on [Wikipedia](#).







Mechanical Property	Value ³
Impact Strength	±7.5 KJ/m ²
Tensile Strength	±110 Mpa
Tensile Modulus	±3310 Mpa
Elongation at Break	160%
Flexural Strength	±55.2 Mpa
Flexural Modulus	±2392.5 Mpa





Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	Yes

¹ Source: “Wohlers Report 20XX – 3D Printing & Additive Manufacturing State of the Industry” by Terry Wohlers, Wohlers Associates Inc.

² Source: “Poly-Lactic Acid”, *Wikipedia*, consulted https://en.wikipedia.org/wiki/Polylactic_acid, 2017.

³ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.

PLA Standard Colors (PrintPlace Store)	PLA Color Sample
Pitch Black (\pm RAL 9017)	
Snow White (\pm RAL 9003)	
Silver Grey (\pm RAL 9006)	
Magenta (\pm RAL 4010)	
Fire Red (\pm RAL 3020)	
Ocean Blue (\pm RAL 5015)	

PLA Standard Colors (PrintPlace Store)	PLA Color Sample
Navy Blue (± RAL 5002)	
Chocolate Brown (± RAL 8016)	
Sunny Yellow (± RAL 1023)	
Leaf Green (± RAL 6018)	

PLA Colors On Request (PrintPlace Custom Products)
<p>PLA Colors provided via PrintPlace Custom Products. Some start-up costs may be taken into account when printing a custom product in these colors:</p> <ul style="list-style-type: none"> ✓ Opaque / Translucent ✓ Light Orange ✓ Dark Grey ✓ Dark Green ✓ Bronze ✓ Gold



PrintPlace Standard Material: Polyethylene Terephthalate (PET)







Standard 3D Printing Material: Polyethylene Terephthalate (PET). Polyethylene Terephthalate is “the most common thermoplastic polymer (plastic) and is used in fibers for clothing, containers for liquids and foods, thermoforming for manufacturing, and numerous other applications. The majority of the world's PET production is for synthetic fibers (in excess of 60%), with bottle production accounting for about 30% of global demand”⁴. More information can also be found on [Wikipedia](#).

Mechanical Property	Value ⁵
Impact Strength	±7.2 KJ/m ²
Tensile Strength	±50 Mpa
Tensile Modulus	±1940 Mpa
Elongation at Break	120%
Flexural Strength	±70.6 Mpa
Flexural Modulus	±2147.6 Mpa
Hardness	105 (Rockwell R-Scale)

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	Yes

⁴ Source: “Polyethylene Terephthalate”, *Wikipedia*, consulted https://en.wikipedia.org/wiki/Polyethylene_terephthalate, 2017.

⁵ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.

PET Standard Colors (PrintPlace Store)	PET Color Sample
Pitch Black (\pm RAL 9017)	
Snow White (\pm RAL 9003)	
Silver Grey (\pm RAL 9006)	
Fire Red (\pm RAL 3020)	
Ocean Blue (\pm RAL 5015)	
Navy Blue (\pm RAL 5002)	

PrintPlace Exotic / Composite Materials


Exotic / Composite 3D Printing Materials: Next to its standard PLA range, PrintPlace also offers a unique range of ‘exotic’ or composite materials. These composite materials usually have unique mechanical properties (flexibility) and/or visual aspects (wooden look and feel), enabling you to create entirely special, 3D Printed objects. The composite materials are currently offered solely on request, through the Custom Products medium.

Materials On Request (PrintPlace Custom Products)
✓ PLA-Wood: Wooden Composite (see below)
✓ PLA-Bronze: Bronze Composite (see below)
✓ PLA-Copper: Copper Composite (see below)
✓ PET-Carbon: Carbon Composite (see below)
✓ TPE-Flex: Flexible Composite (see below)

PrintPlace Wooden Composite (PLA-Wood: 40% Wooden Particles)

Mechanical Property	Value ⁶
Impact Strength	±7.1 KJ/m ²
Tensile Strength	±71 Mpa
Tensile Modulus	±1930 Mpa
Elongation at Break	171%
Flexural Strength	±59.6 Mpa
Flexural Modulus	±2583.9 Mpa

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	No

PLA-Wood Flavours	
✓ Pine Flavour	


⁶ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.



PrintPlace Bronze Composite (PLA-Bronze: 80% Bronze Particles)

Mechanical Property	Value ⁷
Impact Strength	±11.3 KJ/m ²
Tensile Strength	±19.0 Mpa
Tensile Modulus	±3990 Mpa
Elongation at Break	8%
Flexural Strength	-
Flexural Modulus	-

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	No

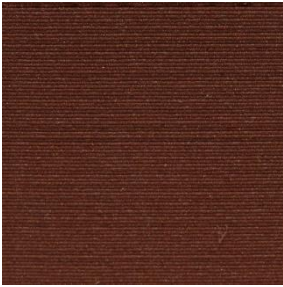
PLA-Bronze Color	
✓ Vintage Bronze	

PrintPlace Copper Composite (PLA-Copper : 80% Copper Particles)

Mechanical Property	Value ⁷
Impact Strength	±9.3 KJ/m ²
Tensile Strength	±18.3 Mpa
Tensile Modulus	±4210 Mpa
Elongation at Break	4.5%
Flexural Strength	-
Flexural Modulus	-

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	No


⁷ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.

PLA-Copper Color	
✓ Vintage Copper	

PrintPlace Carbon Composite (PET-Carbon, 20% Carbon Fiber Filled)

Mechanical Property	Value ⁸
Impact Strength	±7.9 KJ/m ²
Tensile Strength	±52.5 Mpa
Tensile Modulus	±3800 Mpa
Elongation at Break	8%
Flexural Strength	-
Flexural Modulus	± 4600 Mpa
Hardness	109 (Rockwell R-Scale)

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	No

PET-Carbon Colors	
✓ Pitch Black (± RAL 9017)	

⁸ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.



PrintPlace Flexible Composite (TPE-Flex)

Mechanical Property	Value⁹
Impact Strength	Doesn't Break
Tensile Strength	±24 Mpa
Tensile Modulus	±95 Mpa
Elongation at Break	530%
Flexural Strength	-
Flexural Modulus	-
Hardness	45D

Material Certifications	Certification
HS Code	39169090
REACH Compliant	Yes
RoHS Certified	Yes
FDA Compliant	Yes

TPE-Flex Colors	
<p>✓ Pitch Black (± RAL 9017)</p>	

⁹ The mechanical properties of the base material are reflected by these values, but the final mechanical properties of a part can differ from these values due to several other variables, such as the building orientation.