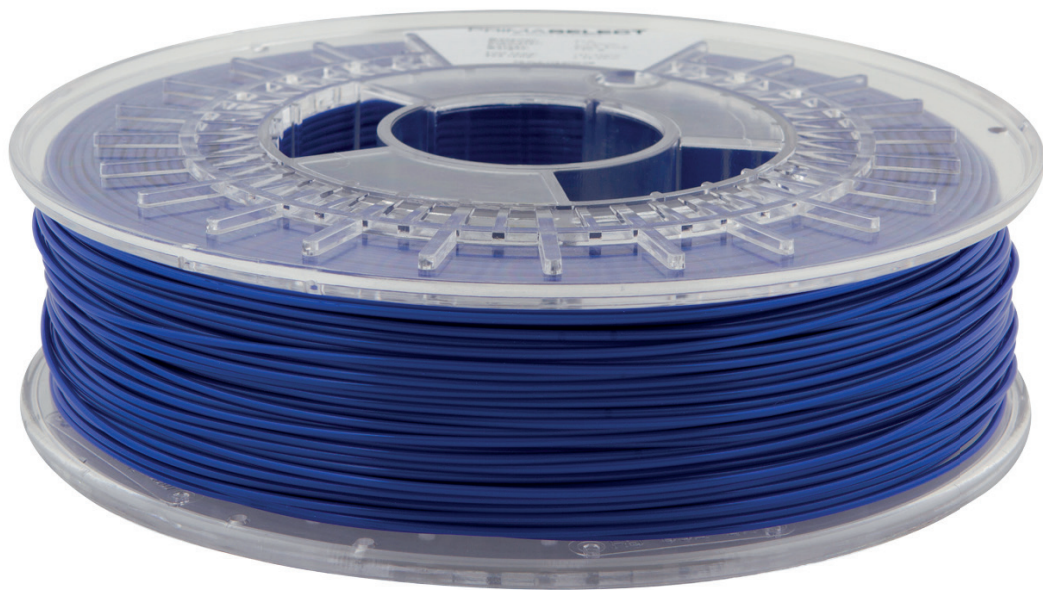


SELECT™

PLA TOUGH

Why should you use Prima SELECT™ PLA Tough?

- Drastically enhanced PLA
- High impact resistance
- Very high stiffness
- Low warping
- No shrinking
- Prints like regular PLA

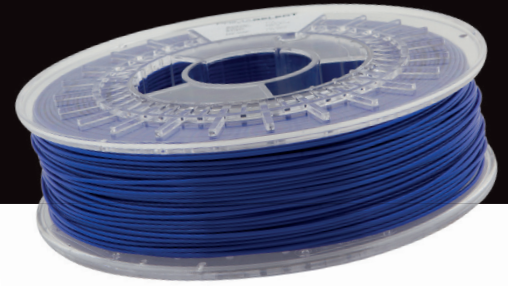


SELECT™ PLA TOUGH

In **SELECT Tough PLA** we used the well known SELECT PLA formula and changed it. The result is a new kind of filament that we call "Tough" It has been engineered for strength and durability and put up a fight against ABS.

SELECT™

PLA TOUGH



Tough PLA has a much higher impact resistance than regular PLA and the stiffness is much better than ABS.

Tough PLA is ideal for printing large/very large prints, like prototypes and functional object. All this without worrying about warping and delamination. The material is just as easy to print as our regular PLA – just much stronger.

Tough PLA prints like regular PLA with the temperature set to 210°C-225°C depending on model, printer and color. Fans should be set to 100% and the heated build plate should be used at a temperature of 60°C-80°C and we recommend PrimaFIX for extra adhesion.

During additional research, a print profile has been made which was optimized for achieving the best performance on printed parts. The table shows the typical values of an injection moulded specimen compared to a 3D printed specimen in both the X Y axis (3D printed horizontally) and the Z axis (3D printed vertically)

TOUGH PLA has excellent impact properties at a broad range of temperatures.

Filament specs.

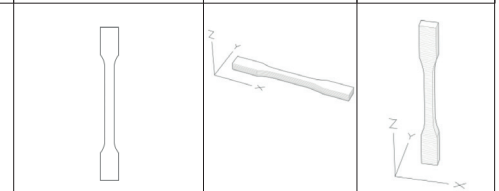
Size	Diameter tolerance	Roundness
1,75 mm filament	+/- 0,05 mm	≥95%
2,85 mm filament	+/- 0,10 mm	≥95%

Material properties

Description	Test Method	Typical value
Specific gravity	ISO 1183	1,21 g/cc
MFR 210°C/2,16 kg	ISO 1133	8,75 gr/10 min
Tensile strength at yield	ISO 527	46 MPa
Tensile strength at break	ISO 527	19 MPa
Strain at yield	ISO 527	2%
Tensile modulus	ISO 527	27%
Impact strength charpy method 23 °C	ISO 179	2750 MPa
Vicat softening temperature B	ISO 306	57°C
Printing temp.	Internal method	210 +/- 10 C

Mechanical specs.

Data of both injection moulded and 3D printed specimens.*			
	Injection Moulded	3D Printed X Y	3D Printed Z
Young's Modulus [MPa] ISO 527	2750	2450	2200
Stress at Yield [MPa] ISO 527	46	41	33
Stress at Break [MPa] ISO 527	19	32	33
Strain at Yield [%] ISO 527	2	2	2
Strain at Break [%] ISO 527	27	20	2,6
Charpy Impact (KJ /m2) ISO 179	29,8	22,9	2,2
Flexural Strength ISO 178	2750	2700	2250
Flexural Modulus ISO 178	72	76	60



Print Conditions

All specimens have been printed using a 0.4 mm nozzle and the layer height was set to 0.2 mm. The room in which the 3D printer was located had an environmental temperature of +/- 25°C.

*Test Conditions

The tensile tests have been carried out according to ISO 527 using modified 1 BA specimens (3D printing) and 1 A specimens (injection moulding). The room in which the Universal Testing Machine was located had an environmental temperature of +/- 20°C.