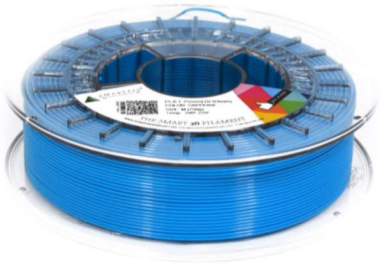
TECHNICAL DATA SHEET

VERSION 1.2
REVISION: 11/05/2025

PLA LW

Smartil PLA LW is an expandable filament designed for prints where weight reduction is key. When reaching temperatures around 230 °C, the material foams, increasing its volume up to three times and significantly reducing filament consumption.

The printed parts are lightweight yet strong, with an excellent surface finish that hides layer lines. Additionally, it is easy to cut, sand, and paint. Ideal for optimizing results in projects that require efficiency and lightness.



Biodegradable | Compostable | Allow for all printers

	VALUES		UNIT OF MEASUREMENT	STANDARD
PHYSICAL PROPERTIES				
Chemical name	Expandable polylactic acid			
Density	1,24		g/cm^3	ASTM D792
MECHANICAL PROPERTIES [1]	**NORMAL**	**EXPANDED**		
Tensile Strength	18,3	5,9	MPa	ISO 527
Tensile Modulus	635,2	255,6	MPa	ISO 527
Flexural Strength	39,9	11,8	MPa	ISO 178
Flexural Modulus	1980,6	537	MPa	ISO 178
Elongation at Maximum Stress	7,4	5,7	%	ISO 527
Tensile Elongation at Break	10,1	15,6	%	ISO 527
Flexural Elongation at Break	8,4	9,2	%	ISO 178
Charpy Impact Strength (Unnotched)	-	-	kJ/m2	ISO 179
Hardness	-	-	Shore D	ISO 7619-1

(1) Values obtained on printed samples, 0.4 mm nozzle, 100% rectilinear infill, 0.2 mm layer height. For more information, please contact us via email at info@smartmaterials.com or visit our website at www.smartmaterials3d.com.

THERMICAL PROPERTIES	**NORMAL**	**EXPANDED**		
Glass transition temperatura (tg)	-	-	˚C	ISO 11357
VICAT B (50 N 50˚C/h)	-	-	˚C	ISO 306
HDT B (0,45 MPa)	-	-	˚C	ISO 75

PRINTING PROPERTIES	**NORMAL**	**EXPANDED**	
Printing temperature	200 – 220	220 – 250	˚C
Bed temperature	40 – 60	40 – 60	˚C
Fan layer	100	100	%
Material Flow	100	40 – 100	%
Layer height	≥ 0,2	≥ 0,2	mm
Nozzle recommendations	≥ 0,4	≥ 0,4	mm
Printing speed	30 – 50	30 – 50	mm/s

SIZE	NET WEIGHT	GROSS WEIGHT	DIAMETER	COLOUR	PACKAGING
L	1000 g	1130 g	1,75 mm	Natural	SmartBag, security seal, dissecant bag.

NOTICE: The information provided in the datasheets is intended to be used as a reference only. It should not be used as design values or for quality control. Actual values may differ significantly depending on the printing conditions. The final performance of printed components depends not only on the materials, but also on the design and printing conditions.