TECHNICAL DATA SHEET

VERSION 1.2
REVISION: 22/02/2023

SMARTFIL by smart materials 3D

PETG

Smartfil PETG or Polyethylene Glycol Terephthalate is a thermoplastic polyester widely used in 3D printing, it is very easy to print due to its low shrinkage and does not generate toxic fumes, so it can be used in domestic places. It is a material of high transparency, so translucent and very bright parts can be printed.

It has great chemical and thermal resistance and is compatible for food use.
In addition, it holds the USP Class VI and ISO 10993-1 medical biocompatibility certificate (valid only in natural color).

Chemical resistance

Biocompatible

Allow for all printers

Food Approved

	VALUES		UNIT OF MEASUREMENT	STANDARD
PHYSICAL PROPERTIES				
Chemical name	Polyethylene glycol terephthalate			
Density	1,27		g/cm^3	ASTM D792
MECHANICAL PROPERTIES [1]	XY PLANE	ZX PLANE		
Tensile strength	32,3	23,7	MPa	ISO 527
Traction module	1186,9	1261,7	MPa	ISO 527
Flexion strength	51,1	47	MPa	ISO 178
Flexion module	1422,5	1460,2	MPa	ISO 178
Elongation at maximum effort	2,4	1,8	%	ISO 527
Elongation by traction at break	2,4	1,8	%	ISO 527
Elongation by flexion at break	15,5	4,3	%	ISO 178
Charpy Impact Force (non-notched)	-	2,8	kJ/m2	ISO 179
Hardness	76,2		Shore D	ISO 7619-1

[1] Values obtained on printed specimens, nozzle 0,4 mm, rectilinear infill 100%, layer height 0,2 mm. For more information please contact us by email at info@smartmaterials.com or visit our website www.smartmaterials3d.com

THERMAL PROPERTIES			
Glass transition temperature (Tg)	78	˚C	ISO 11357
VICAT B (50 N 50°C/h)	74	˚C	ISO 306
HDT B (0,45 MPa)	70	˚C	ISO 75
PRINTING PROPERTIES			
Printing temperature	230 – 245	˚C	
Bed temperature	70 – 90	˚C	
Layer fan	70 – 90	%	
Material flow	95	%	
Layer height	≥ 0,1	mm	
Nozzle recommendations	≥ 0,2	mm	
Print speed	30 – 50	mm/s	

SIZE	NET WEIGHT	GROSS WEIGHT	DIAMETER	COLOR	PACKAGING
M	750 g	975 g	1,75 mm/2,85 mm	Several	SmartBag, security seal, desiccant bag.

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