

Type G polyethylene terephthalate (PETG)

General

In general, one can say that PET-G is characterized by clarity/transparency, odor neutrality and robustness. Nevertheless, PET-G is very easy to print and there are no significant problem areas.

These properties, together with high impact strength, excellent flexibility and shrinkage values close to zero, make PET-G an excellent material for FDM 3D printing.

Only before processing there is one very important point to consider. PET-G must be well pre-dried to prevent the material from forming bubbles and decomposing during processing. This fact also affects the storage of already used filament rolls. These must be stored in a dry and airtight manner (already humidity can severely deteriorate the filament). It is advisable to add small drying bags (silica) to the packaged roll. If it is noticed during processing that the filament is «damp», it can be dried in the oven at 80°C for 2h-4h. This filament meets the compositional requirements of European Regulation No. 10/2011 on plastic materials intended for food contact.

advantageous

- Shrinkage very low
- High hardness and strength
- high toughness down to temperatures of -40 °C
- high abrasion resistance
- Good electrical insulating properties
- Physiologically harmless
- PETG is stress crack resistant
- Resistant to weather and hot air
- Resistant to alcohols and oils

disadvantageous

- absorbs moisture strongly, pre-drying or vacuum packaging necessary
- Susceptible to many solvents/acids
- Not resistant to superheated steam

Processing data

Printing temperature

210-260 °C

Heated bed temperature

50-80 °C

Drying temperature

65°C

Drying time

2-4h

Technical specifications

Shrinkage (ISO 294-4, 2577)	0.2-0.5	%
MFR (ISO 1133)	-	g/10min
Yield stress (ASTM D638)	50	MPa
Elongation at yield (ASTM D638)	5	%
Elongation at break (ASTM D638)	165	%
Tensile modulus (ASTM D790)	2079	MPa
Heat deflection temperature 0.45 MPa (ASTM D648)	77	°C
Vicat softening temperature A (ASTM D256)	81	°C
Thermal conductivity 23°C	-	W/(K*m)
Flammability (UL 94)	HB	
Density (ASTM D792)	1.29	g/cm ³