

# FIL-A-GEHR<sup>®</sup>

Filaments for professional 3D printing



 **PETG**

FIL-A-GEHR PETG is characterized by high impact strength and easy printability. Due to its very good melt strength, small, detailed parts and also large parts can be printed with low warpage. The good self-bonding ability ensures excellent layer adhesion. Compared to PLA, FIL-A-GEHR PETG is less prone to moisture retention, is significantly more weather-resistant and more resistant to UV light. It also shows a good chemical resistance.

## FEATURES FIL-A-GEHR

- » Extremely close tolerances
- » Filaments made of high-quality raw materials
- » Compatible with all standard 3D printers
- » Low-emission and odour free
- » Shrinkage-free
- » Good layer adhesion
- » Optimal flow behaviour while printing
- » Carefully spooled and packed in easy to use re-sealable zip bags

## PRODUCT RANGE

diameter	1 kg Spule (~2,2 lbs)
1.75 mm 0,07"	● ● ○
2.85 mm 0,11"	● ● ○

Colours: ● black ● red ○ white



## DISTINCTIVE FEATURES FIL-A-GEHR PETG

- » High impact strength
- » Easy processing
- » High self-bonding ability
- » High melt strength
- » Very good self-linking capabilities
- » High strength and durability of the printed parts
- » 100 % recyclable
- » Pressure nozzle temperature 230°C – 250°C, printing plate temperature 70°C - 90°C

## TYPICAL APPLICATIONS

- » 3D printing applications where easy processing and high toughness are key
- » Detailed and multiple parts even in small designs



## GEHR, Specialist In Plastics – Premium Quality Since 1932

We extrude thermoplastic semi-finished materials and rank amongst the global leading producers of technical semi-finished products. FIL-A-GEHR® expands our product range with plastic filaments for 3D printers. GEHR produces the filaments in Mannheim and has been representing innovation and premium quality since 1932.

## TECHNICAL DATA FIL-A-GEHR PETG

Properties	Test Methods	Units	Values
<b>General Properties</b>			
<b>Intrinsic Viscosity</b>	ISO 1628-5	dl/g	0.80 ± 0.02
<b>Color b*</b>	ASTM D6290		≤ 1
<b>L*</b>			≥ 64
<b>Glass Transition Temperature</b>	ASTM D3418	°C	80
<b>Bulk Density</b>		g/cm <sup>3</sup>	0.73
<b>Specific Density</b>	ASTM D -792 (2013)	g/cm <sup>3</sup>	>1.29
<b>Moisture</b>		%	≤ 0.3
<b>Particle size</b>		mg/20 chips	320 ± 50
<b>Pellet Shape</b>			Cylindrical
<b>Shore Hardness</b>	ASTM D2240 (2010)		76
<b>Water absorption</b>	ASTM D570 (1998)	%	0.12
<b>Tensile Properties</b>			
Yield Stress (σ <sub>y</sub> )	UNE-EN ISO 527-2 (November 2012)	Mpa	53
Elongation at Yield (ε <sub>y</sub> )	UNE-EN ISO 527-2 (November 2012)	%	4
Strenght (σ <sub>m</sub> )	UNE-EN ISO 527-2 (November 2012)	Mpa	53
Elongation at Strenght (ε <sub>m</sub> )	UNE-EN ISO 527-2 (November 2012)	%	4
Stress at Break (σ <sub>b</sub> )	UNE-EN ISO 527-2 (November 2012)	Mpa	19
Nominal elongation at Break (ε <sub>tb</sub> )	UNE-EN ISO 527-2 (November 2012)	%	31
Tensile Modulus MPa 3000	UNE-EN ISO 527-2 (November 2012)	Mpa	3000
<b>Flexural Properties</b>			
Flexural Modulus	UNE-EN ISO 178 (September 2011) + 1st modification (October 2013)	MPa	2040
Flexural Strength	UNE-EN ISO 178 (September 2011) + 1st modification (October 2013)	MPa	71
Deflection at Flexural Strength	UNE-EN ISO 178 (September 2011) + 1st modification (October 2013)	mm	8.6
<b>Izod Impact Resistance Notched</b>			
23°C; 50 %RH	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	4.5
0°C	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	4.4
-30°C	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	43.9
<b>Unnotched</b>			
23°C; 50 %RH	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	non break
0°C	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	non break
-30°C	UNE-EN ISO 180 (October 2001) + 1st modification (October 2013)	kJ/m <sup>2</sup>	125
<b>Heat Deflection Temperature</b>			
0,45 MPa	UNE-EN ISO 75-2 (January 2005)	°C	68
1,80 MPa	UNE-EN ISO 75-2 (January 2005)	°C	62
Vicat Softening Temperature	UNE-EN ISO 306 (February 2005)	°C	78