

# FIL-A-GEHR®

Filaments for professional 3D printing



**PMMA**

**FIL-A-GEHR® PMMA** is a transparent thermoplastic filament with a high stiffness and a very low elongation at break. Due to the relatively low printing properties, the material can be used by almost all printers.

### FEATURES FIL-A-GEHR®

- » Highest precision in diameter and roundness
- » Filaments made of high-quality raw materials
- » Compatible with all open-system 3D printers
- » Low-emission and odour free
- » Void-free
- » Good layer adhesion
- » Ideal flow behaviour while printing
- » Carefully spooled and packed in easy to use aluminium-laminated resealable zip bags

### PRODUCT RANGE

diameter	1 kg spool (~2,2 lbs)
1.75 mm 0.07"	⊕
2.85 mm 0.11"	⊕

Colours: ⊕ natural

### DISTINCTIVE FEATURES FIL-A-GEHR® PMMA

- » high stiffness
- » high impact strength
- » polishable surface
- » very good light resistance
- » good electrical insulating properties
- » pressure nozzle temperature 255°C – 265°C
- » printing plate temperature 85°C - 95°C

### TYPICAL APPLICATIONS

- » Protective covers
- » Lamps housing
- » Dental applications



### 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® PMMA**

Properties	Parameters	Units	Values
<b>General Properties</b>			
Specific gravity ( $\rho$ )	ISO 1183	g/cm <sup>3</sup>	1.19
Water absorption	ISO 62	%	-
Moisture	ISO 62	%	0.3

<b>Mechanical Properties</b>			
Tensile strength at yield ( $\sigma_S$ )	ISO 527	MPa	75
Elongation at yield ( $\varepsilon_S$ )	ISO 527	%	7
Tensile strength at break ( $\sigma_R$ )	ISO 527	MPa	-
Elongation at break ( $\varepsilon_R$ )	ISO 527	%	-
Impact strength ( $a_n$ )	ISO 179	kJ/m <sup>2</sup>	non break
Notch impact strength ( $a_k$ )	ISO 179	kJ/m <sup>2</sup>	1.6
Ball indentation ( $H_k$ ) / Rockwell hardness	ISO 2039-1	N/mm <sup>2</sup>	98
Shore-D	ISO 868		-
Flexural strength ( $\sigma_{B, 3,5\%}$ )	ISO 178	MPa	130
Modulus of elasticity ( $E_t$ )	ISO 527	MPa	3300

<b>Thermal Properties</b>			
Vicat-softening point (VST/B/50)	ISO 306	°C	101
Heat deflection temperature (HDT/B)	ISO 75	°C	94
Glass transition temperature ( $T_G$ )	ISO 3146	°C	80
Melting temperature ( $T_m$ )	ISO 3146	°C	-

<b>Printing Properties</b>			
Pressure nozzle temperature		°C	255-265
Printing plate temperature		°C	85-95
Build chamber temperature		°C	-
Nozzle diameter		mm	0.40
Print speed		mm/s	45
Fan speed		%	<50
Predrying temperature		°C	65
Predrying time		h	6

All properties are measured under laboratory conditions using the analytical method shown. The limits in these specifications apply only to data obtained using the specified test methods. Different analysis methods or analysis conditions can lead to different values.