



FIL-A-GEHR®

PLASTICS
ENGINEERED BY **GEHR** 

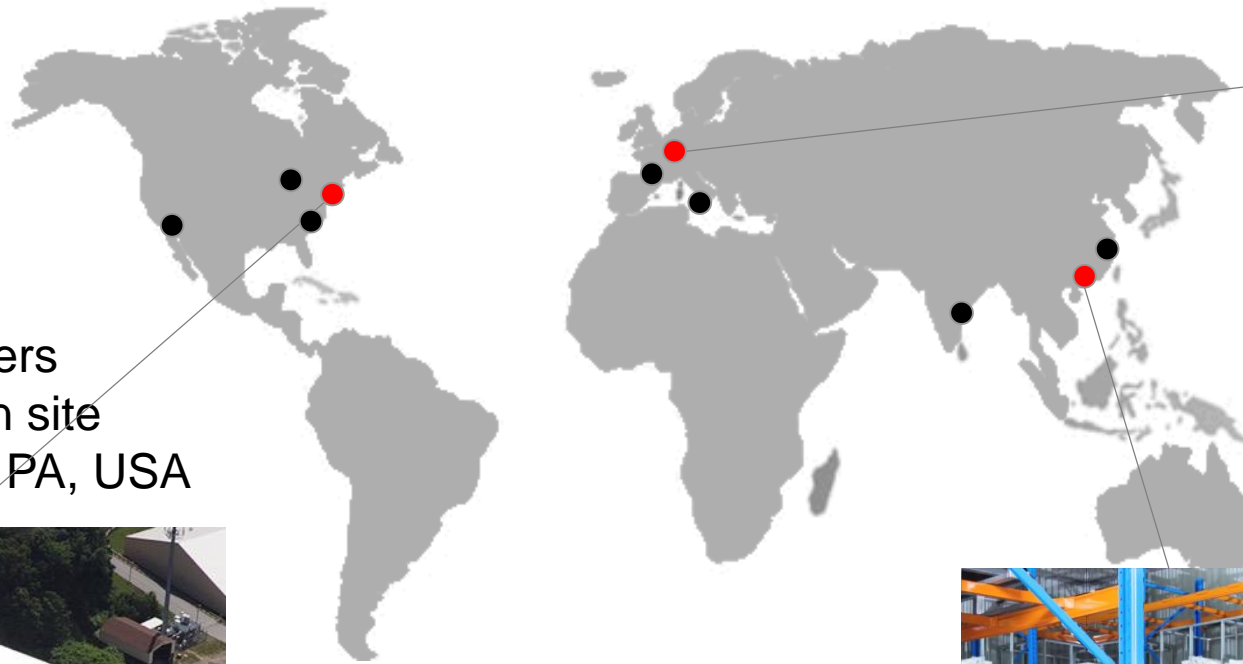
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» FAMILY OWNED AND OPERATED COMPANY WITH TRADITION



» GEHR – AN INTERNATIONAL COMPANY



» US headquarters and production site
Philadelphia, PA, USA



» World headquarters and production site
Mannheim, Germany



» Asia headquarters and warehouse
Hong Kong

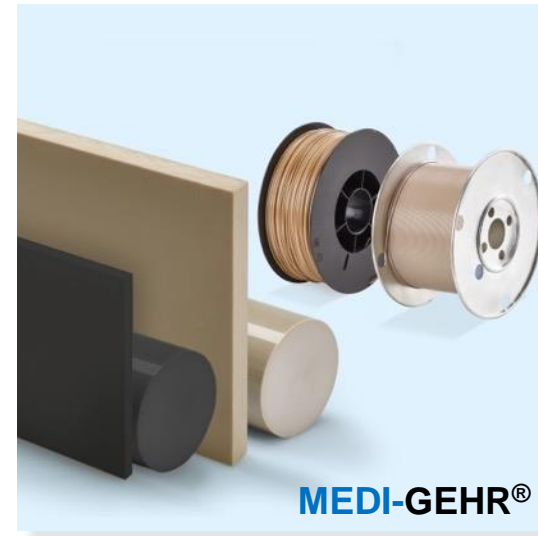
» QUALITY AND INNOVATION



ISCC

International Sustainability
& Carbon Certification

MARKET SEGMENTS

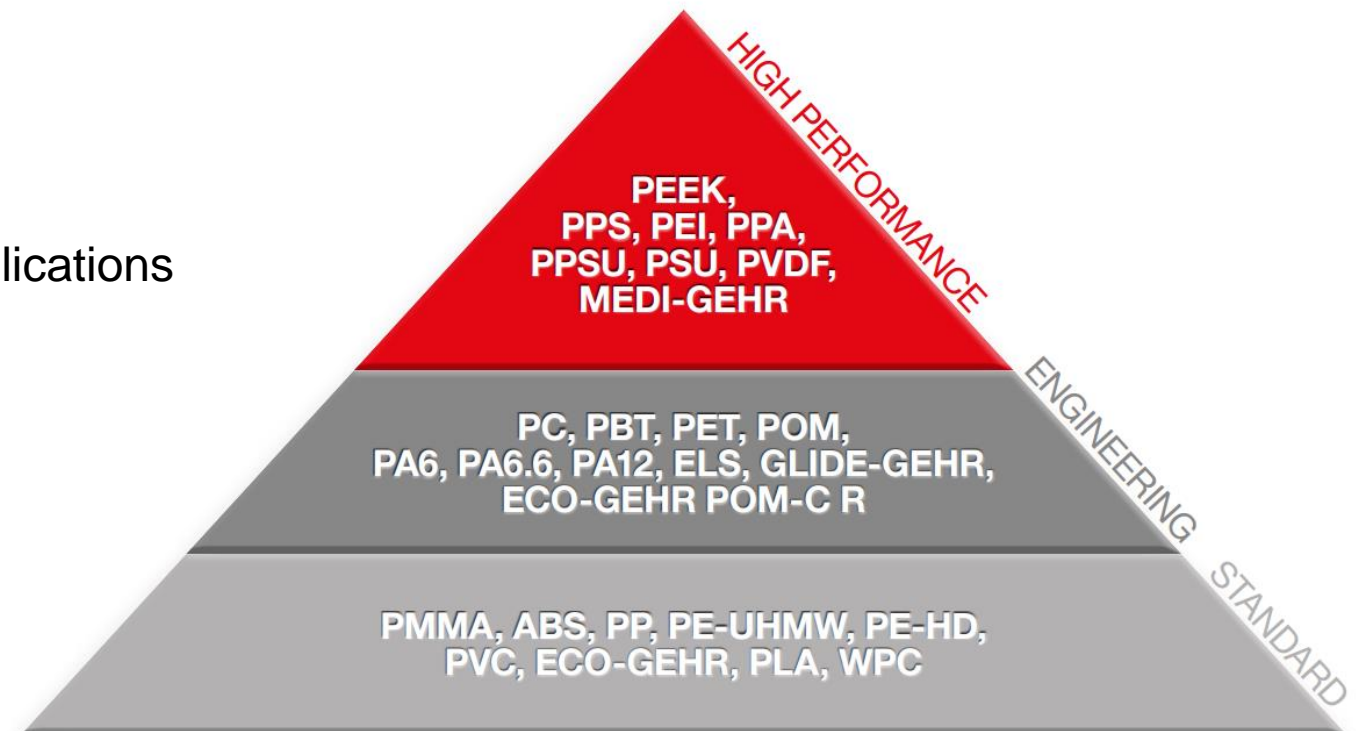
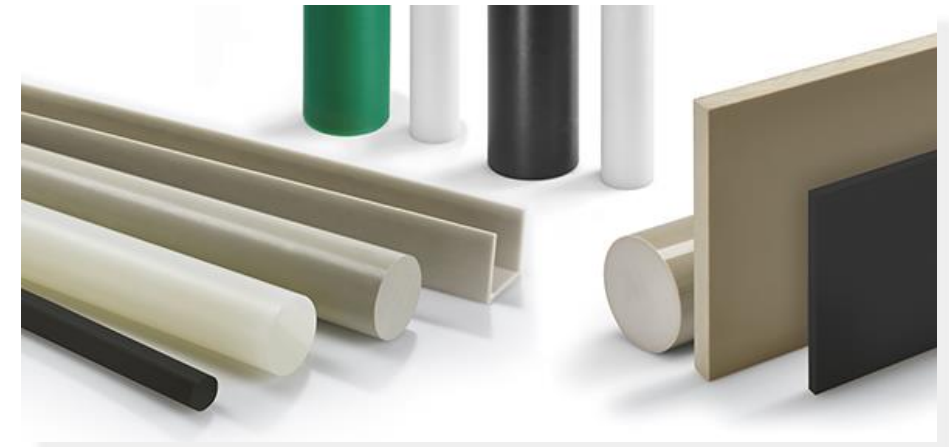


» GEHR EXPERTISE

**EXTRUDED RODS, SHEETS, TUBES,
PROFILES AND FILAMENTS**

SPECIALTIES:

- » Rods up to 700 mm diameter
- » Thick plates up to 300 mm thickness
- » Decorative precision tubes
- » Semi-finished products for medical applications
- » Filaments for professional 3D printing



ENVIRONMENTAL PROTECTION AND SUSTAINABILITY

SUSTAINABLE PRODUCT RANGE

ECO-GEHR® and FIL-A-GEHR

Greenpoint and Pointball product development: pen made from 79% recycled plastic

CO₂-NEUTRAL PRODUCTION

- Conversion to green electricity and green gas in Mannheim and Philadelphia.
- Achievement of the implementation packages of Katowice Scope1 and Katowice Scope1 and 2

SINCE 2016: 100% RENEWABLE ELECTRICITY

Since 2016, total electricity requirements covered by renewable energies - mainly from hydropower in Norway.



» ENVIRONMENTAL PROTECTION AND SUSTAINABILITY

COOLING PROCESS OPTIMIZED

In order to sustainably conserve water as a resource, we have also made mechanical adjustments to our plants. This has enabled us to significantly reduce the amount of water required in the cooling system as well as the supply of fresh water.

RECYCLING CONCEPT FOR THE AVOIDANCE OF PRODUCTION WASTE

The returned material is sorted, ground, recycled and reused in production wherever possible and permitted.

1.PRIZE: ENVIRONMENTAL AWARD FROM THE CITY OF MANNHEIM 2014

Award for "exemplary performance in corporate environmental protection".



» GENERAL INFORMATION ABOUT 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 behavior while printing
- » Carefully spooled and packed in easy to use re-sealable zip bags

PRODUCT RANGE:

- » Diameter: 1,75 and 2,85 mm
- » Spools from 200g up to 10kg (Standard: 1kg)




» FIL-A-GEHR® SHOP

🔍 🇩🇪 🛒 0,00 €

**FILAMENTS BY GEHR
WE ENGINEER HIGH
PERFORMANCE FILAMENTS.**













Versandkostenfrei ab **75€** innerhalb Deutschlands

» UNSERE PRODUKTE

▼ FILTERN

SORTIERUNG: Erscheinungsdatum ▼

<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>FIL-A-GEHR VXL-EX Waschmittel</p> <p>Das Waschmittel FIL-A-GEHR VXL-EX ist ein umweltfreundliches, nicht-ätzendes Waschmittel, das speziell zum Auflösen von FIL-A-GEHR VXL entwickelt wurde. FIL-A-GEHR VXL-EX ist sehr sparsam, es wird nur so viel benötigt, wie...</p> <p>Inhalt 1 Liter</p> <p>21,00 € *</p> </div> </div>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>FIL-A-GEHR VXL 130 Support Filament</p> <p>Lösliches Stützmaterial für den professionellen Druck. Das lösliche Stützmaterial FIL-A-GEHR VXL 130 lässt sich mühelos verdrucken, ist weniger empfindlich gegenüber Luftfeuchtigkeit und zersetzt sich im Gegensatz zu anderen...</p> <p>Inhalt 1 Stück</p> <p>180,00 € *</p> </div> </div>
<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>FIL-A-GEHR VXL 90 Support Filament</p> <p>Lösliches Stützmaterial für den professionellen Druck. Das lösliche Stützmaterial FIL-A-GEHR VXL 90 lässt sich mühelos verdrucken, ist weniger empfindlich gegenüber Luftfeuchtigkeit und zersetzt sich im Gegensatz zu anderen...</p> <p>100,00 € *</p> </div> </div>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>MEDI-FIL-A-GEHR PEEK MG</p> <p>MEDI-FIL-A-GEHR PEEK MG® ist geeignet für medizinische und pharmazeutische Anwendungen mit direktem Körperkontakt mit Gewebe, Knochen, Haut und Schleimhaut bis zu einer Dauer von 24 Stunden. Das Filament wird nach Qualitätsstandard ISO...</p> <p>Inhalt 1 Kilogramm</p> <p>890,00 € *</p> </div> </div>
<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>FIL-A-GEHR PEEK</p> <p>Das teilkristalline Polyetheretherketon bietet außergewöhnliche mechanische, chemische und thermische Beständigkeiten, hervorragende...</p> </div> </div>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>FIL-A-GEHR PPSU</p> <p>Polyphenylensulfon ist ein amorpher Werkstoff mit verbesserter Chemikalien- und Hochtemperaturbeständigkeit im Vergleich zu PBT und PC...</p> </div> </div>

[Filament | FIL-A-GEHR SHOP \(filagehr.com\)](http://filagehr.com)

» TECHNICAL DATASHEETS

FIL-A-GEHR®

FIL-A-GEHR®

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 spool (~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
- » Moisture: ≤ 0.3 %

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.

GEHR GmbH Casterfeldstraße 172 / D - 68219 Mannheim/ T: +49 - 621/87 89 – 164 / 3D@gehr.de
www.filagehr.de

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TECHNICAL DATA FIL-A-GEHR PETG®

Properties	Test Methods	Units	Values
General Properties			
Intrinsic Viscosity	ISO 1628-5	dl/g	0.80 ± 0.02
Color L*	ASTM D6290		≥ 64
Glass Transition Temperature	ASTM D3418	°C	80
Bulk Density		g/cm ³	0.73
Specific Density	ASTM D -792	g/cm ³	>1.29
Moisture		%	≤ 0.3
Shore Hardness	ASTM D2240	shore "D	76
Water absorption	ASTM D570	%	0.12

Tensile Properties			
Yield Stress (σ _y)	UNE-EN ISO 527-2	MPa	53
Elongation at Yield (ε _y)	UNE-EN ISO 527-2	%	4
Strength (σ _m)	UNE-EN ISO 527-2	MPa	53
Elongation at Strength (ε _m)	UNE-EN ISO 527-2	%	4
Stress at Break (σ _b)	UNE-EN ISO 527-2	MPa	19
Nominal elongation at Break (ε _{tb})	UNE-EN ISO 527-2	%	31
Tensile Modulus MPa 3000	UNE-EN ISO 527-2	MPa	3000

Flexural Properties			
Flexural Modulus	UNE-EN ISO 178	MPa	2040
Flexural Strength	UNE-EN ISO 178	MPa	71
Deflection at Flexural Strength	UNE-EN ISO 178	mm	8.6

Izod Impact Resistance Notched			
23°C, 50%RH	UNE-EN ISO 180	kJ/m ²	4.5
0°C	UNE-EN ISO 180	kJ/m ²	4.4
-30°C	UNE-EN ISO 180	kJ/m ²	43.9

Unnotched			
23°C, 50 %RH	UNE-EN ISO 180	kJ/m ²	non break
0°C	UNE-EN ISO 180	kJ/m ²	non break
-30°C	UNE-EN ISO 180	kJ/m ²	125

Heat Deflection Temperature			
0.45 MPa	UNE-EN ISO 75-2	°C	68
1.80 MPa	UNE-EN ISO 75-2	°C	62
Vicat Softening Temperature	UNE-EN ISO 306	°C	78

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.

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PLASTICS
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» FIL-A-GEHR® MATERIALS

- » FIL-A-GEHR PLA®
- » FIL-A-GEHR PETG®
- » FIL-A-GEHR ABS®
- » FIL-A-GEHR PA 12®
- » FIL-A-GEHR PA12 – CF15®
- » FIL-A-GEHR PC / ABS®
- » FIL-A-GEHR PC +
- » FIL-A-GEHR PPSU®
- » FIL-A-GEHR PEEK®
- » ULTEM™ 1010 PEI
- » ULTEM™ 9085 PEI

» MEDI-FIL-A-GEHR PEEK MG®

» MEDI-FIL-A-GEHR PPSU MG®

» MEDI-FIL-A-GEHR PET MG® +

Support filaments:

» FIL-A-GEHR VXL 130®

» FIL-A-GEHR VXL 90®

» ULTEM™ AMS31F



» FIL-A-GEHR® FOOD CONTACT SUITABLE

Material	EU 10/2011	FDA
FIL-A-GEHR PEEK®	✓	✓
FIL-A-GEHR PPSU®	✓	✓
FIL-A-GEHR PA 12®	✓	✓
FIL-A-GEHR PA12 – CF15®	–	–
FIL-A-GEHR PC / ABS®	–	–
FIL-A-GEHR PC	–	–
FIL-A-GEHR PLA® (except black)	✓	–
FIL-A-GEHR PETG®	✓	✓
FIL-A-GEHR ABS®	✓	✓ ¹⁾

Material	EU 10/2011	FDA
MEDI-FIL-A-GEHR PEEK MG®	✓	✓
MEDI-FIL-A-GEHR PPSU MG®	✓	✓
MEDI-FIL-A-GEHR PET MG®	✓	✓
ULTEM™ 1010 PEI	–	–
ULTEM™ 9085 PEI	–	–



1) Only for white and blue.



FIL-A-GEHR PLA®

FIL-A-GEHR PLA® is made from NatureWorks Ingeo™ biopolymer for precise, failure-free and extreme robust / stable 3D printing.

- » Filaments made of high-quality and renewable raw materials
- » Shrinkage-free
- » No heated printbed required
- » High dimensional stability
- » High stiffness / high modulus of elasticity
- » Pressure nozzle temperature 223°C, printing plate temperature 65°C

APPLICATIONS:

- » High precision temporary parts
- » Dimensionally stable products e.g. molds for cast-bronze
- » Very large products

PRODUCT RANGE:

- » Colours: Black, blue, red, white, yellow, green transparent
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



FIL-A-GEHR ABS®

FIL-A-GEHR ABS® for precise, failure-free 3D printing with excellent mechanical properties.

- » Compliant to European Toy Safety Norm EN71-3
- » Raw material has food contact and medical approval
- » High stability and impact strength
- » Heat resistant up to approx. 100 °C (212 °F)
- » Easy post-processing / surface treatment
- » Pressure nozzle temperature 245°C, printing plate temperature 110°C

APPLICATIONS:

- » Thermostable parts, e.g. model making
- » Functional prototypes
- » Small and medium-sized objects

PRODUCT RANGE:

- » Colours: Black, blue, red, white, yellow
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



» FIL-A-GEHR 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.

- » 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
- » Moisture: ≤ 0.3 %

APPLICATIONS:

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

PRODUCT RANGE:

- » Colours: Black, red, white
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



FIL-A-GEHR PC/ABS®

FIL-A-GEHR PC/ABS® combines the properties of two exceptional FDM thermoplastics: the high impact strength and heat deflection temperature of PC with the high toughness at low temperatures and the good processability of ABS.

- » Optimized flow behavior
- » Heat deflection temperature between 110 °C and 135 °C
- » High notch impact strength values over wide temperature range
- » High dimensional stability
- » Low susceptibility to warping
- » Surface is ideal for painting and adhesive bonding
- » Pressure nozzle temperature 280°C, printing plate temperature 90-110°C

APPLICATIONS:

- » Housing components
- » Power tools prototypes
- » Automotive industry
- » Connectors and switches

PRODUCT RANGE:

- » Colour: Black
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



FIL-A-GEHR PC®

FIL-A-GEHR PC® is a polycarbonate filament with high heat resistance and high impact strength. The polycarbonate has been optimized for the 3D printing process.

- » Heat deflection temperature approx. 135°C
- » High mechanical strength
- » High dimensional stability
- » Low water absorption
- » High notch impact strength values
- » Post-processing possible (e.g. drilling, sawing, ...)
- » Pressure nozzle temperature 260°C, printing plate temperature 90-110°C

APPLICATIONS:

- » protective covers
- » tool handles
- » lamps housing

PRODUCT RANGE:

- » Colour: Natural
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



» FIL-A-GEHR PA 12[®]

FIL-A-GEHR PA 12[®] (Nylon) in combination with the high impact strength of the material and a low moisture absorption, the filament is beneficial for failure-free 3D printing.

- » Excellent chemical resistance, in particular against fuels and antifreeze agents
- » Low moisture absorption
- » High degree of dimensional stability / High elongation at break
- » Low wear/ excellent sliding friction
- » High impact strength
- » High continuous operating temperature of 85°C
- » Low susceptibility to distortion
- » Pressure nozzle temperature 250-260°C, printing plate temperature 100°C

APPLICATIONS:

- » Cooling water systems
- » Fuel pipes
- » Snap connectors

PRODUCT RANGE:

- » Colour: Natural / white
- » Diameter: 1,75 mm
- » 1 kg Spools



» FIL-A-GEHR PA 12 – CF15®

FIL-A-GEHR PA 12 – CF15® is a filament strengthened by carbon fiber (15%), which has a very high mechanical strength with low water absorption.

- » Low water absorption
- » Very high stiffness
- » High impact strength
- » Good chemical resistance
- » Good abrasion and sliding properties
- » High resistance to weathering
- » Pressure nozzle temperature 250-260°C, printing plate temperature 100°C

APPLICATIONS:

- » Construction components
- » Transportation

PRODUCT RANGE:

- » Colour: Black
- » Diameter: 1,75 and 2,85 mm
- » 500 g Spools



FIL-A-GEHR PPSU®

FIL-A-GEHR PPSU® is an amorphous material, with improved impact and hydrolysis resistance compared to PSU and PEI. The extremely high notch impact strength remains also after a heat aging.

- » High strength and rigidity
- » Very high toughness (also at low temperatures)
- » Very good dimensional stability
- » Very high chemical resistance
- » High operating temperature (approx. +170 °C)
- » Very good sterilizability
- » Pressure nozzle temperature 390-410°C, printing plate temperature 220°C
- » Printing room temperatur 170-210°C

APPLICATIONS:

- » Instruments for microinvasive surgery
- » Pump impellers, pump parts
- » Sterilization cassettes
- » Valves

PRODUCT RANGE:

- » Colours: Black, natural
- » Diameter: 1,75 mm
- » 1 kg Spools



FIL-A-GEHR PEEK®

The semi-crystalline polyether ether ketone **FIL-A-GEHR PEEK®** offers outstanding mechanical, thermal and chemical resistance. Thanks to its well-balanced property profile, PEEK is one of the most capable high-performance thermoplastics available.

- » Excellent combination of strength, stiffness and toughness
- » Low moisture absorption
- » Exceptional chemical resistance
- » Maximum continuous operating temperature 260 °C
- » Excellent sterilisation and hydrolysis resistance
- » Self-extinguishing, low smoke emission
- » Pressure nozzle temperature 375°C, printing plate temperature 180°C
- » Printing room temperatur 180°C

APPLICATIONS:

- » Aviation
- » Transport
- » Oil and gas (supporting rings and supply lines)

PRODUCT RANGE:

- » Colour: Natural
- » Diameter: 1,75 mm
- » 1 kg Spools



» MEDI-FIL-A-GEHR®

MEDI-FIL-A-GEHR products are suitable for medical and pharmaceutical applications with direct body contact with tissue, bone, skin and mucosa for up to 24 hours. All materials meet the same requirements as the semi-finished products. Especially for our certificates and approvals:

FDA*, EU 10/2011*, ISO 10993-1, -5, -12, -18 and USP Class VI

	MEDI-FIL-A-GEHR PEEK MG® Ø 1,75 mm	MEDI-FIL-A-GEHR PPSU MG® Ø 1,75 mm	MEDI-FIL-A-GEHR PET MG® Ø 2,85 mm Ø 1,75 mm
kg			
0,1	●	●	
0,2	●	●	
0,5	●	●	○ ○
1	●	●	○ ○

● natur / natural ○ weiß / white
○ transparent ● schwarz / black

■ Auf Lager / Stock item



MEDI-FIL-A-GEHR PEEK MG
Instrument holder prototype

* only for raw material

ULTEM™ 1010 PEI

ULTEM™ 1010 PEI filament is a polyetherimide product for 3D printing applications manufactured from ULTEM 1010 resin.

- » Excellent combination of high heat resistance and dimensional stability
- » High mechanical strength
- » Continuous service temperature 170 °C
- » High heat resistance
- » Inherently flame retardant (UL94-V0)
- » Print nozzle temperature 370-390°C
- » Pressure plate temperature 150°C
- » Pressure chamber temperature 90°C

PRODUCT RANGE:

- » Colour: Natural
- » Diameter: 1,75 mm
- » 1 kg Spools

APPROVALS OF THE RAW MATERIAL:

- » Aerospace FAR25.853





» ULTEM™ 9085 PEI

ULTEM™ 9085 PEI is a high-performance filament based on the well-known rawmaterial ULTEM™ 9085.

- » Excellent combination of high heat resistance and mechanical strength.
- » High dimensional stability
- » Continuous service temperature 170 °C
- » Resistant to high-energy radiation
- » Inherently flame retardant (UL94-V0)
- » Print nozzle temperature 360°C
- » Pressure plate temperature 160°C
- » Pressure chamber temperature 90°C

APPLICATIONS:

- » Rail
- » Aerospace
- » Automotive

PRODUCT RANGE:

- » Colour: Natural and black
- » Diameter: 1,75 mm
- » 1 kg Spools

APPROVALS OF THE RAW MATERIAL:

- » Aerospace FAR25.853 and OSU55/55
- » Rail EN45545 R6-HL3





» ULTEM™ AMS31F Support Filament

ULTEM™ AMS31F is SABIC's breakaway support filament for use with ULTEM™ AM9085F filament. The material maintains rigidity during printing and provides exceptional pliability during post processing to help enable easier removal of structural supports at room temperature, which can reduce the time required to produce finished parts. AMS31F and ULTEM™ 9085 PEI filaments are compatible with Stratasys® Fortus® Classic printers and open format industrial printers, subject to user testing.

- » Print nozzle temperature 380-420°C
- » Pressure plate temperature 160-185°C
- » Pressure chamber temperature 90-110°C

PRODUCT RANGE:

- » Colour: Natural
- » Diameter: 1,75 mm
- » 1 kg Spools



» FIL-A-GEHR VXL® Products

GEHR® produces for **Xioneer®** soluble support materials for professional printing. There is also an environmentally friendly, mild detergent.

FIL-A-GEHR VXL 90® and FIL-A-GEHR VXL 130®

- » Polymer made by **Xioneer®** in Germany
- » Filamente made by **GEHR®** in Germany
- » Soluble support materials
- » Print effortlessly
- » VXL 90 suitable for PETG, PA, ABS
- » VXL 130 suitable for PEEK, PEKK, PC-ABS
- » Unlike PVA or BVOH, our support material will not degrade in your nozzle.
- » Less sensitive to humidity

FIL-A-GEHR VXL-EX

- » Safe, mild detergent specially formulated to dissolve VXL safely
- » VXL-EX is very economical. Only as much as you used VXL support material is needed; the correct amount of VXL-X in water is 2,4%



CONTACT



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