

## Evonik develops the world's first PEEK filament in implant-grade quality for 3D printing

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Evonik has become the first company in the world to develop a polymer filament based on PEEK (polyether ether ketone) in implant-grade quality for use as a 3D printing material for implants. This high-performance material can be used in fused filament fabrication (FFF) technology and is expected to enable additive production of three-dimensional plastic parts for medical implants in the human body.

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The new PEEK filament is based on VESTAKEEP® i4 G, a highly viscous implant-grade material made by Evonik. The product, which exhibits impressive biocompatibility, biostability, and x-ray transparency, is easy to process and has been established for years as a high-performance material in medical technology applications such as spinal implants, sports medicine, and maxillofacial surgery.

### Testing grade enables cost-effective process adaptation

Evonik will additionally be offering a less expensive “testing grade” version of its PEEK filament for FFF technology. The testing-grade material has the exact same processing and mechanical product properties as the implant-grade material—but without the documentation needed for approval in medical device applications. This offers a cost-effective way of adapting the processing characteristics of the high-performance plastic for printing processes. The natural-colored filament, which has a diameter of 1.75 mm, is wound on 500 gram spools suitable for direct use in standard FFF 3D printers for PEEK materials.

In the first quarter of 2019, the testing grade will be followed by an implant-grade from VESTAKEEP® i4 G, which can be provided with the required extensive approval documentation.

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### Broad portfolio of polymer materials for 3D printing

Development of the world's first PEEK filament expands Evonik's existing line of polymer materials for 3D printing. The specialty chemicals company is the world's leading manufacturer of polyamide (PA) 12 powders, which have been used in additive

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production technologies for over 20 years now. In addition to the PEEK filament and PA 12 powders, the material portfolio also includes flexible PEBA powders.



*Image caption: Evonik has become the first company in the world to develop a polymer filament based on PEEK (polyether ether ketone) in implant-grade quality for use as a 3D printing material for implants (©Evonik).*

Further Information about Evonik's 3D printing activities you will find on our website [www.evonik.com/additive-manufacturing](http://www.evonik.com/additive-manufacturing)

#### **About Evonik**

Evonik is one of the world leaders in specialty chemicals. The focus on more specialty businesses, customer-orientated innovative prowess and a trustful and performance-oriented corporate culture form the heart of Evonik's corporate strategy. They are the lever for profitable growth and a sustained increase in the value of the company. Evonik benefits specifically from its customer proximity and leading market positions. Evonik is active in over 100 countries around the world with more than 36,000 employees. In fiscal 2017, the enterprise generated sales of €14.4 billion and an operating profit (adjusted EBITDA) of €2.36 billion.

**About Resource Efficiency**

The Resource Efficiency segment is led by Evonik Resource Efficiency GmbH and produces high performance materials and specialty additives for environmentally friendly as well as energy-efficient systems to the automotive, paints & coatings, adhesives, construction, and many other industries. This segment employed about 10,000 employees, and generated sales of around €5.4 billion in 2017.

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