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VESTAKEEP® i-Grades offer advanced solutions for permanent implants, offering a combination of biocompatibility, excellent mechanical properties, and exceptional reliability making them an ideal material for long-term human implants. The unique performance characteristics of VESTAKEEP® i-Grade PEEK polymers position them as the material of choice for various implant applications, including spine, sports medicine, cardiovascular, cranial-maxillo-facial, orthopedics, extremities, and pharmacy.

Evonik enables the production of PEEK implants through innovative 3D printing processes. Over recent years, Evonik has commercialized the first filament for 3D printing of PEEK implants using Fused Filament Fabrication (FFF) and consistently extended the portfolio to meet specific application requirements, and the technology has rapidly developed to reach routine clinical use. Filament printing, in particular, facilitates point-of-care treatment has been successfully implemented in several European clinics due to its ease of handling and integration into digital process flows. Additionally, this technology offers new design freedom, enabling the creation of natural biological structures and functions. Clinical data demonstrate excellent patient outcomes and rapid healing. With the increasing number of patients treated, the production of 3D printed implants has scaled up and is now ready for commercial production.

Evonik is also exploring the potential of using VESTAKEEP® PEEK, a proven implant material for medical technology, in complex joint prosthesis systems. The success of PEEK-based hip prostheses in veterinary medicine, as demonstrated by the Swiss company KYON, supports Evonik's innovative approach.

In conclusion, VESTAKEEP® i-Grades and the advancements in 3D printing technology represent a significant leap forward in the field of implant materials. These developments not only enhance the performance and reliability of implants but also open new possibilities for personalized and efficient patient care. As Evonik continues to push the boundaries of medical technology, the future of implant applications looks promising, with improved patient outcomes and broader clinical adoption on the horizon.