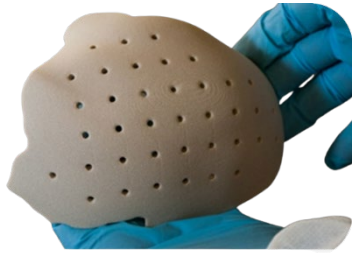
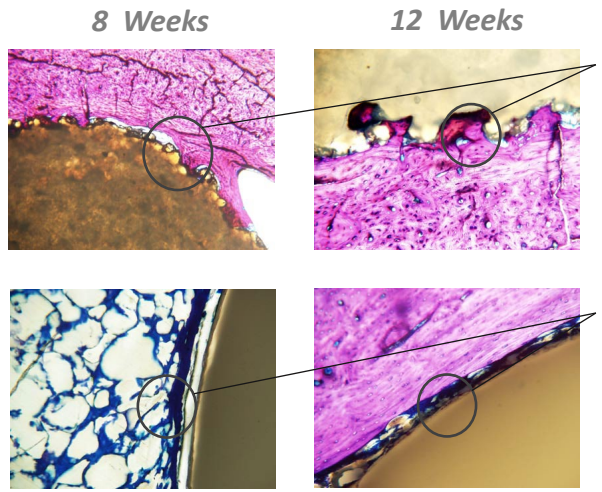
OsteoFab® PEKK vs. PEEK FDM



	OsteoFab®	PEEK FDM
Surface	Superior surface finish & fully consolidated parts with no porosity	Traditional FDM - rough surface finish & internal voids *(possible skin irritation & infection channel)*
Biological properties	Peak & pit topography enhances innate PEKK biologic response (osseointegration & antibacterial/antiviral)	No known antibacterial/antiviral or osseointegration properties
Build layout	Multiple level build with no support structure *("improved economics")*	Single level build with support structure
Post-Processing	No post processing needed	Post processing required to remove support structure
Validation	Fully validated and controlled manufacturing process (control of raw material synthesis → manufacturing → finished part)	Reduced process controls and/or variation in PEEK material supplier and filament manufacturer
FDA clearance	OsteoFab® received first FDA clearance in 2013 (multiple clearances to date)	No current FDA clearances for FDM PEEK implants

Reference Photo: AON3D

Osseointegration



Bone tissue stained in "purple/red"

Proven bone ongrowth with PEKK

Non-bone tissue remained blue

No evidence of bone ongrowth with PEEK

Antibacterial & Antiviral Properties

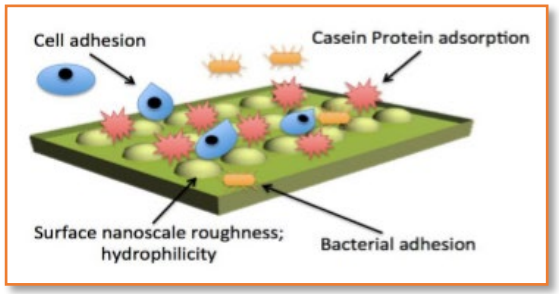


Diagram of PEKK Surface Energy

Article: Antibacterial properties of PEKK for orthopedic applications

Authors: Mian Wang, Garima Bhardwaj, and Thomas J Webster

Study Highlights:

- *Laser sintered PEKK surface provides an inherent, **antibacterial & antiviral** environment*
- *Decreased bacterial adhesion and growth when compared to PEEK (Invibio PEEK-OPTIMA®)*
- *PEKK showed a **40-55% higher antibacterial & antiviral** effect when examined using a Live/Dead assay*