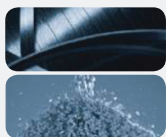


TECHNOLOGY OVERVIEW

Transforming trauma with polymer composites

- ▶ PEEK-OPTIMA Natural reinforced with continuous carbon fibers
- ▶ Provides strength and fatigue resistance¹ demanded by high-load implant applications



Continuous Carbon Fiber & PEEK-OPTIMA Polymer



PEEK-OPTIMA Ultra-Reinforced Tape



Tailored Stiffness

Benefits of Carbon Fiber PEEK compared to metal

- ▶ Modulus similar to bone
- ▶ Tailored stiffness¹
- ▶ Greater material fatigue life¹
- ▶ Radiolucency and artifact-free imaging²
- ▶ Reduced tissue adhesion without bone ongrowth³
- ▶ No cold welding reported³

~9M PEEK-OPTIMA Devices Implanted Worldwide

15+ Years of Clinical History

PRE-CLINICAL EVIDENCE

Potential to enhance healing

- ▶ Complications related to non-unions, delayed unions and implant failures continue to be a challenge,⁴ especially in high risk patient populations⁵⁻⁷

Compared to metal plates PEEK-OPTIMA Ultra-Reinforced provides:

- ▶ 360° fracture visibility²
Radiolucency offers circumferential visibility of the fracture site during and after the procedure
- ▶ Callus formation observed by radiograph in ovine healing study⁸



PEEK-OPTIMA Ultra-Reinforced Tibia Nail

Metallic Tibia Nail

- ▶ Earlier and greater callus formation⁸
May improve secondary bone healing

150%
GREATER CALLUS FORMATION

- ▶ Greater material fatigue life¹
May provide an increased window of opportunity for healing to occur before fatigue-induced implant failure could occur

50X
GREATER FATIGUE RESISTANCE

CLINICAL EVIDENCE

Clinical history demonstrated with:

- ▶ Devices receiving:
 - FDA 510(k) clearance
 - CE mark approval
 - ANVISA and TFDA approval
- ▶ Growing number of peer-reviewed publications

Outcome	PEEK-OPTIMA Ultra-Reinforced Plates	VS.	Metallic Plates
Better union rate ⁹	100%		75%
Fewer hardware failures ⁹	0%		8%
Better reduction - Joint line restored ¹⁰	98%		95%
Quicker Procedures ²	18% reduction in operative time		

Potential advantages in orthopedic oncology

- ▶ Compared to metal, Carbon Fiber PEEK devices have been demonstrated to:
 - Improve accuracy of radiotherapy dosing¹¹
 - Reduce MRI and CT artifact¹²



Image courtesy of Joshua Niemann, MD



Invibio Ltd.

Technology Centre,
Hillhouse International
Thornton Cleveleys,
Lancashire FY5 4QD
United Kingdom

Tel: +44 (0) 1253 898000
FAX: +44 (0) 1253 898001

Invibio Ltd.

300 Conshohocken State Rd
West Conshohocken, PA USA

866-INVIBIO (468 4246)
Tel: +484 342 6004
FAX: +484 342 6005

For further information call us toll free at 866-INVIBIO or +44 (0)1253 898000 or please visit our website at:

► **Invibio.com**

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