

## PEEK-OPTIMA™ Reinforced LT1CA30PL22 (Plate)

### General Information

#### Product Description

High performance biocompatible thermoplastic material, 30% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline. Plate for machining, for use in long term human implantation. Colour black.

#### Typical Application Areas

For use in applications requiring high strength, high stiffness, and high ductility. Suitable for use in long-term implantable medical devices. Excellent sterilisation resistance. As PEEK is hygroscopic, drying before use is recommended. Further information is available upon request.

This grade combines the biocompatibility of PEEK with the high strength and stiffness of carbon fiber. It is specifically designed for applications requiring higher strength or stiffness.

### Material Properties

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.41	g/cm <sup>3</sup>	ISO 1183
Water Absorption (Equilibrium, 23°C, 50% RH)	0.30	%	ISO 62
Crystallinity DSC	42.0	%	Internal Method
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress			ISO 527-2
Across Flow : Break, 23°C	185	MPa	
Flow : Break, 23°C	111	MPa	
Tensile Strain			ISO 527-2
Across Flow : Break, 23°C	2.2	%	
Flow : Break, 23°C	4.9	%	
Flexural Modulus			ISO 178
Across Flow : 23°C	12100	MPa	
Flow : 23°C	6310	MPa	
Flexural Stress			ISO 178
Across Flow : Break, 23°C	273	MPa	
Flow : Break, 23°C	195	MPa	
Across Flow : 3.5% Strain, 23°C	223	MPa	
Flow : 3.5% Strain, 23°C	191	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength			ISO 180
Across Flow : 23°C	5.8	kJ/m <sup>2</sup>	
Flow : 23°C	5.6	kJ/m <sup>2</sup>	
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset)	141	°C	ISO 11357-2
Melting Temperature	340	°C	ISO 11357-3
Recrystallization Temperature	288	°C	ISO 11357-3

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## Additional Information

### Important Notes

- 1) Processing conditions quoted in our datasheets are typical of those used in our processing laboratories.
- 2) Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry and processing conditions. Properties may also differ for along flow and across flow directions.
- 3) Invibio strongly recommend following the PEEK-OPTIMA™ Machining Guidelines prior to machining to reduce stresses and perform optimal machining techniques.
- 4) The fibre orientation within a machined part can greatly affect its tensile properties. Tensile properties are maximised when fibres are aligned with the test direction (transverse) and significantly reduced when oriented perpendicular (longitudinal). The reason for this is that the extruded melt splits upon entering the plate cavity, causing the fibres to orientate perpendicular to the extrusion direction.

### Storage Requirements

Store in original packaging away from direct sunlight and extremes of temperatures. Do not use if sealing tab is broken prior to opening.

### Development Material

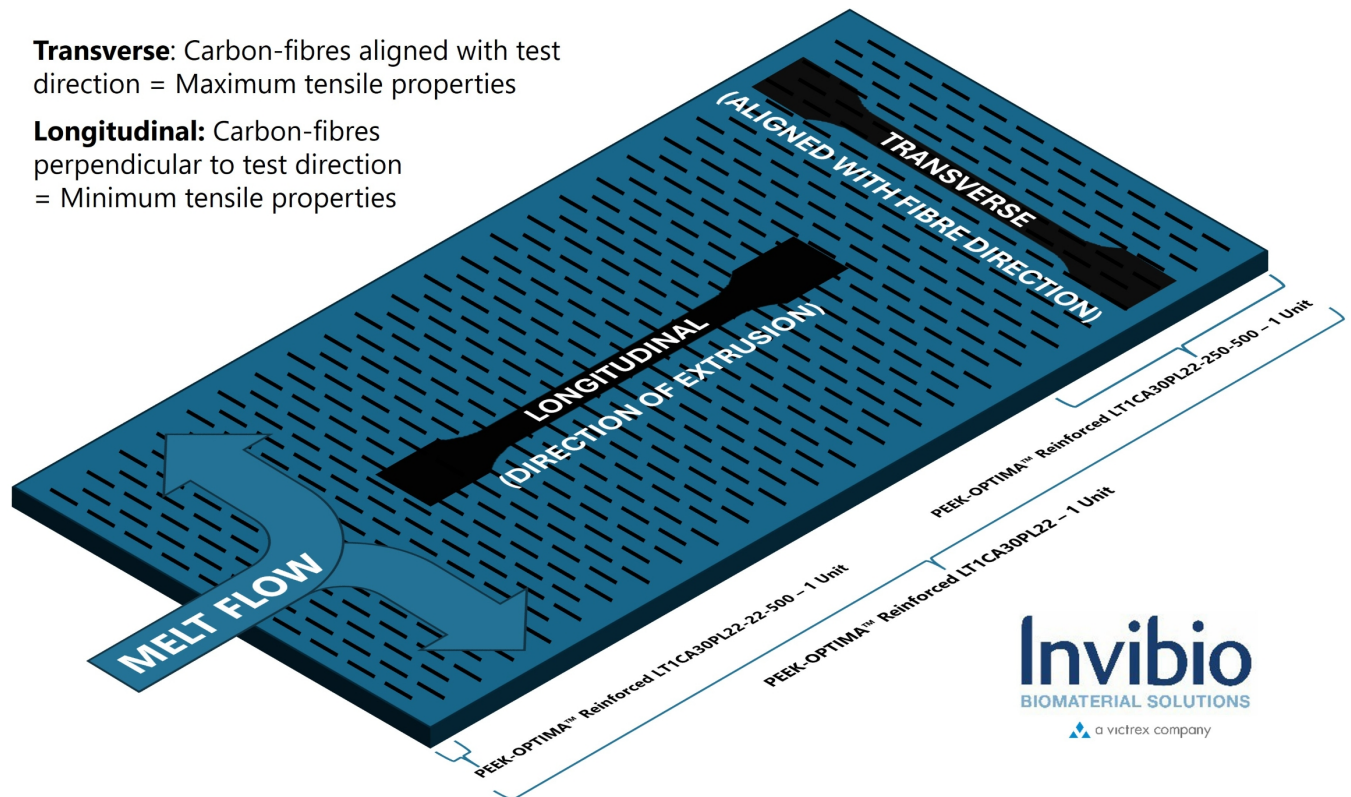
During qualification activities NFHI (Not For Human Implantation) grades are available upon request.

Detailed data available on our website [www.invibio.com](http://www.invibio.com) or upon request.

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**Transverse:** Carbon-fibres aligned with test direction = Maximum tensile properties

**Longitudinal:** Carbon-fibres perpendicular to test direction = Minimum tensile properties



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