

PEEK-OPTIMA™ Natural LT2 (Granules)

General Information

Product Description

High performance biocompatible thermoplastic material, PolyEtherEtherKetone (PEEK), semi crystalline. Granules for injection moulding and extrusion, medium flow, for use in long term human implantation. Colour natural/beige.

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.

PEEK-OPTIMA™, known for its outstanding biocompatibility, chemical resistance, and mechanical strength. PEEK-OPTIMA™ Natural provides a reliable and versatile solution for short and long-term implants.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.30	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	5.1	g/10 min	Internal Method
Spiral Flow ¹	13.0	cm	Internal Method
Molding Shrinkage			ASTM D955
Flow	1.2	%	
Across Flow	1.6	%	
Water Absorption (Equilibrium, 23°C, 50% RH)	0.50	%	ISO 62
Crystallinity DSC	31.0	%	Internal Method
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress (Yield, 23°C)	98.8	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	32	%	ISO 527-2
Flexural Modulus (23°C)	3800	MPa	ISO 178
Flexural Stress			ISO 178
Yield, 23°C	159	MPa	
3.5% Strain, 23°C	124	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength (23°C)	6.7	kJ/m ²	ISO 180
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale, 23°C)	99		ISO 2039-2
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset)	145	°C	ISO 11357-2
Melting Temperature	341	°C	ISO 11357-3
Recrystallization Temperature (Peak)	294	°C	ISO 11357-3
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity 1000 s ⁻¹ (400°C)	379	Pa·s	Internal Method
Melt Stability 1000 s ⁻¹ , 1 hr (400°C)	1.6	%	Internal Method

Typical Processing Information

Injection	Nominal Value	Unit
Drying Temperature	120 to 150	°C
Drying Time	3.0 to 5.0	hr
Suggested Max Moisture	0.020	%

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Injection	Nominal Value	Unit
Hopper Temperature	< 100	°C
Rear Temperature	350	°C
Middle Temperature	355 to 365	°C
Front Temperature	370	°C
Nozzle Temperature	370	°C
Mould Temperature	170 to 200	°C

Injection Notes

Drying Temperature / Time: 150°C / 3h or 120°C / 5h (residual moisture <0.02%)

Runner: Die / Nozzle >3 mm, Manifold >3.5 mm

Gate: >1 mm or 0.5 x part thickness

Important Notes:

1) Processing conditions quoted in our datasheets are typical of those used in our processing laboratories

- Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions.
- Mould shrinkage differs for along flow and across flow directions. "Along flow" direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould.
- Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions.

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, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions.

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 or upon request.

Notes

¹ 1.00 mm

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