ESSENTIUM

Essentium PEEK
TECHNICAL DATA SHEET

ESSENTIUM PEEK

Essentium PEEK is the highest performance material in our broad material portfolio. In addition to best-in-class printability, it has excellent thermal and chemical resistance. Essentium PEEK boasts outstanding strength, stiffness, and impact properties and is inherently flame resistant.

RECOMMENDED PRINT SETTINGS

Nozzle Temperature, °C	380 – 440	Ex. Multiplier (Flow)	1
Bed Temperature, °C	>100	Fan Speed, %	0 – 20
Chamber temperature, °C	Ambient or >140	Bed Material	Glass or G11 laminate
Print Speed, mm/s	30 – 50	Bed Adhesion Method	Dimafix® or Magigoo®
First Layer Speed, mm/s	15 – 25	Recommended infill density, %	<50

MATERIAL PROPERTIES[1]

Property	Test Method	Value
Specific Gravity	ISO 1183	1.31
HDT @ 1.8 MPa, °C	ISO 75	145
Continuous service temp.	UL 726B	250
Flammability rating (base resin)	UL 94	V-0

1 Values based on manufacturer's TDS

MECHANICAL PROPERTIES

Property	Test Method	Print Orientation	
		XY	45-45
Tensile Strength, MPa	ASTM D638	92	82
Tensile Modulus, MPa	ASTM D638	3250	3000
Elongation at Break, %	ASTM D638	15	9

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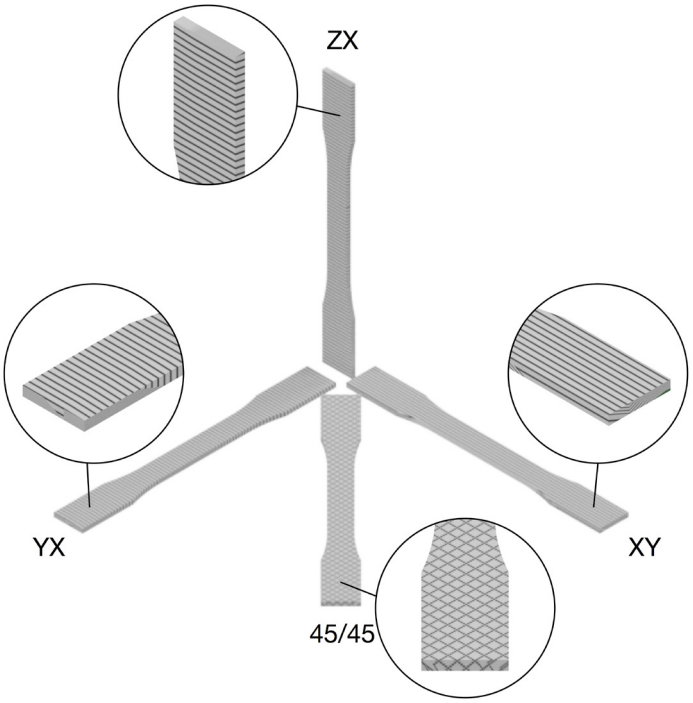

ANNEALING PROCEDURE

For best part properties, the following annealing procedure is recommended:

1. Dry the parts at 120°C for 2-4 hours
2. Ramp the temperature to 200°C and hold for 1 hour
3. Anneal between 200°C and 250°C and hold at the desired temperature for 1 hour per 1 mm of solid wall thickness, higher annealing temperatures will result in higher crystallinity levels, temperature performance, stiffness and chemical resistance, but will negatively affect ductility and dimensional accuracy of the part
4. Slowly cool the part to 140°C at a rate of 10°C per hour
5. Cool the parts to room temperature before handling

PRINT PARAMETERS[2]	
Nozzle Temperature, °C	425
Bed Temperature, °C	105
Print Speed, mm/s	30
Layer Height, mm	0.2
Ex. Multiplier (Flow)	1
Fan Speed, %	15%
Machine	Funmat HT
Nozzle Size, mm	0.4

2 Print parameters in reference to mechanical properties

KEY FEATURES:

- Best-in-class PEEK printability
- Excellent thermal resistance
- Excellent chemical resistance
- Inherent flame resistance

APPLICATIONS INCLUDE:

- Aerospace
- Oil & Gas
- Biomedical (non-implantable)
- Semiconductor processing
- Chemical processing
- Military

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