IEMAI®

3D printing solutions for high performance materials

CF-PEEK Technical Data Sheet(TDS)

CF-PEEK is a composite polymer, black in colour. It has excellent chemical resistance, mechanical properties, and thermal properties. PEEK is a semicrystalline thermoplastic with excellen tmechanical and chemical resistance properties that are retained to high temperatures.

CF-PEEK considered as one of the world's highest performing functional materials, which allow it to use in harsh environment. CF-PEEK is produced using 10% carbon fiber content and still having all the advantages of PEEK. At the same time, it is lighter than PEEK, having better interlayer adhesion and better temperature resistance.

IEMAI 3D high performance CF-PEEK filament is based on FFF/FDM technology, with a commonly used diameter of 1.75 mm, having excellent interlayer adhesion, and able to improve the strength and shock resistance of the prototype.

At present, it often used in demanding applications such as aerospace, automotive, electronic conductor.

Mechanical Properties	Parameter	Norm	Value	Unit
Tensile Strength	50 mm/min	DIN EN ISO 527-2	112	MPa
Modulus of Elasticity (Tensile Test)	1 mm/min	DIN EN ISO 527-2	6000	MPa
Elongation at Break	50 mm/min	DIN EN ISO 527-2	10	%
Compressive Strength	1% /2%/5% 5 mm/min, 10%	EN ISO 604	25/47/111	MPa
Impact Strength (Charpy)	max. 7,5J	DIN EN ISO 179-1eU	92	kJ/m^2
Ball Indentation Hardness		ISO 2039-1	298	MPa

Thermal properties	Parameter	Norm	Value	Unit
Glass Transition Temperature		DIN EN ISO 11357	147	°C
Melting Temperature		DIN EN ISO 11357	341	°C
Service Temperature	Short term		300	°C
Service Temperature	Long term		260	°C
Thermal Expansion (CLTE)	23 - 60°C, long	DIN EN ISO 11359-1;2	4	$10^{-5}k^{-1}$
Thermal Expansion (CLTE)	23-100°C, long	DIN EN ISO 11359-1;2	4	$10^{-5}k^{-1}$

Thermal Expansion (CLTE)	100-150°C, long	DIN EN ISO 11359-1;2	6	$10^{-5}k^{-1}$
Specific Heat		ISO 22007-4 : 2008	1.2	J/(g(K)
Thermal Conductivity		ISO 22007-4 : 2008	0.66	W/(K*m)

Electrical Properties	Parameter	Norm	Value	Unit
Surface Resistivity		DIN EN 61340-2-3	$10^3 - 10^{12}$	Ω
Volume Resistivity		DIN EN 61340-2-3		Ω*cm

Other Properties	Parameter	Norm	Value	Unit
Water Absorption	24h/96h (23°C)	DIN EN ISO 62	0.02/0.03	%
Resistance to hot water/bases		-	+	
Resistance to weathering		-	-	
Flammability (UL94)	Corresponding to	DIN IEC 60695-11-10	V0	

Print Recommendation	
Nozzle Temperature	380 -420 ºC
Bed Temperature	130 -150 ºC
Print Speed	30-50 mm/s
Chamber Temperature	90-150 °C
Cooling Fan	0-30%