IEMAI®

3D printing solutions for high performance materials

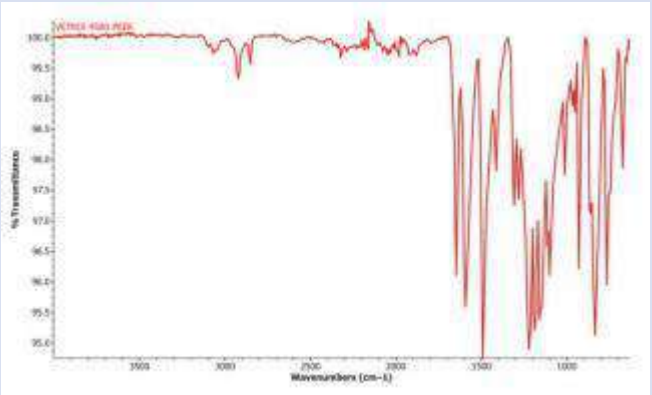
PEEK Medical Implant Technical Data Sheet(TDS)

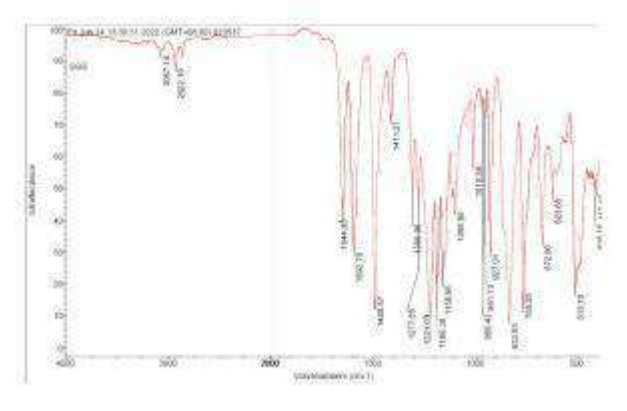
Mechanical Properties, Conditions	Reference Standard	Method	Specification	Result
Tensile Strength at Yield (zero slope), min	ASTM F2026	ISO 527, 1B-Shaped, 50mm/min ASTM D638, IV-Shaped, 5.08cm/min	90MPa	108MPa
Tensile Strength at Break, min	ASTM F2026		70MPa	75.2MPa
Elongation at Break, min	ASTM F2026		5%	12%
Flexural Strength, min	ASTM F2026	ISO 178/ ASTM D790	110MPa	168MPa
Flexural Modulus, min	ASTM F2026		3GPa	3.95GPa
Impact Strength, Notched Izod, min	ASTM F2026	ISO 180/ ASTM D256	4kJ/m^2	5.9kJ/m^2

Biological Properties, Conditions	Reference Standard	Method	Specification	Result
Genotoxicity	ISO 10993-3	ISO 10993-3	Negative	Negative
Animal Intracutaneous (Intradermal) Reactivity	ISO 10993-10	ISO 10993-10	≤1	0
Skin Sensitization	ISO 10993-10	ISO 10993-10	≤1	0
Acute Systemic Toxicity	ISO 10993-11	ISO 10993-11	No Acute Systemic Toxicity	No Acute Systemic Toxicity
Subchronic Systemic Toxicity	ISO 10993-11	ISO 10993-11	No Subchronic Systemic Toxicity	No Subchronic Systemic Toxicity
Local Effects after Implantation	ISO 10993-6	ISO 10993-6	No obvious difference between the test sample & the control sample	No obvious difference between the test sample & the control sample
In Vitro Cytotoxicity	ISO 10993-5	ISO 10993-5	≤1	1
Evaluation of Haemolytic Properties	ISO 10993-4	ISO 10993-4	<5%	1%
Material Mediated Pyrogens	ISO 10993-11	ISO 10993-11	No Pyrogenic Responses	No Pyrogenic Responses

Chemical Properties, Conditions	Reference Standard	Method	Specification	Result
Total Heavy Metals (Ag, As,Bi,Cd,Cu,Hg,Mo,Pb, Sb, & Sn), max	ASTM F2026	US Pharmacopeia, Test 233	<100ppm	<100ppm

Physical Properties, Conditions	Reference Standard	Method	Specification	Result
Glass Transition Temperature, T_g	ASTM F2026	ISO 11357-2/ ASTM D3418	125-165 °C	152.6°C
Melt Temperature, T_m	ASTM F2026	ISO 11357-3/ ASTM D3418	320-360 °C	338.3°C
Recrystallization Temperature, T_c	ASTM F2026		260-320 °C	283.7°C
Viscosity	ASTM F2026	ISO 11443	400-480 Pa.s	434Pa.s
Density	ASTM F2026	ISO 1183/ ASTM D1505	1280-1320 kg/m^3	1300kg/m^3
Melt Mass-Flow Rate (MFR)	Nil	ASTM D1238 (400°C, 2.16kg)	Nil	10g/10min
Mold Shrinkage in flow direction	Nil	ASTM D955	Nil	1.1%
Mold Shrinkage in transverse direction	Nil		Nil	1.4%

Other Properties, Conditions: Infrared Spectrum	Reference Standard: ASTM F2026	Method: ASTM E1252
Specification	Representative Infrared Spectra of PEEK 	

Other Properties, Conditions: Infrared Spectrum	Reference Standard: ASTM F2026	Method: ASTM E1252
Result	Representative Spectra of PEEK Medical Implant 	

Updated on August 29, 2025