stratasys

Material Data Sheet
Medical

Biocompatible Digital ABS Plus

Biocompatible Digital ABS Plus™[1] is designed to simulate standard ABS plastics by combining high-temperature resistance with toughness. The material significantly improves the mechanical performance of biocompatible parts for medical prototyping and functional performance testing.

The Biocompatible Digital ABS Plus is suitable for parts that require PolyJet™ technology's highest possible impact resistance, shock absorption, and biocompatibility. The material is validated for permanent (more than 30 days) contact with intact skin, limited (less than 24 hours) contact with breached or compromised surfaces, as well as limited contact with tissue and bone (less than 24 hours).

Mechanical Properties	Test Method	Objet/J7/J8 Series™	J5 MediJet® / J5 Digital Anatomy™ Printer
Tensile Strength	D-638-03	55 – 60 MPa (8,000 – 8,700 psi)	45-60 MPa (6,500 – 8,700 psi)
Elongation at Break	D-638-05	25 – 40%	20 – 35%
Modulus of Elasticity	D-638-04	2,600 – 3,000 MPa (375,000 – 435,000 psi)	2100 – 2800 MPa (305,000 – 405,000 psi)
Flexural Strength	D-790-03	65 – 75 MPa (9,500 – 11,000 psi)	55 – 65 MPa (8,000 – 9,400 psi)
Flexural Modulus	D-790-04	1,700 – 2,200 MPa (245,000 – 320,000 psi)	1600 – 1800 MPa (230,000 – 260,000 psi)
HDT, °C @ 0.45MPa	D-648-06	58 – 68 °C (136 – 154 °F)	60 – 65 °C
HDT, °C @ 0.45MPa after thermal post treatment procedure A	D-648-06	82 – 90 °C (180 – 194 °F)	
HDT, °C @ 0.45MPa after thermal post treatment procedure B	D-648-06	92 – 95 °C (198 – 203 °F)	
HDT, °C @ 1.82MPa	D-648-07	51 – 55 °C (124 – 131 °F)	
Izod Notched Impact	D-256-06	90 – 115 J/m (1.69 – 2.15 ft lb/in)	90 – 100 J/m (1.69 – 1.87 ft lb/in)
Tg	DMA, E»	47 – 53 °C (117 – 127 °F)	
Shore Hardness (D)	Scale D	85 – 87 Scale D	
Rockwell Hardness	Scale M	67 – 69 Scale M	
Polymerized Density	ASTM D792	1.17 – 1.18 g/cm^3	

Biocompatible Digital ABS Plus

System Availability	Layer Thickness Capability	Support Structure	Available Colors
Objet260/350/500 Connex3™	Digital Material 2/3 mode: 30 microns (0.0012 in.)	SUP705 (WaterJet removable) SUP706B (soluble)	Ivory (MED515 Plus and MED531)
Stratasys J735™ Stratasys J750™	High Mix or High Speed mode: 27 microns (0.0011 in.) High Quality mode: 14 microns (0.00055 in.)	SUP705 (WaterJet removable) SUP706B (soluble)	Ivory (MED515 Plus and MED531)
J750 Digital Anatomy™ J850 Digital Anatomy™	Horizontal build layers down to 14 microns (0.00055 in.)	SUP705™ (WaterJet removable) SUP706B™ (soluble) GelMatrix™[2] (WaterJet removable)	Ivory (MED515 Plus and MED531)
J5 MediJet®	High Quality mode: 18 microns (0.0007 in)	SUP710™ (WaterJet removable) WSS™150[2] (Water soluble support)	Ivory (MED515 Plus and MED531)
J5 Digital Anatomy™	High Quality mode: 18 microns (0.0007 in)	SUP710™ (WaterJet removable) WSS™150[2] (Water soluble support)	Ivory (MED515 Plus and MED531)

[1] Biocompatible Digital ABS Plus is fabricated using MED515 Plus together with MED531
[2] Biocompatible Digital ABS Plus was not tested for biocompatibility with this support material

All data provided herein, which is related to consumables, was collected from specific specimens and test conditions and is provided for information only. Characteristics may vary if different specimens and test conditions are applied. Unless expressly provided in writing, no warranties are made and warranties of merchantability or fitness for a particular purpose are expressly disclaimed.

For additional information about biological and toxicological assessment and the approved sterilization processes, refer to the Biocompatible page in Stratasys support center.

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