PC-ABS

PRODUCTION-GRADE THERMOPLASTIC FOR FDM 3D PRINTERS

PC-ABS (polycarbonate-ABS) is one of the most widely used industrial thermoplastics. PC-ABS offers the most desirable properties of both materials – the superior strength and heat resistance of PC and the flexibility of ABS. PC-ABS blends are commonly used in automotive, electronics and telecommunications applications. Additionally, a PC-ABS part manufactured on a Fortus® or Stratasys F370™ 3D Printer is 5-60 percent stronger than a part made on previous FDM® systems. PC-ABS gives you conceptual modeling, functional prototyping, manufacturing tools and production parts.

MECHANICAL PROPERTIES[1]	TEST METHOD	ENGLISH	METRIC
Tensile Strength (Type 1, 0.125", 0.2"/min)	ASTM D638	5,900 psi	41 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	278,000 psi	1,900 MPa
Tensile Elongation (Type 1, 0.125", 0.2"/min)	ASTM D638	6%	6%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	9,800 psi	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	280,000 psi	1,900 MPa
IZOD Impact, notched (Method A, 23 °C)	ASTM D256	3.7 ft-lb/in	196 J/m
IZOD Impact, un-notched (Method A, 23 °C)	ASTM D256	9 ft-lb/in	481 J/m

THERMAL PROPERTIES[2]	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648	230 °F	110 °C
Heat Deflection (HDT) @ 264 psi	ASTM D648	205 °F	96 °C
Vicat Softening Temperature	ASTM D1525	234 °F	112 °C
Glass Transition Temperature (Tg)	DMA (SSYS)	257 °F	125 °C
Coefficient of Thermal Expansion	- - - - - - - - -	4.10^{-05} in/in/°F	- - - - -
Melting Point	- - - - - - - - -	Not Applicable[3]	Not Applicable[3]

ELECTRICAL PROPERTIES[4]	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	$2.0x10^{14}$ - $4.4x10^{13}$ ohm-cm
Dielectric Constant	ASTM D150-98	2.9 - 2.7
Dissipation Factor	ASTM D150-98	.0035 - .0032
Dielectric Strength	ASTM D149-09, Method A	340 - 90 V/mil

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At the core: Advanced FDM Technology

FDM (fused deposition modeling) technology works with engineering-grade thermoplastics to build strong, long-lasting and dimensionally stable parts with the best accuracy and repeatability of any 3D printing technology. These parts are tough enough to be used as advanced conceptual models, functional prototypes, manufacturing tools and production parts.

Meet production demands

FDM systems are as versatile and durable as the parts they produce. Advanced FDM 3D Printers boast the largest build envelopes and material capacities in their class, delivering longer, uninterrupted build times, bigger parts and higher quantities than other additive manufacturing systems, delivering high throughput, duty cycles and utilization rates.

Opening the way for new possibilities

FDM 3D Printers streamline processes from design through manufacturing, reducing costs and eliminating traditional barriers along the way. Industries can cut lead times and costs, products turn out better and get to market faster.

No special facilities needed

FDM 3D Printers are easy to operate and maintain compared to other additive fabrication systems because there are no messy powders or resins to handle and contain, and no special venting is required because FDM systems don't produce noxious fumes, chemicals or waste.

OTHER[2]	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.10
Density	ASTM D792	0.0397 lb/in^3
Rockwell Hardness	ASTM D785	R110

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 380mc™	0.013 inch (0.330 mm)	Soluble Supports	■ Black □ White
Fortus 450mc™	0.010 inch (0.254 mm)		
Fortus 900mc™	0.007 inch (0.178 mm)		
Stratasys F370	0.005 inch (0.127 mm)[5]		

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Tested parts were built on Fortus 400mc™ @ 0.010" (0.254 mm) slice. Product specifications are subject to change without notice.

The performance characteristics of these materials may vary according to application, operating conditions, or end use. Each user is responsible for determining that the Stratasys material is safe, lawful, and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Stratasys makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use, or warranty against patent infringement.

[1]Build orientation is on side long edge.

[2]Literature value unless otherwise noted.

[3]Due to amorphous nature, material does not display a melting point.

[4]All Electrical Property values were generated from the average of test plaques built with default part density (solid). Test plaques were 4.0 x 4.0 x 0.1 inches (102 x 102 x 2.5 mm) and were built both in the flat and vertical orientation. The range of values is mostly the result of the difference in properties of test plaques built in the flat vs. vertical orientation.

[5]0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc.

HOME OF 3D PRINTING

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