# ABSi

## PRODUCTION-GRADE THERMOPLASTIC FOR FORTUS 3D PRINTERS

Fortus® 3D Printers give engineers the ability to manufacture real industrial thermoplastic parts direct from digital files. ABSi™ is an ideal material for conceptual modeling, functional prototyping and direct digital manufacturing. Its strength is superior to standard ABS, and the translucent nature of ABSi is beneficial for monitoring material flow and light transmission, most commonly used for medical and automotive applications. When combined with a Fortus® 3D Printer, ABSi gives you parts that are visually unique, dimensionally accurate, durable and hold their shape over time.

| MECHANICAL PROPERTIES[1] | TEST METHOD | ENGLISH | METRIC |
|---|---|---|---|
| Tensile Strength (Type 1, 0.125”, 0.2”/min) | ASTM D638 | 5,400 psi | 37 MPa |
| Tensile Modulus (Type 1, 0.125”, 0.2”/min) | ASTM D638 | 277,700 psi | 1,920 MPa |
| Tensile Elongation (Type 1, 0.125”, 0.2”/min) | ASTM D638 | 4.4% | 4.4% |
| Flexural Strength (Method 1, 0.05”/min) | ASTM D790 | 8,980 psi | 62 MPa |
| Flexural Modulus (Method 1, 0.05”/min) | ASTM D790 | 278,000 psi | 1,920 MPa |
| IZOD Impact, notched (Method A, 23°C) | ASTM D256 | 1.8 ft-lb/in | 96.4 J/m |
| IZOD Impact, un-notched (Method A, 23°C) | ASTM D256 | 3.6 ft-lb/in | 191.1 J/m |

| THERMAL PROPERTIES[2] | TEST METHOD | ENGLISH | METRIC |
|---|---|---|---|
| Heat Deflection (HDT) @ 66 psi, 0.125" unannealed | ASTM D648 | 188°F | 86°C |
| Heat Deflection (HDT) @ 264 psi, 0.125" unannealed | ASTM D648 | 163°F | 73°C |
| Glass Transition Temperature (Tg) | DMA (SSYS) | 240°F | 116°C |
| Coefficient of Thermal Expansion | ASTM D696 | $6.7 \times 10^{-06}$ in/in/°F | $12.1 \times 10^{-05}$ mm/mm/°C |
| Melting Point | --------------- | Not Applicable[3] | Not Applicable[3] |

| ELECTRICAL PROPERTIES[4] | TEST METHOD | VALUE RANGE |
|---|---|---|
| Volume Resistivity | ASTM D257 | $1.5 \times 10^{9}$ - $6.1 \times 10^{10}$ ohm-cm |
| Dielectric Constant | ASTM D150-98 | 3.4 - 3.6 |
| Dissipation Factor | ASTM D150-98 | 0.12 - 0.15 |
| Dielectric Strength | ASTM D149-09, Method A | 100 - 320 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 | 1.08 |
| Rockwell Hardness | ASTM D785 | R108 |

| SYSTEM AVAILABILITY | LAYER THICKNESS CAPABILITY | SUPPORT STRUCTURE | AVAILABLE COLORS |
|---|---|---|---|
| Fortus 900mc™ | 0.013 inch (0.330 mm)<br>0.010 inch (0.254 mm)<br>0.007 inch (0.178 mm)<br>0.005 inch (0.127 mm) | Soluble Supports | Translucent Natural<br>Translucent Amber<br>Translucent Red |

*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.*

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