

RedEye On Demand ABS for Rapid Prototyping

Category : Polymer , Rapid Prototyping Polymer , Thermoplastic , ABS Polymer

Material Notes:

ABS or Acrylonitrile butadiene styrene is a true industrial thermoplastic that is impact-resistant and structurally strong. ABS parts are built with a layered manufacturing process utilizing Fused Deposition Modeling (FDM) technology, often used for rapid prototyping. It is the most commonly specified plastic material for the production of injection-molded parts due to its strength, visual appeal and all-around suitability for a wide range of applications. This high-performance engineering material provides excellent dimensional stability and aesthetic qualities that can be used for functional prototypes and real-world applications. Applications ABS is widely used in applications where impact-resistance and structural strength are necessary. It is accurate, durable and robust enough for field testing or demonstration units. Because of its excellent dimensional stability, it is ideal for pre-production rapid prototypes that can accurately predict performance of injection molded parts. ABS is used for a variety of applications including automotive body parts, dash boards, components and housings; electronic enclosures for business machines and consumer products; sporting goods; manufacturing fixtures; handles and enclosures for power tools; prototypes and end-use parts in other industries such as aerospace, medical, toys and industrial goods. Parts built from ABS can also be used as masters for RTV molds and vacuum forming, vacuum metallization, electroplating, investment casting and parts that require snap fits. In a rapid manufacturing application, ABS can be used to create actual production parts in lieu of injection molding for short-run production. Rapid (or layered) manufacturing provides multiple benefits: High design iterations – while in production the design engineer has the freedom to modify geometry's on the fly which cannot be done once you have committed to tooling Bridge manufacturing – with rapid manufactured parts, production can begin while permanent tooling is on order Jigs and Fixtures to be used on manufacturing/production lines For those manufacturers who practice lean manufacturing techniques or who maintain just-in-time inventories, RM can conserve cash flow Alpha and beta product releases – manufacturers can produce accurate, durable products even in the earliest stages of production

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http://www.lookpolymers.com/polymer_RedEye-On-Demand-ABS-for-Rapid-Prototyping.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.05 g/cc	1.05 g/cc	ASTM D792

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	105	105	
Tensile Strength, Yield	22.0 MPa	3190 psi	ASTM D638
Elongation at Break	6.0 %	6.0 %	ASTM D638
Tensile Modulus	1.627 GPa	236.0 ksi	ASTM D638
Flexural Yield Strength	41.0 MPa	5950 psi	ASTM D790
Flexural Modulus	1.834 GPa	266.0 ksi	ASTM D790
Izod Impact, Notched	1.07 J/cm	2.00 ft-lb/in	ASTM D256

120d Impact Unnotched Mechanical Properties	2.14 J/cm Metric	4.00 ft-lb/in English	ASTM D256 Comments
Thermal Properties	Metric	English	Comments
CTE, linear	101 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 20.0 $^\circ\text{C}$	56.0 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 68.0 $^\circ\text{F}$	
Maximum Service Temperature, Air	96.0 $^\circ\text{C}$	205 $^\circ\text{F}$	HDT unspecified pressure; ASTM D648
Glass Transition Temp, Tg	104 $^\circ\text{C}$	219 $^\circ\text{F}$	DMA (SYSS)
Flammability, UL94	HB	HB	
Electrical Properties	Metric	English	Comments
Dielectric Constant	2.4 @Frequency 6.00e+7 Hz	2.4 @Frequency 6.00e+7 Hz	IEC 60250
Dielectric Strength	32.0 kV/mm	813 kV/in	IEC 60112

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