FUSED DEPOSITION MODELING

PC-ABS

Tough, Heat-Resistant PC/ABS Blend



PC-ABS combines the exceptional strength and heat resistance of polycarbonate (PC) with the flexibility and processability of acrylonitrile butadiene styrene (ABS). This advanced thermoplastic blend delivers superior impact resistance, excellent dimensional stability, and enhanced surface finish, making it ideal for functional prototypes, end-use parts, and manufacturing tooling that require both mechanical performance and aesthetic appeal. Stratasys PC-ABS is the grade for impact-resistant housings, interior trim and tooling that need to handle heat, and it stands up to short-term contact with alcohols, engine coolant and petroleum greases.

BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
914 × 610 × 914 mm	**2-4 business days**	**0.127-0.330 mm**	**±0.25 mm or ±0.3%, whichever is greater**

MECHANICAL PROPERTIES

PC-ABS delivers dependable strength and impact resistance for automotive interiors, electronic housings and consumer products, helping teams move from prototype to production with confidence.

Mechanical test parts were printed on an F900. XZ samples are printed on edge and ZX samples stand upright, so the ZX values describe strength across the layers. Orient features under tension, bending or impact so stress runs along the layers, where the blend is strongest and toughest; in compression, upright samples test higher.

PROPERTY	VALUE	TEST STANDARD
Tensile Strength at Yield (XZ)	**36.5 MPa**	ASTM D638
Tensile Strength at Break (XZ)	**34.7 MPa**	ASTM D638
Tensile Strength at Break (ZX)	**25.9 MPa**	ASTM D638
Tensile Modulus (XZ)	**1.99 GPa**	ASTM D638
Tensile Modulus (ZX)	**1.87 GPa**	ASTM D638
Elongation at Yield (XZ)	**3.0 %**	ASTM D638
Elongation at Break (XZ)	**4.7 %**	ASTM D638
Elongation at Break (ZX)	**1.8 %**	ASTM D638
Flexural Strength at 5% Strain (XZ, no break)	**61.9 MPa**	ASTM D790, Procedure A
Flexural Strength at Break (ZX)	**46.2 MPa**	ASTM D790, Procedure A
Flexural Strain at Break (ZX)	**3.51 %**	ASTM D790, Procedure A
Flexural Modulus (XZ)	**1.86 GPa**	ASTM D790, Procedure A
Flexural Modulus (ZX)	**1.68 GPa**	ASTM D790, Procedure A
Compressive Yield Strength (XZ)	**96.5 MPa**	ASTM D695
Compressive Yield Strength (ZX)	**172 MPa**	ASTM D695

Compressive Modulus (XZ)	**2.14 GPa**	ASTM D695
Compressive Modulus (ZX)	**1.85 GPa**	ASTM D695
Izod Impact, Notched (XZ)	**241 J/m**	ASTM D256
Izod Impact, Notched (ZX)	**34.0 J/m**	ASTM D256
Izod Impact, Unnotched (XZ)	**655 J/m**	ASTM D4812
Izod Impact, Unnotched (ZX)	**101 J/m**	ASTM D4812

THERMAL PROPERTIES

Printed heat deflection is reported flat (XY) and on edge or upright (XZ / ZX), next to moulded reference values, so printed parts can be compared with moulded PC-ABS.

PC-ABS is amorphous, so it has no melting point; the glass transition temperature marks where it begins to soften. On-edge and upright (XZ / ZX) expansion is one mean value across the full test range. Flat (XY) samples expand up to 35 °C, barely change between 35 and 50 °C and contract above 50 °C, so flat expansion is listed for each range.

PROPERTY	VALUE	TEST STANDARD
HDT @ 0.45 MPa / 66 psi (XY)	**117.9 °C**	ASTM D648, Method B
HDT @ 0.45 MPa / 66 psi (XZ / ZX)	**126.1 °C**	ASTM D648, Method B
HDT @ 1.82 MPa / 264 psi (XY)	**107.5 °C**	ASTM D648, Method B
HDT @ 1.82 MPa / 264 psi (XZ / ZX)	**112.0 °C**	ASTM D648, Method B
HDT @ 0.45 MPa / 66 psi (moulded)	**125.0 °C**	ASTM D648, Method B
HDT @ 1.82 MPa / 264 psi (moulded)	**102.9 °C**	ASTM D648, Method B
Glass Transition Temperature	**105.3 °C**	ASTM D7426 (inflection point)
Vicat Softening Temperature (B/50, resin)	**112 °C**	ASTM D1525
Mean CTE (XY, −50 to 35 °C)	**59.87 ×10^{-6}/K**	ASTM E831
Mean CTE (XY, 35 to 50 °C)	**0.4816 ×10^{-6}/K**	ASTM E831
Mean CTE (XY, 50 to 90 °C)	**−61.76 ×10^{-6}/K**	ASTM E831
Mean CTE (XZ / ZX, −50 to 95 °C)	**72.96 ×10^{-6}/K**	ASTM E831

PHYSICAL PROPERTIES

Consistent density and surface quality keep critical features in tolerance and downstream finishing predictable. Low specific gravity makes parts lightweight yet durable.

Hardness is a resin literature value. The UV row shows the change in upright stress at break after accelerated weathering (8 hours of UV at 60 °C and 4 hours of condensation per cycle); no colour change is reported, so ASA remains the choice for parts that must keep their colour in sunlight.

PROPERTY	VALUE	TEST STANDARD
Specific Gravity	**1.10**	ASTM D792
Rockwell Hardness (resin)	**R110**	ASTM D785
Stress at Break Change after 1,000 h UV (ZX, F370 coupons)	**−3.8 %**	ASTM G154 / ASTM D638

ELECTRICAL PROPERTIES

High resistivity and dielectric strength suit electrical housings, connectors, insulating features and functional prototypes, and give enclosures in integrated electrical systems dependable insulation.

The dissipation factor helps evaluate dielectric losses in signal-sensitive or high-frequency use cases. Dielectric values are given at 1 kHz and 2 MHz for XY and XZ / ZX samples, and dielectric strength comes from printed plaques built flat and vertical.

PROPERTY	VALUE	TEST STANDARD
Volume Resistivity	**> 6.84×10^{14} Ω·cm**	ASTM D257
Dielectric Constant, 1 kHz (XY / XZ-ZX)	**2.62 / 2.74**	ASTM D150
Dielectric Constant, 2 MHz (XY / XZ-ZX)	**2.74 / 2.88**	ASTM D150
Dissipation Factor, 1 kHz (XY / XZ-ZX)	**0.001 / 0.002**	ASTM D150
Dissipation Factor, 2 MHz (XY / XZ-ZX)	**0.002 / 0.001**	ASTM D150
Dielectric Strength (flat and vertical)	**90–340 V/mil**	ASTM D149, Method A

CHEMICAL PROPERTIES

PC-ABS is rated by chemical class at room temperature. It is excellent against weak acids and deionized water and good for short-term contact with alcohols, windshield washer fluid, engine coolant, petroleum greases and bases. Fuels, motor oil, transmission and brake fluid and strong acids are rated moderate, while ketones, esters, phenols, halogenated solvents and silicone oils attack it.

Chemical ratings are screening guidance; confirm them with application-specific testing before production release.

CHEMICAL	RATING
Weak acids (pH 3–6)	**Excellent**
Deionized water	**Excellent**
Alcohol / ethanol	**Good**
Windshield washer fluid	**Good**
Antifreeze / engine coolant	**Good**
Petroleum greases	**Good**
Weak bases (pH 8–10)	**Good**
Strong bases (pH > 10)	**Good**
Aliphatic hydrocarbons (propane, butane)	**Limited**
Aromatic hydrocarbons (benzene)	**Limited**
Petroleum fuels	**Limited**
Motor oil	**Limited**
Transmission fluid	**Limited**
Brake fluid	**Limited**
Strong acids (pH < 3)	**Limited**
Ketones (MEK, acetone)	**Poor**
Esters	**Poor**
Phenols	**Poor**

Halogenated hydrocarbons (CFCs, methylene chloride)	**Poor**
Silicone greases / oils	**Poor**

COMPLIANCE

Stratasys PC-ABS is rated UL 94 HB and is not flame retardant. FR-PC-ABS is the flame-retardant PC/ABS blend, made with a UL 94 V-0 rated base resin. For flame-rated FDM parts, ULTEM 9085 carries FAA flame, smoke and toxicity data.

Stratasys PC-ABS has no biocompatibility data, so it is used for medical equipment housings without patient contact.

STANDARD	STATUS
UL 94 flammability Not flame retardant; Stratasys UL file E345258	HB

MANUFACTURING

Colours & finishes	**Black or white; support removal, sanding, drilling, tapping, painting, vapor smoothing and chemical smoothing**