



ABS MATERIALS

SPECIFICATIONS

STEP™ ABS Material Properties Data Sheet

ABS (Acrylonitrile Butadiene Styrene) is a high-volume commercial thermoplastic and is one of the most cost-effective materials. It is best used in applications that demand high strength, heat resistance, and the ability to bend before breaking. Due to its strength, machinability and high-performance, ABS is the plastic preferred by engineers for the manufacturing of end-use-parts.

Mechanical Properties	Test Sample Type	Test Method	Units	Typical Values
Tensile Modulus	Type V, 5mm/min	ASTM D638	MPa	1770
Tensile Modulus	ISO-1BA	ISO 527-1BA	MPa	1770
Tensile Strength	Type V, 5 mm/min	ASTM D638	MPa	34
Tensile Strength	ISO-1BA	ISO 527-1BA	MPa	37
% Elongation to Break	Type V, 5 mm/min	ASTM D638	%	9
% Elongation to Break	ISO-1BA	ISO 527-1BA	%	15
Flexural Modulus	2mm/min	ISO 178	MPa	1600-2000
Charpy Notched, 23C	80x10x4mm, notch type A	ISO 179-1:2010	kJ/m2	16-20
Falling Dart, Fmax	1000mm drop/ height, 4.4 m/s	ISO 6603-2:2000	N	2200
Falling Dart, Energy	1000mm drop height, 4.4 m/s	ISO 6603-2:2000	J	8

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Thermal Properties	Test Sample Type	Test Method	Units	Typical Values
Glass Transition Temperature (Tg)	N/A	DSC (internal method)	°C	106-110
Vicat Softening Temperature	Rate B/50	ASTM D1525	°C	99
Heat Deflection Temperature	0.45 MPa	ASTM D648	°C	94
Heat Deflection Temperature	1.82 MPa	ASTM D648	°C	79
Relative Temp Index, Elec		UL 746B	°C	60
Relative Temp Index, Mech w/impact		UL 746B	°C	60
Relative Temp Index, Mech w/o impact		UL 746B	°C	60

Additional Properties	Test Method	Units	Typical Values
Specific Gravity	ASTM D792	Unitless	1.04
Density	ISO 1183	gm/cm ³	1.04
Flame Classification	UL94	N/A	HB
Melt Mass-Flow Rate (220oC/10 kg)	ASTM D1238/ISO 1133	g/10 min	8

Flame Characteristics	Value	Test Method	Units
UL Recognized, 94HB Flame Class Rating (3)	1.5	UL 94	mm

Electrical	Value	Test Method	Units
Hot Wire Ignition (PLC)	4	UL 746B	PLC Code
High Ampere Arc Ignition, Surface (PLC)	0	UL 746B	PLC Code
Comparative Tracking Index	1	UL 746B	PLC Code
Volume Resistivity	15	ASTM D257	10 ^x ohm-cm
Dielectric Strength	36	ASTM D149	kV/mm

LEARN MORE

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