

# Acrylonitrile/Butadiene/ Styrene (ABS)

## KEY FEATURES

- Electrically Insulating
- High Stiffness
- Good Chemical Resistance
- Low Density
- Good Damping
- Cost Effective
- Good Toughness at Low Temperatures
- Easily Machinable
- Low Moisture Absorption

## DESCRIPTION

ABS is a terpolymer and an amorphous resin. It is manufactured by combining three different compounds. The three that make up ABS are acrylonitrile, butadiene, and styrene. ABS occupies the unique position of being a bridge between the commodity and other higher performance engineering thermoplastics. Its performance is characterized by toughness and impact strength even at low temperatures, good stiffness and machinability.

## TYPICAL PROPERTY VALUES

Physical	Properties	Condition	Units	Value	ASTM Test
	Density		g/cm <sup>3</sup>	1.04	D792
	Chemical Designation			ABS	
	Filler				

Mechanical	Properties	Condition	Units	Value	ASTM Test
	Tensile Modulus	@ 73 °F	PSI	270,000	D638
	Tensile Strength	@ 73 °F	PSI	5,100	D638
	Shear Strength	@ 73 °F	PSI		
	Elongation @ Yld	@ 73 °F	%	3	D638
	Elongation @ Brk	@ 73 °F	%	15	D638
	Flexural Modulus	@ 73 °F	PSI	270,000	D790
	Flexural Strength	@ 73 °F	PSI	8,000	D790
	Compressive Modulus	@ 73 °F	PSI	203,000	D790
	Compressive Strength	@ 73 °F, 10% strain	PSI		
	Izod (Charpy) Impact Strength	@ 73 °F	ft-lbs/in	6.3	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale	102	D785
	Coefficient of Friction	Static		0.19	D3702
	Coefficient of Friction	Dynamic, 40PSI, 50 FPM		0.35	D3702
	Wear (K) Factor		in <sup>3</sup> -min/ft-lbs-hr	3500*10 <sup>-10</sup>	D3702
Limiting PV		psi-fpm			

Thermal	Properties	Condition	Units	Value	ASTM Test
	Heat Deflection Temperature	@ 66 PSI	°F	200	D648
	Service Temperature	Long Term	°F	150	
	Heat Deflection Temperature	@ 264 PSI	°F	177	D648
	Service Temperature	Intermittent	°F	210	
	Thermal Expansion (CLTE)		in/in/°F	5.6*10 <sup>-5</sup>	D696
	Specific Heat		BTU/lb-°F	0.3	
Thermal Conductivity		BTU-in/hr-ft <sup>2</sup> -°F	1.32	C177	

Electrical	Properties	Condition	Units	Value	ASTM Test
	Surface Resistivity		ohms/square	1.0*10 <sup>14</sup>	D257
	Volume Resistivity		ohm-cm	1.0*10 <sup>15</sup>	D257
	Dielectric Constant	50% RH		3.3	D150
	Dielectric Strength	@ 60 Hz, 73 °F	V/mil	450	D149
Dissipation Factor	@ 60 Hz, 73 °F		0.02	D150	

Other	Properties	Condition	Units	Value	ASTM Test
	Moisture Absorption	@ 24 hrs, 73 °F	%	0.30	D570
	Moisture Absorption	@ Saturation, 73 °F	%	0.70	D570
	Flammability	UL 94		HB	
	Food Grade			Y	
Relative Cost			\$		

• The data stated above are typical values intended for reference and comparison purposes only.  
• The data should not be used as a basis for design specifications or quality control.

• The information is provided as a guide to the best of our knowledge and given without obligation or liability.  
• Testing under individual application circumstances is recommended