

Overview of materials for Acrylonitrile Butadiene Styrene (ABS), Extruded

Category : Polymer , Thermoplastic , ABS Polymer , Acrylonitrile Butadiene Styrene (ABS), Extruded

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Acrylonitrile Butadiene Styrene (ABS), Extruded". Each property range of values reported is minimum and maximum values of appropriate MatWeb entries. The comments report the average value, and number of data points used to calculate the average. The values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Overview-of-materials-for-Acrylonitrile-Butadiene-Styrene-ABS-Extruded.php

Physical Properties	Metric	English	Comments
Density	1.02 - 1.20 g/cc	0.0368 - 0.0434 lb/in ³	Average value: 1.05 g/cc Grade Count:101
Water Absorption	0.250 - 1.00 %	0.250 - 1.00 %	Average value: 0.448 % Grade Count:24
Moisture Absorption at Equilibrium	0.000 - 0.210 %	0.000 - 0.210 %	Average value: 0.176 % Grade Count:8
Water Absorption at Saturation	0.300 - 1.00 %	0.300 - 1.00 %	Average value: 0.738 % Grade Count:4
Maximum Moisture Content	0.0100 - 0.150	0.0100 - 0.150	Average value: 0.0256 Grade Count:9
Linear Mold Shrinkage	0.00200 - 0.00800 cm/cm	0.00200 - 0.00800 in/in	Average value: 0.00530 cm/cm Grade Count:54
Melt Flow	0.100 - 35.0 g/10 min	0.100 - 35.0 g/10 min	Average value: 4.93 g/10 min Grade Count:103

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	68.0 - 113	68.0 - 113	Average value: 102 Grade Count:55
Ball Indentation Hardness	65.0 - 105 MPa	9430 - 15200 psi	Average value: 90.0 MPa Grade Count:7
Tensile Strength, Ultimate	23.0 - 49.0 MPa	3340 - 7110 psi	Average value: 38.2 MPa Grade Count:25
Tensile Strength, Yield	13.0 - 65.0 MPa	1890 - 9430 psi	Average value: 41.4 MPa Grade Count:92
	22.1 - 59.3 MPa @Temperature -18.0 - 71.0 °C	3210 - 8600 psi @Temperature -0.400 - 160 °F	Average value: 40.7 MPa Grade Count:1
Elongation at Break	3.00 - 150 %	3.00 - 150 %	Average value: 34.3 % Grade Count:58
Elongation at Yield	0.620 - 70.0 %	0.620 - 70.0 %	Average value: 7.43 % Grade Count:44
	1.00 - 2.65 GPa	145 - 384 ksi	Average value: 2.09 GPa Grade

Modulus of Elasticity Mechanical Properties	Metric	English	Count:40 Comments
	1.50 - 2.60 GPa	218 - 377 ksi	Average value: 2.05 GPa Grade Count:1
	@Temperature -18.0 - 71.0 °C	@Temperature -0.400 - 160 °F	
Flexural Yield Strength	28.3 - 88.3 MPa	4100 - 12800 psi	Average value: 63.9 MPa Grade Count:60
	49.6 - 113.8 MPa	7190 - 16510 psi	
	@Temperature -40.0 - 71.0 °C	@Temperature -40.0 - 160 °F	Average value: 81.7 MPa Grade Count:1
Flexural Modulus	0.200 - 5.50 GPa	29.0 - 798 ksi	Average value: 2.20 GPa Grade Count:88
	1.90 - 2.80 GPa	276 - 406 ksi	
	@Temperature -40.0 - 71.0 °C	@Temperature -40.0 - 160 °F	Average value: 2.35 GPa Grade Count:1
Izod Impact, Notched	0.380 - 10.3 J/cm	0.712 - 19.3 ft-lb/in	Average value: 3.26 J/cm Grade Count:77
	0.450 - 3.00 J/cm	0.843 - 5.62 ft-lb/in	
	@Temperature -17.8 - 0.000 °C	@Temperature 0.000 - 32.0 °F	Average value: 1.28 J/cm Grade Count:11
	0.480 - 4.00 J/cm	0.899 - 7.49 ft-lb/in	Average value: 1.28 J/cm Grade Count:13
	@Temperature -40.0 - 0.000 °C	@Temperature -40.0 - 32.0 °F	
	0.480 - 4.00 J/cm	0.899 - 7.49 ft-lb/in	Average value: 1.28 J/cm Grade Count:13
	@Thickness 3.17 - 6.40 mm	@Thickness 0.125 - 0.252 in	
Izod Impact, Unnotched	1.07873 - 1.66713 J/cm	2.02091 - 3.12322 ft- lb/in	Average value: 1.37 J/cm Grade Count:2
	@Temperature -20.0 - - 20.0 °C	@Temperature -4.00 - - 4.00 °F	
	1.07873 - 1.66713 J/cm	2.02091 - 3.12322 ft- lb/in	Average value: 1.37 J/cm Grade Count:2
	@Thickness 3.20 - 6.40 mm	@Thickness 0.126 - 0.252 in	
Izod Impact, Notched (ISO)	8.00 - 42.0 kJ/m²	3.81 - 20.0 ft-lb/in²	Average value: 26.4 kJ/m² Grade Count:16
	7.00 - 22.0 kJ/m²	3.33 - 10.5 ft-lb/in²	
	@Temperature -30.0 - - 20.0 °C	@Temperature -22.0 - - 4.00 °F	Average value: 13.1 kJ/m² Grade Count:10
	7.00 - 7.00 kJ/m²	3.33 - 3.33 ft-lb/in²	Average value: 13.1 kJ/m² Grade

Mechanical Properties	Metric @Temperature -40.0 - - 40.0 °C	English @Temperature -40.0 - - 40.0 °F	Count:1 Comments
	7.00 - 7.00 kJ/m ² @Thickness 4.00 - 4.00 mm	3.33 - 3.33 ft-lb/in ² @Thickness 0.157 - 0.157 in	Average value: 13.1 kJ/m ² Grade Count:1
Charpy Impact Unnotched	11.0 J/cm ² - NB	52.4 ft-lb/in ² - NB	Average value: 14.6 J/cm ² Grade Count:14
	1.00 J/cm ² - NB @Temperature -40.0 - - 30.0 °C	4.76 ft-lb/in ² - NB @Temperature -40.0 - - 22.0 °F	Average value: 6.79 J/cm ² Grade Count:15
Charpy Impact, Notched	0.900 - 5.00 J/cm ²	4.28 - 23.8 ft-lb/in ²	Average value: 2.57 J/cm ² Grade Count:19
	0.500 - 2.50 J/cm ² @Temperature -30.0 - - 20.0 °C	2.38 - 11.9 ft-lb/in ² @Temperature -22.0 - - 4.00 °F	Average value: 1.49 J/cm ² Grade Count:13

Thermal Properties	Metric	English	Comments
CTE, linear	68.0 - 110 µm/m-°C	37.8 - 61.1 µin/in-°F	Average value: 87.8 µm/m-°C Grade Count:28
CTE, linear, Transverse to Flow	87.0 - 98.0 µm/m-°C	48.3 - 54.4 µin/in-°F	Average value: 93.7 µm/m-°C Grade Count:3
Thermal Conductivity	0.150 - 0.200 W/m-K	1.04 - 1.39 BTU-in/hr- ft ² -°F	Average value: 0.172 W/m-K Grade Count:4
Maximum Service Temperature, Air	60.0 - 100 °C	140 - 212 °F	Average value: 84.3 °C Grade Count:5
Deflection Temperature at 0.46 MPa (66 psi)	70.0 - 107 °C	158 - 225 °F	Average value: 94.4 °C Grade Count:36
Deflection Temperature at 1.8 MPa (264 psi)	70.0 - 106 °C	158 - 223 °F	Average value: 89.0 °C Grade Count:82
Vicat Softening Point	88.0 - 125 °C	190 - 257 °F	Average value: 100 °C Grade Count:84
Glass Transition Temp, Tg	108 - 109 °C	226 - 228 °F	Average value: 108 °C Grade Count:3

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+9 - 1.00e+17 ohm-cm	1.00e+9 - 1.00e+17 ohm-cm	Average value: 7.17e+15 ohm-cm Grade Count:24
Surface Resistance	1.00e+9 - 1.00e+16 ohm	1.00e+9 - 1.00e+16 ohm	Average value: 1.03e+15 ohm Grade Count:24
Dielectric Constant	2.60 - 3.30	2.60 - 3.30	Average value: 2.99 Grade Count:10
Dielectric Strength	18.0 - 50.0 kV/mm	457 - 1270 kV/in	Average value: 33.2 kV/mm Grade Count:16

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	525 - 600 V	525 - 600 V	Average value: 588 V Grade Count:13
Hot Wire Ignition, HWI	7.00 - 60.0 sec	7.00 - 60.0 sec	Average value: 20.9 sec Grade Count:3
High Amp Arc Ignition, HAI	120 - 200 arcs	120 - 200 arcs	Average value: 136 arcs Grade Count:3
High Voltage Arc-Tracking Rate, HVTR	0.000 - 25.4 mm/min	0.000 - 1.00 in/min	Average value: 11.8 mm/min Grade Count:3

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