

Overview of materials for Acrylonitrile Butadiene Styrene (ABS), Impact Grade, Molded

Category : Polymer , Thermoplastic , ABS Polymer , Acrylonitrile Butadiene Styrene (ABS), Impact Grade, Molded

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Acrylonitrile Butadiene Styrene (ABS), Impact Grade, Molded". 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-Impact-Grade-Molded.php

| Physical Properties | Metric | English | Comments |
|------------------------------------|-------------------------|-----------------------------------|--|
| Density | 1.00 - 3.50 g/cc | 0.0361 - 0.126 lb/in ³ | Average value: 1.08 g/cc Grade Count:174 |
| Water Absorption | 0.100 - 1.03 % | 0.100 - 1.03 % | Average value: 0.488 % Grade Count:32 |
| Moisture Absorption at Equilibrium | 0.200 - 0.240 % | 0.200 - 0.240 % | Average value: 0.206 % Grade Count:12 |
| Water Absorption at Saturation | 1.00 % | 1.00 % | Average value: 1.00 % Grade Count:4 |
| Maximum Moisture Content | 0.0100 | 0.0100 | Average value: 0.0100 Grade Count:13 |
| Linear Mold Shrinkage | 0.00100 - 0.0100 cm/cm | 0.00100 - 0.0100 in/in | Average value: 0.00514 cm/cm Grade Count:131 |
| Linear Mold Shrinkage, Transverse | 0.00400 - 0.00900 cm/cm | 0.00400 - 0.00900 in/in | Average value: 0.00550 cm/cm Grade Count:7 |
| Melt Flow | 0.100 - 42.0 g/10 min | 0.100 - 42.0 g/10 min | Average value: 9.51 g/10 min Grade Count:177 |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|-----------------|-------------------|---|
| Hardness, Rockwell M | 102 - 103 | 102 - 103 | Average value: 103 Grade Count:3 |
| Hardness, Rockwell R | 78.0 - 118 | 78.0 - 118 | Average value: 104 Grade Count:114 |
| Hardness, H358/30 | 80.0 - 98.0 MPa | 11600 - 14200 psi | Average value: 86.5 MPa Grade Count:4 |
| Ball Indentation Hardness | 74.0 - 100 MPa | 10700 - 14500 psi | Average value: 87.3 MPa Grade Count:6 |
| Tensile Strength, Ultimate | 24.0 - 138 MPa | 3480 - 20000 psi | Average value: 40.4 MPa Grade Count:64 |
| Tensile Strength, Yield | 28.0 - 93.1 MPa | 4060 - 13500 psi | Average value: 42.8 MPa Grade Count:146 |

| Mechanical Properties | 19.0 - 63.0 MPa Metric | 2760 - 9140 psi English | Comments Average value: 41.0 MPa Grade |
|----------------------------|-------------------------------|-----------------------------------|---|
| | @Temperature -40.0 - 80.0 °C | @Temperature -40.0 - 176 °F | Count:2 |
| Elongation at Break | 3.00 - 87.0 % | 3.00 - 87.0 % | Average value: 23.7 % Grade Count:106 |
| Elongation at Yield | 2.00 - 10.0 % | 2.00 - 10.0 % | Average value: 3.45 % Grade Count:57 |
| | 2.40 - 3.60 % | 2.40 - 3.60 % | Average value: 3.03 % Grade Count:2 |
| | @Temperature -40.0 - 80.0 °C | @Temperature -40.0 - 176 °F | |
| Modulus of Elasticity | 1.40 - 2.80 GPa | 203 - 406 ksi | Average value: 2.10 GPa Grade Count:61 |
| Flexural Yield Strength | 47.1 - 579 MPa | 6830 - 84000 psi | Average value: 73.4 MPa Grade Count:112 |
| Flexural Modulus | 0.210 - 13.1 GPa | 30.5 - 1900 ksi | Average value: 2.42 GPa Grade Count:153 |
| Izod Impact, Notched | 0.220 - 5.88 J/cm | 0.412 - 11.0 ft-lb/in | Average value: 2.91 J/cm Grade Count:145 |
| | 0.550 - 3.80 J/cm | 1.03 - 7.12 ft-lb/in | Average value: 1.52 J/cm Grade Count:11 |
| | @Temperature -30.0 - 0.000 °C | @Temperature -22.0 - 32.0 °F | |
| | 0.48051 - 2.40255 J/cm | 0.90019 - 4.50096 ft-lb/in | Average value: 1.52 J/cm Grade Count:10 |
| | @Temperature -40.0 - 0.000 °C | @Temperature -40.0 - 32.0 °F | |
| | 0.48051 - 2.40255 J/cm | 0.90019 - 4.50096 ft-lb/in | Average value: 1.52 J/cm Grade Count:10 |
| | @Thickness 3.17 - 3.20 mm | @Thickness 0.125 - 0.126 in | |
| Izod Impact, Unnotched | 3.25 - 5.07 J/cm | 6.09 - 9.50 ft-lb/in | Average value: 4.28 J/cm Grade Count:4 |
| | 0.588399 - 3.04006 J/cm | 1.10231 - 5.69528 ft-lb/in | Average value: 1.99 J/cm Grade Count:6 |
| | @Temperature -30.0 - 20.0 °C | @Temperature -22.0 - 4.00 °F | |
| | 0.588399 - 3.04006 J/cm | 1.10231 - 5.69528 ft-lb/in | Average value: 1.99 J/cm Grade Count:6 |
| | @Thickness 3.20 - 6.40 mm | @Thickness 0.126 - 0.252 in | |
| Izod Impact, Notched (ISO) | 12.0 - 40.0 kJ/m ² | 5.71 - 19.0 ft-lb/in ² | Average value: 25.2 kJ/m ² Grade Count:34 |
| | 8.00 - 18.0 kJ/m ² | 3.81 - 8.57 ft-lb/in ² | |

| Mechanical Properties | Metric | English | Comments |
|--------------------------------|---|--|---|
| | @Temperature -30.0 - - 20.0 °C | @Temperature -22.0 - - 4.00 °F | Average value: 12.3 kJ/m ² Grade Count:21 |
| Izod Impact, Unnotched (ISO) | 100 kJ/m ² - NB | 47.6 ft-lb/in ² - NB | Average value: 100 kJ/m ² Grade Count:10 |
| | 80.0 - 100 kJ/m ² @Temperature -30.0 - - 30.0 °C | 38.1 - 47.6 ft-lb/in ² @Temperature -22.0 - - 22.0 °F | Average value: 95.7 kJ/m ² Grade Count:7 |
| Charpy Impact Unnotched | 8.00 J/cm ² - NB | 38.1 ft-lb/in ² - NB | Average value: 12.4 J/cm ² Grade Count:30 |
| | 7.00 J/cm ² - NB @Temperature -30.0 - - 20.0 °C | 33.3 ft-lb/in ² - NB @Temperature -22.0 - - 4.00 °F | Average value: 10.3 J/cm ² Grade Count:26 |
| Charpy Impact, Notched | 0.800 - 6.30 J/cm ² | 3.81 - 30.0 ft-lb/in ² | Average value: 2.73 J/cm ² Grade Count:42 |
| | 0.500 - 3.00 J/cm ² @Temperature -30.0 - - 30.0 °C | 2.38 - 14.3 ft-lb/in ² @Temperature -22.0 - - 22.0 °F | Average value: 1.25 J/cm ² Grade Count:29 |
| Gardner Impact | 10.6 - 31.1 J | 7.82 - 22.9 ft-lb | Average value: 19.8 J Grade Count:4 |
| | 4.00 - 4.00 J @Temperature -29.0 - - 29.0 °C | 2.95 - 2.95 ft-lb @Temperature -20.2 - - 20.2 °F | Average value: 4.00 J Grade Count:1 |
| Taber Abrasion, mg/1000 Cycles | 68.0 - 93.0 | 68.0 - 93.0 | Average value: 80.3 Grade Count:4 |

| Thermal Properties | Metric | English | Comments |
|---------------------------------|---------------------|---|---|
| CTE, linear | 28.8 - 110 μm/m-°C | 16.0 - 61.1 μin/in-°F | Average value: 85.4 μm/m-°C Grade Count:32 |
| CTE, linear, Transverse to Flow | 80.0 - 110 μm/m-°C | 44.4 - 61.1 μin/in-°F | Average value: 89.3 μm/m-°C Grade Count:7 |
| Thermal Conductivity | 0.150 - 0.200 W/m-K | 1.04 - 1.39 BTU-in/hr- ft ² -°F | Average value: 0.190 W/m-K Grade Count:5 |
| Hot Ball Pressure Test | 95.0 - 100 °C | 203 - 212 °F | Average value: 95.6 °C Grade Count:8 |

| Electrical Properties | Metric | English | Comments |
|------------------------|-------------------------------|-------------------------------|--|
| Electrical Resistivity | 1.00e+11 - 1.00e+17 ohm-cm | 1.00e+11 - 1.00e+17 ohm-cm | Average value: 6.50e+15 ohm-cm Grade Count:36 |
| Surface Resistance | 1.00e+14 - 1.00e+15 ohm | 1.00e+14 - 1.00e+15 ohm | Average value: 6.79e+14 ohm Grade Count:14 |
| Dielectric Constant | 2.60 - 3.10 | 2.60 - 3.10 | Average value: 2.86 Grade Count:13 |

| Electrical Properties | Metric 48.0 kV/mm | English 1220 kV/in | Comments Average value: 28.9 kV/mm Grade Count:14 |
|--------------------------------------|--------------------|---------------------|---|
| Dissipation Factor | 0.00480 - 0.0140 | 0.00480 - 0.0140 | Average value: 0.00822 Grade Count:14 |
| Arc Resistance | 0.000 - 120 sec | 0.000 - 120 sec | Average value: 80.0 sec Grade Count:6 |
| Comparative Tracking Index | 400 - 600 V | 400 - 600 V | Average value: 590 V Grade Count:21 |
| Hot Wire Ignition, HWI | 7.00 - 120 sec | 7.00 - 120 sec | Average value: 20.1 sec Grade Count:7 |
| High Amp Arc Ignition, HAI | 60.0 - 200 arcs | 60.0 - 200 arcs | Average value: 122 arcs Grade Count:7 |
| High Voltage Arc-Tracking Rate, HVTR | 0.000 - 150 mm/min | 0.000 - 5.91 in/min | Average value: 49.3 mm/min Grade Count:6 |

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