

## Overview of materials for Acrylonitrile Butadiene Styrene (ABS), Unreinforced, Flame Retardant

Category : Polymer , Thermoplastic , ABS Polymer , Acrylonitrile Butadiene Styrene (ABS), Unreinforced, Flame Retardant

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Acrylonitrile Butadiene Styrene (ABS), Unreinforced, Flame Retardant". 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-Unreinforced-Flame-Retardant.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Acrylonitrile-Butadiene-Styrene-ABS-Unreinforced-Flame-Retardant.php)

| Physical Properties            | Metric                      | English                            | Comments                                     |
|--------------------------------|-----------------------------|------------------------------------|----------------------------------------------|
| Density                        | 1.04 - 1.33 g/cc            | 0.0376 - 0.0480 lb/in <sup>3</sup> | Average value: 1.18 g/cc Grade Count:142     |
| Water Absorption               | 0.0300 - 0.300 %            | 0.0300 - 0.300 %                   | Average value: 0.274 % Grade Count:26        |
| Water Absorption at Saturation | 0.300 - 1.00 %              | 0.300 - 1.00 %                     | Average value: 0.650 % Grade Count:4         |
| Viscosity                      | 350000 - 350000 cP          | 350000 - 350000 cP                 | Average value: 223000 cP Grade Count:1       |
|                                | @Temperature 200 - 200 °C   | @Temperature 392 - 392 °F          |                                              |
|                                | 159300 - 159300 cP          | 159300 - 159300 cP                 | Average value: 223000 cP Grade Count:1       |
|                                | @Temperature 191 - 191 °C   | @Temperature 375 - 375 °F          |                                              |
|                                | 159300 - 159300 cP          | 159300 - 159300 cP                 | Average value: 223000 cP Grade Count:1       |
|                                | @Shear Rate 3000 - 3000 1/s | @Shear Rate 3000 - 3000 1/s        |                                              |
| Linear Mold Shrinkage          | 0.00200 - 0.00900 cm/cm     | 0.00200 - 0.00900 in/in            | Average value: 0.00508 cm/cm Grade Count:111 |
| Melt Flow                      | 0.300 - 80.0 g/10 min       | 0.300 - 80.0 g/10 min              | Average value: 17.1 g/10 min Grade Count:130 |

| Mechanical Properties      | Metric          | English           | Comments                               |
|----------------------------|-----------------|-------------------|----------------------------------------|
| Hardness, Rockwell R       | 79.0 - 115      | 79.0 - 115        | Average value: 101 Grade Count:91      |
| Ball Indentation Hardness  | 75.0 - 82.0 MPa | 10900 - 11900 psi | Average value: 79.3 MPa Grade Count:7  |
| Tensile Strength, Ultimate | 26.5 - 45.0 MPa | 3840 - 6530 psi   | Average value: 35.7 MPa Grade Count:63 |
|                            | 8.00 - 15.0 MPa | 1160 - 2180 psi   | Average value: 11.5 MPa Grade          |

| Mechanical Properties      | Metric<br>@Temperature 60.0 - 90.0 °C | English<br>@Temperature 140 - 194 °F | Count:1<br>Comments                      |
|----------------------------|---------------------------------------|--------------------------------------|------------------------------------------|
| Tensile Strength, Yield    | 28.3 - 53.9 MPa                       | 4100 - 7820 psi                      | Average value: 40.4 MPa Grade Count:114  |
| Elongation at Break        | 3.00 - 56.0 %                         | 3.00 - 56.0 %                        | Average value: 15.0 % Grade Count:91     |
|                            | 50.0 - 95.0 %                         | 50.0 - 95.0 %                        |                                          |
|                            | @Temperature 60.0 - 90.0 °C           | @Temperature 140 - 194 °F            | Average value: 72.5 % Grade Count:1      |
| Elongation at Yield        | 2.00 - 15.0 %                         | 2.00 - 15.0 %                        | Average value: 4.20 % Grade Count:19     |
|                            | 2.30 - 2.30 %                         | 2.30 - 2.30 %                        |                                          |
|                            | @Temperature 60.0 - 90.0 °C           | @Temperature 140 - 194 °F            | Average value: 2.30 % Grade Count:1      |
| Modulus of Elasticity      | 1.47 - 2.70 GPa                       | 213 - 392 ksi                        | Average value: 2.24 GPa Grade Count:44   |
|                            | 1.50 - 1.90 GPa                       | 218 - 276 ksi                        |                                          |
|                            | @Temperature 60.0 - 90.0 °C           | @Temperature 140 - 194 °F            | Average value: 1.70 GPa Grade Count:1    |
| Flexural Yield Strength    | 41.4 - 81.4 MPa                       | 6000 - 11800 psi                     | Average value: 63.3 MPa Grade Count:108  |
| Flexural Modulus           | 1.57 - 20.0 GPa                       | 228 - 2900 ksi                       | Average value: 2.34 GPa Grade Count:134  |
| Izod Impact, Notched       | 0.100 - 4.48 J/cm                     | 0.187 - 8.40 ft-lb/in                | Average value: 1.87 J/cm Grade Count:125 |
|                            | 0.600 - 1.80 J/cm                     | 1.12 - 3.37 ft-lb/in                 |                                          |
|                            | @Temperature -20.0 - 0.000 °C         | @Temperature -4.00 - 32.0 °F         | Average value: 1.11 J/cm Grade Count:12  |
|                            | 0.69407 - 1.81526 J/cm                | 1.3003 - 3.40073 ft-lb/in            |                                          |
|                            | @Temperature -40.0 - 0.000 °C         | @Temperature -40.0 - 32.0 °F         | Average value: 1.11 J/cm Grade Count:4   |
|                            | 0.69407 - 1.81526 J/cm                | 1.3003 - 3.40073 ft-lb/in            |                                          |
|                            | @Thickness 3.17 - 3.20 mm             | @Thickness 0.125 - 0.126 in          | Average value: 1.11 J/cm Grade Count:4   |
| Izod Impact, Unnotched     | 6.41 - 13.9 J/cm                      | 12.0 - 26.0 ft-lb/in                 | Average value: 10.4 J/cm Grade Count:5   |
| Izod Impact, Notched (ISO) | 9.00 - 28.0 kJ/m²                     | 4.28 - 13.3 ft-lb/in²                | Average value: 16.6 kJ/m² Grade Count:18 |
|                            | 3.00 - 14.0 kJ/m²                     | 1.43 - 6.66 ft-lb/in²                |                                          |
|                            | @Temperature -30.0 - -                | @Temperature -22.0 - -               | Average value: 7.45 kJ/m² Grade Count:8  |

| Mechanical Properties        | 30.0 °C<br>Metric                                                   | 22.0 °F<br>English                                                     | Comments                                             |
|------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------|
| Izod Impact, Unnotched (ISO) | 70.0 kJ/m <sup>2</sup> - NB                                         | 33.3 ft-lb/in <sup>2</sup> - NB                                        | Average value: 70.0 kJ/m <sup>2</sup> Grade Count:9  |
|                              | 40.0 - 55.0 kJ/m <sup>2</sup><br>@Temperature -30.0 - -<br>30.0 °C  | 19.0 - 26.2 ft-lb/in <sup>2</sup><br>@Temperature -22.0 - -<br>22.0 °F | Average value: 47.5 kJ/m <sup>2</sup> Grade Count:2  |
| Charpy Impact Unnotched      | 5.00 J/cm <sup>2</sup> - NB                                         | 23.8 ft-lb/in <sup>2</sup> - NB                                        | Average value: 6.17 J/cm <sup>2</sup> Grade Count:13 |
|                              | 0.250 - 7.50 J/cm <sup>2</sup><br>@Temperature -30.0 - -<br>20.0 °C | 1.19 - 35.7 ft-lb/in <sup>2</sup><br>@Temperature -22.0 - -<br>4.00 °F | Average value: 4.47 J/cm <sup>2</sup> Grade Count:6  |
| Charpy Impact, Notched       | 0.500 - 3.00 J/cm <sup>2</sup>                                      | 2.38 - 14.3 ft-lb/in <sup>2</sup>                                      | Average value: 1.62 J/cm <sup>2</sup> Grade Count:19 |
|                              | 0.300 - 1.30 J/cm <sup>2</sup><br>@Temperature -30.0 - -<br>20.0 °C | 1.43 - 6.19 ft-lb/in <sup>2</sup><br>@Temperature -22.0 - -<br>4.00 °F | Average value: 0.744 J/cm <sup>2</sup> Grade Count:9 |
| Gardner Impact               | 2.71 - 36.2 J                                                       | 2.00 - 26.7 ft-lb                                                      | Average value: 18.2 J Grade Count:4                  |

| Thermal Properties                          | Metric              | English                                   | Comments                                   |
|---------------------------------------------|---------------------|-------------------------------------------|--------------------------------------------|
| CTE, linear                                 | 72.0 - 144 µm/m-°C  | 40.0 - 80.0 µin/in-°F                     | Average value: 94.5 µm/m-°C Grade Count:17 |
| CTE, linear, Transverse to Flow             | 80.0 - 96.0 µm/m-°C | 44.4 - 53.3 µin/in-°F                     | Average value: 86.1 µm/m-°C Grade Count:4  |
| Thermal Conductivity                        | 0.173 - 0.200 W/m-K | 1.20 - 1.39 BTU-in/hr-ft <sup>2</sup> -°F | Average value: 0.187 W/m-K Grade Count:4   |
| Hot Ball Pressure Test                      | 80.0 - 105 °C       | 176 - 221 °F                              | Average value: 95.0 °C Grade Count:5       |
| Deflection Temperature at 0.46 MPa (66 psi) | 77.2 - 107 °C       | 171 - 225 °F                              | Average value: 89.5 °C Grade Count:55      |
| Deflection Temperature at 1.8 MPa (264 psi) | 66.1 - 196 °C       | 151 - 385 °F                              | Average value: 87.9 °C Grade Count:119     |
| Vicat Softening Point                       | 42.0 - 123 °C       | 108 - 253 °F                              | Average value: 93.7 °C Grade Count:101     |

| Electrical Properties  | Metric                  | English                 | Comments                                      |
|------------------------|-------------------------|-------------------------|-----------------------------------------------|
| Electrical Resistivity | 1e+05 - 1.00e+16 ohm-cm | 1e+05 - 1.00e+16 ohm-cm | Average value: 1.65e+15 ohm-cm Grade Count:27 |
| Surface Resistance     | 1e+05 - 1.00e+15 ohm    | 1e+05 - 1.00e+15 ohm    | Average value: 5.86e+14 ohm Grade Count:8     |
| Dielectric Constant    | 2.40 - 3.10             | 2.40 - 3.10             | Average value: 2.89 Grade Count:7             |

| Dielectric Strength<br>Electrical Properties | 17.0 - 42.0 kV/mm<br>Metric | 432 - 1070 kV/in<br>English | Average value: 26.4 kV/mm Grade<br>Count:10<br>Comments |
|----------------------------------------------|-----------------------------|-----------------------------|---------------------------------------------------------|
| Dissipation Factor                           | 0.00400 - 0.0125            | 0.00400 - 0.0125            | Average value: 0.00795 Grade<br>Count:7                 |
| Arc Resistance                               | 60.0 - 120 sec              | 60.0 - 120 sec              | Average value: 81.4 sec Grade<br>Count:7                |
| Comparative Tracking Index                   | 250 - 600 V                 | 250 - 600 V                 | Average value: 464 V Grade Count:16                     |
| Hot Wire Ignition, HWI                       | 7.00 - 120 sec              | 7.00 - 120 sec              | Average value: 33.6 sec Grade<br>Count:9                |
| High Amp Arc Ignition, HAI                   | 60.0 - 199 arcs             | 60.0 - 199 arcs             | Average value: 134 arcs Grade<br>Count:9                |
| High Voltage Arc-Tracking Rate,<br>HVTR      | 10.0 - 150 mm/min           | 0.394 - 5.91 in/min         | Average value: 102 mm/min Grade<br>Count:9              |

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China