

Overview of materials for PVC, Rigid Grade

Category : Polymer , Thermoplastic , Vinyl (PVC) , PVC, Rigid Grade

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "PVC, Rigid Grade". 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-PVC-Rigid-Grade.php

Physical Properties	Metric	English	Comments
Density	0.549 - 1.65 g/cc	0.0198 - 0.0596 lb/in ³	Average value: 1.31 g/cc Grade Count:408
Filler Content	10.0 - 20.0 %	10.0 - 20.0 %	Average value: 15.0 % Grade Count:4
Volatile Organic Compounds (VOC) Content	0.300 - 0.500 g/l	0.300 - 0.500 g/l	Average value: 0.314 g/l Grade Count:14
Apparent Bulk Density	0.550 - 0.650 g/cc	0.0199 - 0.0235 lb/in ³	Average value: 0.576 g/cc Grade Count:17
Particle Size	63.0 - 250 µm	63.0 - 250 µm	Average value: 155 µm Grade Count:14
Viscosity Test	61.0 - 116 cm ³ /g	61.0 - 116 cm ³ /g	Average value: 96.0 cm ³ /g Grade Count:15
Linear Mold Shrinkage	0.000500 - 0.0120 cm/cm	0.000500 - 0.0120 in/in	Average value: 0.00394 cm/cm Grade Count:76
Melt Flow	3.50 - 54.0 g/10 min	3.50 - 54.0 g/10 min	Average value: 22.6 g/10 min Grade Count:4
Spiral Flow	53.3 - 119 cm	21.0 - 47.0 in	Average value: 79.0 cm Grade Count:62
ASTM Color	-15.8 - 81.0	-15.8 - 81.0	Average value: 17.5 Grade Count:4

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	100 - 111	100 - 111	Average value: 104 Grade Count:24
Hardness, Shore D	47.0 - 88.0	47.0 - 88.0	Average value: 80.2 Grade Count:329
Hardness, Shore C	69.0 - 90.0	69.0 - 90.0	Average value: 80.4 Grade Count:7
Tensile Strength, Ultimate	14.3 - 50.3 MPa	2080 - 7300 psi	Average value: 38.0 MPa Grade Count:56
Tensile Strength, Yield	14.8 - 103 MPa	2150 - 14900 psi	Average value: 46.3 MPa Grade Count:363

Mechanical Properties	Metric	English	Comments
Elongation at Yield	3.10 - 6.00 %	3.10 - 6.00 %	Average value: 5.07 % Grade Count:6
Modulus of Elasticity	1.06 - 9.65 GPa	154 - 1400 ksi	Average value: 2.83 GPa Grade Count:311
Flexural Yield Strength	29.1 - 159 MPa	4220 - 23100 psi	Average value: 81.1 MPa Grade Count:304
Flexural Modulus	0.220 - 9.31 GPa	31.9 - 1350 ksi	Average value: 2.85 GPa Grade Count:307
Poissons Ratio	0.400 - 0.440	0.400 - 0.440	Average value: 0.420 Grade Count:9
Shear Modulus	1.44 - 3.45 GPa	209 - 500 ksi	Average value: 2.28 GPa Grade Count:9
Izod Impact, Notched	0.160 - 14.0 J/cm	0.300 - 26.2 ft-lb/in	Average value: 4.85 J/cm Grade Count:355
	5.30 - 5.30 J/cm	9.93 - 9.93 ft-lb/in	Average value: 2.37 J/cm Grade Count:1
	@Temperature -10.0 - -10.0 °C	@Temperature 14.0 - 14.0 °F	
	0.267 - 11.7 J/cm	0.500 - 21.9 ft-lb/in	Average value: 2.37 J/cm Grade Count:56
	@Temperature -40.0 - 10.0 °C	@Temperature -40.0 - 50.0 °F	
	0.267 - 11.7 J/cm	0.500 - 21.9 ft-lb/in	Average value: 2.37 J/cm Grade Count:56
	@Thickness 3.18 - 3.18 mm	@Thickness 0.125 - 0.125 in	
Izod Impact, Unnotched	0.392 - 9.70 J/cm	0.735 - 18.2 ft-lb/in	Average value: 3.74 J/cm Grade Count:22
Charpy Impact Unnotched	NB	NB	Grade Count:5
Charpy Impact, Notched	0.250 - 1.10 J/cm²	1.19 - 5.24 ft-lb/in²	Average value: 0.582 J/cm² Grade Count:4
Dart Drop, Total Energy	19.8 - 21.9 J	14.6 - 16.2 ft-lb	Average value: 20.8 J Grade Count:1
	@Temperature -18.0 - 0.000 °C	@Temperature -0.400 - 32.0 °F	
	19.8 - 21.9 J	14.6 - 16.2 ft-lb	Average value: 20.8 J Grade Count:1
	@Thickness 1.85 - 1.85 mm	@Thickness 0.0728 - 0.0728 in	
Dart Drop Total Energy	5.34 - 280 J/cm	0.0100 - 0.525 ft-lb/mil	Average value: 91.9 J/cm Grade Count:160
	40.0 - 66.7 J/cm	0.0749 - 0.125 ft-lb/mil	Average value: 46.4 J/cm Grade Count:4
	@Temperature 0.000 - 0.000 °C	@Temperature 32.0 - 32.0 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 - 140 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	10.0 - 77.8 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Average value: 63.7 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ Grade Count:163
Maximum Service Temperature, Air	60.0 - 190 $^{\circ}\text{C}$	140 - 374 $^{\circ}\text{F}$	Average value: 167 $^{\circ}\text{C}$ Grade Count:35
Deflection Temperature at 0.46 MPa (66 psi)	41.1 - 88.9 $^{\circ}\text{C}$	106 - 192 $^{\circ}\text{F}$	Average value: 72.5 $^{\circ}\text{C}$ Grade Count:81
Deflection Temperature at 1.8 MPa (264 psi)	17.8 - 86.1 $^{\circ}\text{C}$	64.0 - 187 $^{\circ}\text{F}$	Average value: 68.3 $^{\circ}\text{C}$ Grade Count:310
Vicat Softening Point	51.0 - 97.8 $^{\circ}\text{C}$	124 - 208 $^{\circ}\text{F}$	Average value: 81.7 $^{\circ}\text{C}$ Grade Count:67
Brittleness Temperature	-30.0 - 15.0 $^{\circ}\text{C}$	-22.0 - 59.0 $^{\circ}\text{F}$	Average value: -13.1 $^{\circ}\text{C}$ Grade Count:8
UL RTI, Electrical	29.4 - 90.0 $^{\circ}\text{C}$	84.9 - 194 $^{\circ}\text{F}$	Average value: 71.2 $^{\circ}\text{C}$ Grade Count:40
	105 - 105 $^{\circ}\text{C}$	221 - 221 $^{\circ}\text{F}$	Average value: 105 $^{\circ}\text{C}$ Grade Count:1
	@Temperature 105 - 105 $^{\circ}\text{C}$	@Temperature 221 - 221 $^{\circ}\text{F}$	
UL RTI, Mechanical with Impact	10.0 - 85.0 $^{\circ}\text{C}$	50.0 - 185 $^{\circ}\text{F}$	Average value: 59.7 $^{\circ}\text{C}$ Grade Count:35
	105 - 105 $^{\circ}\text{C}$	221 - 221 $^{\circ}\text{F}$	Average value: 105 $^{\circ}\text{C}$ Grade Count:1
	@Temperature 105 - 105 $^{\circ}\text{C}$	@Temperature 221 - 221 $^{\circ}\text{F}$	
UL RTI, Mechanical without Impact	29.4 - 90.0 $^{\circ}\text{C}$	84.9 - 194 $^{\circ}\text{F}$	Average value: 70.2 $^{\circ}\text{C}$ Grade Count:40
	105 - 105 $^{\circ}\text{C}$	221 - 221 $^{\circ}\text{F}$	Average value: 105 $^{\circ}\text{C}$ Grade Count:1
	@Temperature 105 - 105 $^{\circ}\text{C}$	@Temperature 221 - 221 $^{\circ}\text{F}$	
Flammability, UL94	HB - 5VA	HB - 5VA	Grade Count:108
Oxygen Index	24.0 - 52.0 %	24.0 - 52.0 %	Average value: 31.8 % Grade Count:10

Optical Properties	Metric	English	Comments
Haze	4.00 - 8.00 %	4.00 - 8.00 %	Average value: 5.10 % Grade Count:10
Gloss	5.00 - 60.0 %	5.00 - 60.0 %	Average value: 28.1 % Grade Count:4
Transmission, Visible	7.50 - 90.0 %	7.50 - 90.0 %	Average value: 78.3 % Grade Count:51

Electrical Properties	Metric	English	Comments
	0.0290 - 0.0400	0.0290 - 0.0400	

Dissipation Factor Electrical Properties	@Temperature 30.0 - 30.0 °C Metric	@Temperature 86.0 - 86.0 °F English	Average value: 0.0345 Grade Count: 1 Comments
	0.0290 - 0.0400	0.0290 - 0.0400	
	@Frequency 60.0 - 1000 Hz	@Frequency 60.0 - 1000 Hz	Average value: 0.0345 Grade Count: 1
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count: 5
Hot Wire Ignition, HWI	60.0 - 120 sec	60.0 - 120 sec	Average value: 90.0 sec Grade Count: 5
High Amp Arc Ignition, HAI	60.0 - 120 arcs	60.0 - 120 arcs	Average value: 90.0 arcs Grade Count: 5

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