

GEHR Plastics PE-UHMW Polyethylene, Ultra High Molecular Weight

Category : Polymer , Thermoplastic , Polyethylene (PE) , HDPE , High Density Polyethylene (HDPE), UHMW PE Ultra High Molecular Weight

Material Notes:

The ultra high molecular weight Polyethylene has a high abrasion resistance and a high toughness at the same time. The chemical and the crack resistance are optimized in comparison to the standard PE-HD. The operating temperature if PE-UHMW is -150°C to 90°C Properties: low density high toughness high elongation very good electrical and dielectric properties very low water absorption low steam permeability high chemical resistance good protection against stress cracking food safe soft surface HF welding not recommended natural color is not weather resistance Applications pumping and valve parts gaskets glide profiles food industry parts

Order this product through the following link:

http://www.lookpolymers.com/polymer_GEHR-Plastics-PE-UHMW-Polyethylene-Ultra-High-Molecular-Weight.php

Physical Properties	Metric	English	Comments
Specific Gravity	0.930 g/cc	0.930 g/cc	ISO 1183
Water Absorption	0.010 %	0.010 %	ISO 62

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	61	61	DIN 53505
Ball Indentation Hardness	35.0 MPa	5080 psi	ISO 2039
Tensile Strength at Break	40.0 MPa	5800 psi	ISO 527
Tensile Strength, Yield	17.0 MPa	2470 psi	ISO 527
Elongation at Break	>= 50 %	>= 50 %	ISO 527
Elongation at Yield	<= 20 %	<= 20 %	ISO 527
Modulus of Elasticity	0.680 GPa	98.6 ksi	ISO 527
Flexural Strength	27.0 MPa	3920 psi	3.5%; ISO 178
Charpy Impact Unnotched	NB	NB	ISO 179
Charpy Impact, Notched	NB	NB	ISO 179
Coefficient of Friction	0.25	0.25	DIN 53375

Thermal Properties	Metric	English	Comments
CTE, linear	200 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$	111 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$	DIN 53752
	@Temperature 20.0 $\text{Å}^\circ\text{C}$	@Temperature 68.0 $\text{Å}^\circ\text{F}$	
	0.420 W/m-K	2.91 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	90.0 Â°C	194 Â°F	
Deflection Temperature at 0.46 MPa (66 psi)	65.0 Â°C	149 Â°F	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	42.0 Â°C	108 Â°F	ISO 75
Vicat Softening Point	80.0 Â°C	176 Â°F	VST/B/50; ISO 306
Minimum Service Temperature, Air	-150 Â°C	-238 Â°F	
Flammability, UL94	HB	HB	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+14 ohm-cm	>= 1.00e+14 ohm-cm	VDE 0303
Surface Resistivity per Square	>= 1.00e+12 ohm	>= 1.00e+12 ohm	VDE 0303
Dielectric Constant	3.0 @Frequency 1.00e+6 Hz	3.0 @Frequency 1.00e+6 Hz	DIN 53483
Dielectric Strength	45.0 kV/mm	1140 kV/in	VDE 0303
Dielectric Loss Index	0.00010 @Frequency 1.00e+6 Hz	0.00010 @Frequency 1.00e+6 Hz	DIN 53483
Comparative Tracking Index	>= 600 V	>= 600 V	KB; IEC 60112

Descriptive Properties	Value	Comments
Acid Resistance	yes	
Aromatic Resistance	limited	
Bondability	no	
Chemical Resistance	DIN 8075	
CKW Resistance	no	
Color	Natural	
Hydrocarbonate Resistance	yes	
Hydroxide Resistance	yes	
Ketone Resistance	limited	

Physiological indifference according Descriptive Properties	yes Value	Comments
Resistance Against Hot Water	limited	
UV Stabilization	no	

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