GEHR Plastics PE-UHMW Polyethylene, Ultra High Molecular Weight

Categories: Polymer; Thermoplastic; Polyethylene (PE); High Density (HDPE); UHMW PE (Ultra High Molecular Weight PE)

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

Vendors: No vendors are listed for this material. Please click here if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Specific Gravity	0.930 g/cc	0.930 g/cc	ISO 1183
Moisture Absorption at Equilibrium	0.010 %	0.010 %	ISO 62
Water Absorption at Saturation	0.50 %	0.50 %	ISO 62

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	>= 63	>= 63	ISO 868
Ball Indentation Hardness	38.0 MPa	5510 psi	ISO 2039
Tensile Strength at Break	40.0 MPa	5800 psi	ISO 527
Tensile Strength, Yield	20.0 MPa	2900 psi	ISO 527
Elongation at Break	>= 50 %	>= 50 %	ISO 527
Elongation at Yield	20 %	20 %	ISO 527
Modulus of Elasticity	0.760 GPa	110 ksi	ISO 527
Flexural Strength	27.0 MPa	3920 psi	ISO 178
Charpy Impact Unnotched	NB	NB	ISO 179
Charpy Impact, Notched	<= 14.0 J/cm²	<= 66.6 ft-lb/in²	ISO 179

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+13 ohm-cm	>= 1.00e+13 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+13 ohm	>= 1.00e+13 ohm	IEC 60093
Dielectric Constant	3.0 @Frequency 1.00e+6 Hz	3.0 @Frequency 1.00e+6 Hz	IEC 60250
Dielectric Strength	45.0 kV/mm	1140 kV/in	IEC 60243-1

Dielectric Loss Index	0.0010 @Frequency 1.00e+6 Hz	0.0010 @Frequency 1.00e+6 Hz	IEC 60250
Comparative Tracking Index	600 V	600 V	IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear	200 µm/m-°C	111 µin/in-°F	ISO 11359
Thermal Conductivity	0.410 W/m-K @Temperature 20.0 °C	2.85 BTU-in/hr-ft²-°F @Temperature 68.0 °F	ISO 22007-4
Melting Point	133 °C	271 °F	DIN EN ISO 3146
Maximum Service Temperature, Air	90.0 °C	194 °F	UL 746B
Deflection Temperature at 0.46 MPa (66 psi)	65.0 °C	149 °F	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	42.0 °C	108 °F	ISO 75
Vicat Softening Point	80.0 °C	176 °F	VST/B/50; ISO 306
Minimum Service Temperature, Air	-150 °C	-238 °F	UL 746B
Flammability, UL94	HB	HB	test results without UL registration; UL 94
Oxygen Index	18 %	18 %	ASTM D2863

Compliance Properties	Metric	English	Comments
FDA	Yes	Yes	Physiological indifference

Descriptive Properties	
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	yes, EEC
Resistance Against Hot Water	limited
UV Stabilization	no