

Quadrant EPP TIVAR® 1000 PE-UHMW, virgin (ISO Data)

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

Material Notes:

TIVAR 1000 exhibits a very well balanced property profile. It combines a very good wear and abrasion resistance with an outstanding impact strength, even at temperatures below -200°C.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Quadrant-EPP-TIVAR-1000-PE-UHMW-virgin-ISO-Data.php

Physical Properties	Metric	English	Comments
Density	0.930 g/cc	0.0336 lb/in ³	ISO 1183-1
Water Absorption	<= 0.10 %	<= 0.10 %	96 hr; ISO 62
Moisture Absorption at Equilibrium	<= 0.10 %	<= 0.10 %	50% RH
Water Absorption at Saturation	<= 0.10 %	<= 0.10 %	ISO 62
Outgassing - Total Mass Loss	0.14 %	0.14 %	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	60	60	
Ball Indentation Hardness	33.0 MPa	4790 psi	ISO 2039-1
Tensile Strength	19.0 MPa	2760 psi	at Yield; ISO 527-1/-2
Elongation at Break	>= 50 %	>= 50 %	ISO 527-1/-2
Elongation at Yield	15 %	15 %	ISO 527-1/-2
Tensile Modulus	0.750 GPa	109 ksi	ISO 527-1/-2
Flexural Strength	17.0 MPa	2470 psi	
Compressive Strength	6.50 MPa	943 psi	ISO 604
	@Strain 1 %	@Strain 1 %	
	10.5 MPa	1520 psi	ISO 604
	@Strain 2 %	@Strain 2 %	
	17.0 MPa	2470 psi	ISO 604
	@Strain 5 %	@Strain 5 %	
K Factor (ISO)	8.0 µm/km	8.0 µm/km	
Charpy Impact Unnotched	NB	NB	ISO 179-1/1eU

Charpy Impact, Notched Mechanical Properties	11.5 J/cm ² Metric	84.7 ft-lb/in ² English	Partial Break; ISO 179-1/1eA Comments
Coefficient of Friction, Dynamic	0.15 - 0.30	0.15 - 0.30	
Sand Slurry	100	100	
Limiting Pressure Velocity	0.0500 MPa-m/sec	1430 psi-ft/min	at 1 m/s unlubricated
	0.0800 MPa-m/sec	2280 psi-ft/min	at 0.1 m/s unlubricated

Thermal Properties	Metric	English	Comments
CTE, linear	200 µm/m-°C	111 µin/in-°F	
	@Temperature 23.0 - 100 °C	@Temperature 73.4 - 212 °F	
Thermal Conductivity	0.400 W/m-K	2.78 BTU-in/hr-ft ² -°F	
Melting Point	135 °C	275 °F	DSC, 10°C/min.; ISO 11357-1/-3
Maximum Service Temperature, Air	80.0 °C	176 °F	Continuous
Deflection Temperature at 1.8 MPa (264 psi)	42.0 °C	108 °F	ISO 75-1/-2
Flammability, UL94	HB	HB	
Oxygen Index	<= 20 %	<= 20 %	ISO 4589-1/-2

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.0e+14 ohm-cm	>= 1.0e+14 ohm-cm	IEC 60093
Surface Resistivity per Square	>= 1.0e+12 ohm	>= 1.0e+12 ohm	IEC 60093
Dielectric Strength	45.0 kV/mm	1140 kV/in	
Dissipation Factor	0.00040	0.00040	IEC 60250
	@Frequency 100000 Hz	@Frequency 100000 Hz	
Comparative Tracking Index	600 V	600 V	IEC 60112

Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	
European Food 1935/2004	Yes	Yes	
FDA	Yes	Yes	only natural
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Acceptable	Acceptable	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Acceptable	Acceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Acceptable	Acceptable	
Continuous Sunlight	Limited	Limited	
Hot Water / Steam	Unacceptable	Unacceptable	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Limited	Limited	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Acceptable	Acceptable	

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