

DuPont Performance Polymers Hytrel® 4069 TPC-ET (Unverified Data**)

Category : Polymer , Thermoplastic , Elastomer, TPE , Polyester, TP , Polyester Thermoplastic Elastomer

Material Notes:

Hytrel® 4069 is a low modulus grade with nominal hardness of 40D. It contains non-discoloring stabilizer. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion. Information provided by DuPont Performance Polymers

Order this product through the following link:

http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Hytrel-4069-TPC-ET-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.11 g/cc	1.11 g/cc	ASTM D792
Density	1.11 g/cc	0.0401 lb/in ³	ISO 1183
Water Absorption	0.20 %	0.20 %	Equilibrium 50%RH; ISO 62
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.70 %	0.70 %	Immersion 24h; ASTM D570
Water Absorption	@Temperature 23.0 °C	@Temperature 73.4 °F	Immersion 24h; ISO 62
	0.70 %	0.70 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	Saturation, immersed; ISO 62
Linear Mold Shrinkage	0.0080 cm/cm	0.0080 in/in	Flow; ASTM D955
	0.0080 cm/cm	0.0080 in/in	
Linear Mold Shrinkage, Flow	@Thickness 2.00 mm	@Thickness 0.0787 in	ISO 294-4
	0.0080 cm/cm	0.0080 in/in	
Linear Mold Shrinkage, Transverse	@Thickness 2.00 mm	@Thickness 0.0787 in	ISO 294-4
	8.5 g/10 min	8.5 g/10 min	
Melt Flow	@Load 2.16 kg, Temperature 220 °C	@Load 4.76 lb, Temperature 428 °F	ASTM D1238
	8.5 g/10 min	8.5 g/10 min	
Melt Flow	@Load 2.16 kg, Temperature 220 °C	@Load 4.76 lb, Temperature 428 °F	ISO 1133
	7.7 g/10 min	7.7 g/10 min	
Melt Index of Compound	@Load 2.16 kg, Temperature 220 °C	@Load 4.76 lb, Temperature 428 °F	cm ³ /10 min; ISO 1133
	7.7 g/10 min	7.7 g/10 min	

Physical Properties	Metric	English	Comments
Mechanical Properties	Metric	English	Comments
Hardness, Shore D	<= 37	<= 37	ISO 868
	<= 40	<= 40	ASTM D2240
	33	33	ISO 868
	@Time 15.0 sec	@Time 0.00417 hour	
Tensile Strength at Break	20.0 MPa	2900 psi	ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	28.0 MPa	4060 psi	ISO 527 (1BA bar)
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Stress	2.40 MPa	348 psi	ASTM D638
	@Strain 5.00 %, Temperature 23.0 °C	@Strain 5.00 %, Temperature 73.4 °F	
	3.20 MPa	464 psi	ISO 527 (1BA bar)
	@Strain 10.0 %, Temperature 23.0 °C	@Strain 10.0 %, Temperature 73.4 °F	
	3.50 MPa	508 psi	ASTM D638
	@Strain 10.0 %, Temperature 23.0 °C	@Strain 10.0 %, Temperature 73.4 °F	
	6.70 MPa	972 psi	ISO 527 (1BA bar)
	@Strain 50.0 %, Temperature 23.0 °C	@Strain 50.0 %, Temperature 73.4 °F	
Elongation at Break	>= 50 %	>= 50 %	nominal; ISO 527 (1BA bar)
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	>= 300 %	>= 300 %	ISO 527 (1BA bar)
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	650 %	650 %	ISO 527 (1BA bar)
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	700 %	700 %	ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	800 %	800 %	nominal; ISO 527 (1BA bar)
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Modulus	0.0450 GPa	6.53 ksi	ISO 527

Mechanical Properties	@Temperature 23.0 °C Metric	@Temperature 73.4 °F English	Comments
Flexural Modulus	0.0280 GPa	4.06 ksi	ASTM D790
	@Temperature 100 °C	@Temperature 212 °F	
	0.0280 GPa	4.06 ksi	ISO 178
	@Temperature 100 °C	@Temperature 212 °F	
	0.0470 GPa	6.82 ksi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.0550 GPa	7.98 ksi	ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.172 GPa	24.9 ksi	ASTM D790
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	0.172 GPa	24.9 ksi	ISO 178
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Izod Impact, Notched	NB	NB	ASTM D256
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	NB	NB	ASTM D256
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Notched (ISO)	NB	NB	ISO 180/1A
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	NB	NB	ISO 180/1A
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	NB	NB	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	NB	NB	ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	NB	NB	ISO 179/1eA
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	NB	NB	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	NB	NB	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature -40.0 - 23.0 $^{\circ}\text{C}$	@Temperature -40.0 - 73.4 $^{\circ}\text{F}$	
	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature 23.0 - 55.0 $^{\circ}\text{C}$	@Temperature 73.4 - 131 $^{\circ}\text{F}$	
	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature 55.0 - 120 $^{\circ}\text{C}$	@Temperature 131 - 248 $^{\circ}\text{F}$	
	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature -40.0 - 23.0 $^{\circ}\text{C}$	@Temperature -40.0 - 73.4 $^{\circ}\text{F}$	
	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature 23.0 - 55.0 $^{\circ}\text{C}$	@Temperature 73.4 - 131 $^{\circ}\text{F}$	
	500 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	278 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature 55.0 - 120 $^{\circ}\text{C}$	@Temperature 131 - 248 $^{\circ}\text{F}$	
CTE, linear, Transverse to Flow	190 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	106 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature 23.0 - 55.0 $^{\circ}\text{C}$	@Temperature 73.4 - 131 $^{\circ}\text{F}$	
	190 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	106 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature 55.0 - 120 $^{\circ}\text{C}$	@Temperature 131 - 248 $^{\circ}\text{F}$	
	192 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	107 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature 55.0 - 120 $^{\circ}\text{C}$	@Temperature 131 - 248 $^{\circ}\text{F}$	
	219 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	122 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature 23.0 - 55.0 $^{\circ}\text{C}$	@Temperature 73.4 - 131 $^{\circ}\text{F}$	
	270 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	150 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/-2
	@Temperature -40.0 - 23.0 $^{\circ}\text{C}$	@Temperature -40.0 - 73.4 $^{\circ}\text{F}$	
	277 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	154 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM E 831
	@Temperature -40.0 - 23.0 $^{\circ}\text{C}$	@Temperature -40.0 - 73.4 $^{\circ}\text{F}$	

Melting Point Thermal Properties	193 °C Metric	379 °F English	10°C/min; ISO 11357-1/-3 Comments
	193 °C	379 °F	ASTM D3418
Deflection Temperature at 0.46 MPa (66 psi)	50.0 °C	122 °F	ISO 75-1/-2
	55.0 °C	131 °F	ASTM D648
Brittleness Temperature	-95.0 °C	-139 °F	ISO 974
Glass Transition Temp, Tg	-50.0 °C	-58.0 °F	10°C/min; ISO 11357-1/-2
UL RTI, Electrical	50.0 °C	122 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	50.0 °C	122 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	4.00e+12 ohm-cm	4.00e+12 ohm-cm	IEC 60093
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Surface Resistance	3.00e+14 ohm	3.00e+14 ohm	IEC 60093
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Dielectric Constant	4.7	4.7	IEC 60250
	@Frequency 1.00e+6 Hz, Temperature 23.0 °C	@Frequency 1.00e+6 Hz, Temperature 73.4 °F	
	4.8	4.8	IEC 60250
	@Frequency 100 Hz, Temperature 23.0 °C	@Frequency 100 Hz, Temperature 73.4 °F	
Dielectric Strength	18.0 kV/mm	457 kV/in	IEC 60243-1
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Dissipation Factor	0.013	0.013	IEC 60250
	@Frequency 100 Hz, Temperature 23.0 °C	@Frequency 100 Hz, Temperature 73.4 °F	
	0.020	0.020	IEC 60250
	@Frequency 1.00e+6 Hz, Temperature 23.0 °C	@Frequency 1.00e+6 Hz, Temperature 73.4 °F	
Comparative Tracking Index	>= 600 V	>= 600 V	IEC 60112
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Electrical Properties	Metric V	English V	Comments
	@Thickness 3.00 mm, Temperature 23.0 °C	@Thickness 0.118 in, Temperature 73.4 °F	UL 746A

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