DuPont™ Hytrel®

thermoplastic polyester elastomer

Hytrel® 4056

Hytrel® 4056 is a low modulus Hytrel® grade with nominal durometer hardness of 40D. It contains a non-discoloring stabilizer. It is recommended for extrusion and compounding.

Property	Test Method	Units	Value
Identification			
Resin Identification	ISO 1043		TPC-ET
Part Marking Code	ISO 11469		>TPC-ET<
Mechanical			
Tensile Stress	ISO 527	MPa (kpsi)	
@ 5% Strain			2.4 (0.4)
@ 10% Strain			4.2 (0.6)
@ 50% Strain			7.5 (1.1)
Stress at Break	ISO 527	MPa (kpsi)	30 (4.4)
Strain at Break	ISO 527	%	424
Nominal Strain at Break	ISO 527	%	570
Tensile Modulus	ISO 527	MPa (kpsi)	53 (8)
Tensile Creep Modulus	ISO 899	MPa (kpsi)	
1h			54 (8)
1000h			40 (6)
Flexural Modulus	ISO 178	MPa (kpsi)	
-40°C (-40°F)			155 (22.5)
23°C (73°F)			62 (9.0)
100°C (212°F)			27 (4.0)
Hardness, Shore D	ISO 868		
15s			39
Maximum			40
Tensile Impact Strength	ISO 8256	kJ/m^2	230

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; ISO electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23°C unless otherwise stated.

051031/051102

Hytrel® 4056

Property	Test Method	Units	Value
Mechanical			
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m^2	
-40°C (-40°F)			70
-30°C (-22°F)			NB
23°C (73°F)			NB
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m^2	
-30°C (-22°F)			NB
23°C (73°F)			NB
Brittleness Temperature	ISO 974	°C (°F)	<-100 (<-148)
Tear Strength	ISO 34-1 method B/a	kN/m (lb/in)	
Normal			98 (560)
Parallel			101 (577)
Thermal			
Deflection Temperature	ISO 75f	°C (°F)	
0.45MPa			50 (122)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			150 (302)
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			1.8 (1.0)
23 - 55°C (73 - 130°F)			1.6 (0.89)
55 - 85°C (130 - 185°F)			1.6 (0.89)
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			2.0 (1.11)
23 - 55°C (73 - 130°F)			1.3 (0.72)
55 - 85°C (130 - 185°F)			1.0 (0.56)
Glass Transition Temperature	ISO 11357-1/-2	°C (°F)	
10°C/min			-50 (-58)
Vicat Softening Temperature	ISO 306	°C (°F)	
10N, 50°C/h			110 (230)

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; ISO electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23°C unless otherwise stated.

051031/051102

Hytrel® 4056

Property	Test Method	Units	Value
Rheological			
Melt Mass-Flow Rate	ISO 1133	g/10 min	
190°C, 2.16kg			5.6
Melt Density		g/ml (g/cm^3)	1
Electrical			
Surface Resistivity	IEC 60093	ohm	2E14
Relative Permittivity	IEC 60250		
1E2 Hz			5.2
1E6 Hz			4.7
Volume Resistivity	IEC 60093	ohm m	7E10
Dissipation Factor	IEC 60250	E-4	
1E2 Hz			110
1E6 Hz			525
Electric Strength	IEC 60243-1	kV/mm	18
CTI	IEC 60112	V	>600
Flammability			
Flammability Classification	IEC 60695-11-10		
1.5mm			HB
Flammability Classification	UL94		
1.5mm			HB
Oxygen Index	ISO 4589-1/-2	%	20
Temperature Index			
RTI, Electrical	UL 746B	°C	
1.5mm			50
RTI, Impact	UL 746B	°C	
1.5mm			50
RTI, Strength	UL 746B	°C	
1.5mm			50

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; ISO electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23°C unless otherwise stated.

051031/051102

Hytrel® 4056

Property	Test Method	Units	Value
Other			
Density	ISO 1183	kg/m^3 (g/cm^3)	1150 (1.15)
Water Absorption	ISO 62	%	
Equilibrium 50%RH			0.2
Immersion 24h			0.6
Saturation, immersed			0.7
Molding Shrinkage	ISO 294-4	%	
Normal, 2.0mm			0.5
Parallel, 2.0mm			0.5
Processing - Injection Molding			
Melt Temperature Optimum		°C (°F)	180 (355)
Mold Temperature Range		°C (°F)	30-40 (85-100)
Mold Temperature Optimum		°C (°F)	40 (105)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	80 (175)
Processing Moisture Content		%	<0.08
Snake Flow		mm (in)	
Inject press 62MPa(9000psi), 1mm (0.040in)			80 (3.1)
Inject press 62MPa(9000psi), 2.5mm (0.100in)			330 (13)
Inject press 83MPa(12,000psi), 1mm (0.040in)			95 (3.7)
Inject press 83MPa(12,000psi), 2.5mm (0.100in)			430 (17)
Processing - Extrusion			
Melt Temperature Optimum		°C (°F)	180 (355)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	80 (175)
Processing Moisture Content		%	<0.08

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; ISO electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23°C unless otherwise stated.

051031/051102