DuPont™ Hytrel®

thermoplastic polyester elastomer

Hytrel® 5556

Hytrel® 5556 is a medium modulus grade with nominal hardness of 55D. It contains non-discoloring stabilizer. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion.

Property	Test Method	Units	Value
Identification			
Resin Identification	ISO 1043		TPC-ET
Part Marking Code	ISO 11469		>TPC-ET<
Mechanical			
Stress at Break	ISO 527 (1BA bar)	MPa (kpsi)	40 (5.8)
Strain at Break	ISO 527 (1BA bar)	%	480
Nominal Strain at Break	ISO 527 (1BA bar)	%	600
Tensile Modulus	ISO 527	MPa (kpsi)	180 (26)
Tensile Stress	ISO 527 (1BA bar)	MPa (kpsi)	
@ 5% Strain			6.9 (1.0)
@ 10% Strain			11 (1.6)
Tensile Creep Modulus	ISO 899	MPa (kpsi)	
1h			170 (25)
1000h			133 (19)
Flexural Modulus	ISO 178	MPa (kpsi)	
-40°C (-40°F)			760 (110)
23°C (73°F)			190 (28)
100°C (212°F)			100 (14)

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm unless otherwise stated.
Test temperatures are 23°C unless otherwise stated.

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Property	Test Method	Units	Value
Mechanical			
Hardness, Shore D	ISO 868		
15s			51
Maximum			56
Tensile Impact Strength	ISO 8256	kJ/m^2	300
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m^2	
-40°C (-40°F)			145
23°C (73°F)			N
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m^2	
-30°C (-22°F)			N
23°C (73°F)			N
Brittleness Temperature	ISO 974	°C (°F)	-95 (-140)
Tear Strength	ISO 34-1 method B/a	kN/m (lb/in)	
Normal			137 (783)
Parallel			137 (783)
Thermal			
Deflection Temperature	ISO 75-1/-2	°C (°F)	
0.45MPa			70 (160)
1.80MPa			45 (113)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			201 (394)
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			1.6 (0.89)
23 - 55°C (73 - 130°F)			1.8 (1.0)
55 - 120°C (130 - 248°F)			1.86 (1.03)
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			1.74 (0.97)
23 - 55°C (73 - 130°F)			1.77 (0.98)
55 - 120°C (130 - 248°F)			1.79 (0.99)
Glass Transition Temperature	ISO 11357-1/-2	°C (°F)	
10°C/min			-20 (-4)

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Property	Test Method	Units	Value
Thermal			
Vicat Softening Temperature	ISO 306	°C (°F)	
10N, 50°C/h			180 (356)
Rheological			
Melt Mass-Flow Rate	ISO 1133	g/10 min	
220°C, 2.16kg			8.1
Melt Volume-Flow Rate	ISO 1133	cm^3/10 min (ml/10 min)	7.0
Electrical			
Surface Resistivity	IEC 60093	ohm	2E15
Volume Resistivity	IEC 60093	ohm m	4E11
Electric Strength	IEC 60243-1	kV/mm	19
Relative Permittivity	IEC 60250		
1E2 Hz			4.8
1E6 Hz			4.4
Dissipation Factor	IEC 60250	E-4	
1E2 Hz			90
1E6 Hz			375
CTI	IEC 60112	V	>600
CTI	UL 746A	V	
3.0mm			>600
Flammability			
Flammability Classification	IEC 60695-11-10		
1.5mm			HB
3.0mm			HB
Flammability Classification	UL94		
1.5mm			HB
3.0mm			HB
Oxygen Index	ISO 4589-1/-2	%	20
High Amperage Arc Ignition Resistance	UL 746A	arcs	
3.0mm			>200
Hot Wire Ignition	UL 746A	s	
3.0mm			31

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Temperature Index			
RTI, Electrical	UL 746B	°C	
0.7mm			85
1.5mm			85
3.0mm			85
RTI, Impact	UL 746B	°C	
0.7mm			50
1.5mm			85
3.0mm			85
RTI, Strength	UL 746B	°C	
0.7mm			50
1.5mm			75
3.0mm			80
Other			
Density	ISO 1183	kg/m^3 (g/cm^3)	1190 (1.19)
Water Absorption	ISO 62	%	
Equilibrium 50%RH			0.2
Immersion 24h			0.6
Saturation, immersed			0.6
Molding Shrinkage	ISO 294-4	%	
Normal, 2.0mm			1.4
Parallel, 2.0mm			1.4
Processing - Injection Molding			
Melt Temperature Range		°C (°F)	220-250 (425-480)
Melt Temperature Optimum		°C (°F)	230 (445)
Mold Temperature Range		°C (°F)	45-55 (115-130)
Mold Temperature Optimum		°C (°F)	45 (115)

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Property	Test Method	Units	Value
Processing - Injection Molding			
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	100 (210)
Processing Moisture Content		%	<0.08
Snake Flow		mm (in)	
Inject press 62MPa(9000psi), 1mm (0.040in)			79 (3.1)
Inject press 62MPa(9000psi), 2.5mm (0.100in)			330 (13)
Inject press 83MPa(12,000psi), 1mm (0.040in)			94 (3.7)
Inject press 83MPa(12,000psi), 2.5mm (0.100in)			432 (17)
Processing - Extrusion			
Melt Temperature Range		°C (°F)	215-235 (420-455)
Melt Temperature Optimum		°C (°F)	225 (435)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	100 (210)
Processing Moisture Content		%	<0.05

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