DuPont™ Hytrel®

thermoplastic polyester elastomer

Hytrel® G5544

Hytrel® G5544 is a medium modulus Hytrel® grade with nominal durometer hardness of 55D. It contains discoloring stabilizer. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion

Property	Test Method	Units	Value
Mechanical			
Tensile Stress	ISO 527-1/-2	MPa (kpsi)	
@ 5% Strain			6.0 (0.9)
@ 10% Strain			11 (1.6)
@ 50% Strain			9.0 (1.3)
Stress at Break	ISO 527-1/-2	MPa (kpsi)	23 (3.3)
Strain at Break	ISO 527-1/-2	%	300
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	185 (27)
Flexural Modulus	ISO 178	MPa (kpsi)	
-40°C (-40°F)			810 (117)
23°C (73°F)			183 (26.5)
100°C (212°F)			100 (14)
Hardness, Durometer D	ISO 868		
15s			50
Maximum			55
Notched Izod Impact	ISO 180/1A	kJ/m^2	
-40°C (-40°F)			27
23°C (73°F)			64

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
Test specimen for ISO 527-1/-2 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.

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Property	Test Method	Units	Value
Mechanical			
Notched Charpy Impact	ISO 179/1eA	kJ/m^2	90
Brittleness Temperature	ISO 974	°C (°F)	-59 (-75)
Initial Tear Resist., Die C	ISO 34	kN/m (lb/in)	
Normal			140 (800)
Parallel			123 (703)
Thermal			
Deflection Temperature	ISO 75-1/-2	°C (°F)	
0.45MPa			77 (171)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			215 (419)
Glass Transition Temperature	ISO 11357-1/-2	°C (°F)	
10°C/min			-35
Vicat Softening Temperature	ISO 306	°C (°F)	
10N, 50°C/h			190 (375)
Rheological			
Melt Mass-Flow Rate	ISO 1133	g/10 min	
230°C, 2.16kg			10
Electrical			
Surface Resistivity	IEC 60093	ohm	1 E13
Relative Permittivity	IEC 60250		
1E2 Hz			4.7
1E6 Hz			4.2
Volume Resistivity	IEC 60093	ohm m	1 E11

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Property	Test Method	Units	Value
Electrical			
Dissipation Factor	IEC 60250	E-4	
1E2 Hz			90
1E6 Hz			470
Flammability			
Flammability Classification	UL94		
1.5mm			HB
3.0mm			HB
Oxygen Index	ISO 4589-1/-2	%	22
Other			
Density	ISO 1183	kg/m^3 (g/cm^3)	1220 (1.22)
Humidity Absorption	ISO 62	%	
Equilibrium 50%RH			0.4
Water Absorption	ISO 62	%	
Immersion 24h			1.6
Saturation, immersed			2.2
Molding Shrinkage	ISO 294-4	%	
Normal			1.6
Parallel			1.6
Processing - Injection Molding			
Melt Temperature Optimum		°C (°F)	245 (475)
Mold Temperature Range		°C (°F)	45-55 (115-130)
Mold Temperature Optimum		°C (°F)	45 (115)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	100 (210)
Processing Moisture Content		%	<0.08

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Property	Test Method	Units	Value
Processing - Injection Molding			
Snake Flow		mm (in)	
Inject press 62MPa(9000psi), 1mm (0.040in)			78 (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 Optimum		°C (°F)	230 (445)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	100 (210)
Processing Moisture Content		%	<0.08

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Description

Hytrel® G5544 is a 55 nom. Shore D, heat stable, plasticiser free resin for injection molding and extrusion. It has low temperature impact resistance as well as excellent mechanical properties and good hydrocarbon resistance.

Properties

The flexibility of Hytrel® polyester elastomer is intermediate between that of rubber and engineering plastics. The key characteristics of Hytrel® G5544 include:

- Good flexibility and strength at both high and low temperatures without the use of plasticisers.
- Good resistance to oil and aliphatic or aromatic solvents.

Improvements in flame retardancy, hydrolytic stability and dry heat aging can be achieved with additives. For outdoor service or for exposure to ultraviolet radiation, Hytrel® G5544 must be properly protected. Recommendations for pigmentation and other additives are covered in the Hytrel® Design Guide Module V.

Applications

Hytrel® G5544 can be used for extruded products such as hose, tubing, profiles, and cable jackets, as well as for molded goods.

Processing

Hytrel® G5544 is available in pellet form, and is suitable for processing by conventional thermoplastic methods.

Hytrel® G5544 must be dry during processing. It is available in moisture proof 25 kg [55 lb] bags. For larger packages, contact your local sales office.

Once exposed to air, Hytrel® G5544, like other types of Hytrel®, may absorb excessive moisture within an hour depending upon the temperature and humidity. All regrind and all virgin polymer must be dried at least 2 hours at 100°C [212°F] in desiccant type dryers.

For additional processing information, see the Hytrel® Injection Molding Guide and the Hytrel® Extrusion Guide. All literature is available either at the website shown below or from your local sales office.

Handling Precautions

The DuPont Company is not aware of any health hazards with Hytrel® G5544 polyester elastomer as shipped in pellet form. However, there are certain hazards that may be encountered during processing. Before processing this material, please refer to the MSDS, bulletin "Rheology and Handling", and bulletin "Proper Use of Local Exhaust Ventilation During Processing", and observe the precautions recommended therein. Compounding ingredients or additives may present hazards in handling and use. *Before proceeding with any compounding or processing work, consult and follow MSDS, label directions, and handling precautions from suppliers of all ingredients.*

The good melt stability of Hytrel® thermoplastic polyester elastomer normally enables the recycling of properly handled production waste. If recycling is not possible, DuPont recommends, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations must be observed. Recycling code per ISO1043 is TEEE.

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