DuPont™ Hytrel®

thermoplastic polyester elastomer

Hytrel® 7246

Hytrel® 7246 is a high modulus Hytrel® grade with nominal durometer hardness of 72D. 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
Mechanical			
Tensile Stress	ISO 527-1/-2	MPa (kpsi)	
@ 5% Strain			14 (2)
@ 10% Strain			23 (3.3)
Stress at Break	ISO 527-1/-2	MPa (kpsi)	53 (7.7)
Strain at Break	ISO 527-1/-2	%	450
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	525 (76)
Flexural Modulus	ISO 178	MPa (kpsi)	
-40°C (-40°F)			2350 (340)
23°C (73°F)			550 (80)
100°C (212°F)			200 (28)
Shear Modulus	ASTM D 4065	MPa (kpsi)	266 (39)
Hardness, Durometer D	ISO 868		
15s			68
Maximum			72

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

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Property	Test Method	Units	Value
Mechanical			
Notched Izod Impact	ISO 180/1A	kJ/m^2	
-40°C (-40°F)			7
23°C (73°F)			38
Notched Charpy Impact	ISO 179/1eA	kJ/m^2	125
Brittleness Temperature	ISO 974	°C (°F)	-97 (-142)
Initial Tear Resist., Die C	ISO 34	kN/m (lb/in)	
Normal			167 (954.2)
Parallel			200 (1143)
Thermal			
Deflection Temperature	ISO 75-1/-2	°C (°F)	
0.45MPa			95 (205)
1.80MPa			45 (113)
Melting Temperature	ISO 3146C	°C (°F)	218 (424)
Glass Transition Temperature	ISO 11357-1/-2	°C (°F)	
10°C/min			25 (77)
Vicat Softening Temperature	ISO 306	°C (°F)	
10N, 50°C/h			205 (401)
Rheological			
Melt Flow Rate	ISO 1133	g/10 min	
240°C, 2.16kg			12.5
Electrical			
Relative Permittivity	IEC 60250		
1E2 Hz			4.0
1E6 Hz			3.5

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Property	Test Method	Units	Value
Electrical			
Volume Resistivity	IEC 60093	ohm m	2E10
Dissipation Factor	IEC 60250	E-4	
1E2 Hz			160
1E6 Hz			300
Electric Strength	IEC 60243-1	kV/mm (V/mil)	18.1 (450)
Flammability			
Flammability Classification	UL94		
1.5mm			HB
Oxygen Index	ISO 4589	%	23
Other			
Density	ISO 1183	kg/m^3 (g/cm^3)	1260 (1.26)
Humidity Absorption	ISO 62	%	
Equilibrium 50%RH			0.2
Water Absorption	ISO 62	%	
Immersion 24h			0.3
Saturation, immersed			0.6
Molding Shrinkage	ISO 294-4	%	
Normal			1.7
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

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Property	Test Method	Units	Value
Processing - Injection Molding			
Drying Temperature		°C (°F)	110 (230)
Processing Moisture Content		%	<0.08
Snake Flow		mm (in)	
Inject press 62MPa(9000psi), 1mm (0.040in)			78 (3.1)
Inject press 62MPa(9000psi), 2.5mm (0.100in)			330.2 (13)
Inject press 83MPa(12,000psi), 1mm (0.040in)			94 (3.7)
Inject press 83MPa(12,000psi), 2.5mm (0.100in)			431.8 (17)
Processing - Extrusion			
Melt Temperature Optimum		°C (°F)	235 (455)
Drying Time, Dehumidified Dryer		h	2-3
Drying Temperature		°C (°F)	110 (230)
Processing Moisture Content		%	<0.08

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Description

Hytrel® 7246 is a 72 nom. Shore D, containing non-discoloring stabilizer, plasticiser free, high performance resin for injection molding and extrusion; outstanding mechanical properties up to 120°C, excellent hydrocarbon resistance and low permeability.

Properties

The properties of Hytrel® polyester elastomer are intermediate between those of rubber and engineering plastics. The key properties of Hytrel® 7246 include:

- High load bearing capacity.
- Excellent resistance to creep.
- High service temperature.
- Excellent resistance to swell in oils, fuels, and aliphatic and aromatic solvents.
- Low fuel permeability solvents.
- Highly elastomeric within its design range without the use of plasticisers.

Hytrel® 7246 remains flexible at low temperatures. It has a service temperature range from -50 to 120°C [-58 to 248°F]. Addition of special heat stabilizers can be used to extend this range to a maximum of 150°C [302°F] as well as to improve its useful life at lower temperatures.

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® 7246 must be properly protected. Recommendations for pigmentation and other additives are covered in the Hytrel® Design Guide Module V.

Applications

Hytrel® 7246 is used extensively as a wire coating for toughness, abrasion resistance and retractable memory characteristics as used in telephone cords. It is also used in a variety of molded goods requiring Hytrel® with maximum hardness and stiffness, such as seat belt retractor components, oil field and textile machinery parts.

Processing

Hytrel® 7246 is available in pellet form and is suitable for processing by normal thermoplastic methods.

Hytrel® 7246 must be dry during processing. It is packaged in moisture proof 25 kg [55 lb] bags. For larger packages, contact your local sales office.

Once exposed to air, Hytrel® 7246, 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® 7246 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 Material Safety Data Sheet, 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 (-24kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations must be observed. Recycling code per ISO 1043 is TEEE.

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