

# DuPont™ Hytrel®

thermoplastic polyester elastomer

## Hytrel® 7246

Hytrel® 7246 is a high modulus grade with nominal 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
<b>Identification</b>			
Resin Identification	ISO 1043-1/-2/-3/-4		TPC-ET
Part Marking Code	ISO 11469		>TPC-ET<
<b>Mechanical</b>			
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)

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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040503/040507

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# Product Information

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Property	Test Method	Units	Value
<b>Mechanical</b>			
Hardness, Shore D	ISO 868		
15s			68
Maximum			72
Notched Izod Impact Strength	ISO 180/1A	kJ/m <sup>2</sup>	
-40°C (-40°F)			7
23°C (73°F)			38
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m <sup>2</sup>	33
Brittleness Temperature	ISO 974	°C (°F)	-97 (-142)
Tear Strength	ISO 34-1 method B/a	kN/m (lb/in)	
Normal			167 (954.2)
Parallel			200 (1143)
<b>Thermal</b>			
Deflection Temperature	ISO 75-1/-2	°C (°F)	
0.45MPa			95 (205)
1.80MPa			45 (113)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			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)
<b>Rheological</b>			
Melt Mass-Flow Rate	ISO 1133	g/10 min	
240°C, 2.16kg			12.5

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Property	Test Method	Units	Value
<b>Electrical</b>			
Relative Permittivity	IEC 60250		4.0
1E2 Hz			
1E6 Hz			
Volume Resistivity	IEC 60093	ohm m	2E10
Dissipation Factor	IEC 60250	E-4	160
1E2 Hz			
1E6 Hz			
Electric Strength	IEC 60243-1	kV/mm	20
<b>Flammability</b>			
Flammability Classification	UL94		HB
1.5mm			
Oxygen Index	ISO 4589-1/-2	%	23
<b>Other</b>			
Density	ISO 1183	kg/m <sup>3</sup> (g/cm <sup>3</sup> )	1260 (1.26)
Water Absorption	ISO 62	%	0.2
Equilibrium 50%RH			
Immersion 24h			
Saturation, immersed			
Molding Shrinkage	ISO 294-4	%	0.6
Normal, 2.0mm			
Parallel, 2.0mm			

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# Product Information

## Hytrel® 7246

Property	Test Method	Units	Value
<b>Processing - Injection Molding</b>			
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)	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)
<b>Processing - Extrusion</b>			
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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## Hytrel® 7246

### 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 (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations must be observed. Recycling code per ISO 1043 is TPC-ET.

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