



THERMOPLASTIC POLYESTER ELASTOMER

Common features of Hytrel® thermoplastic polyester elastomer include mechanical and physical properties such as exceptional toughness and resilience, high resistance to creep, impact and flex fatigue, flexibility at low temperatures and good retention of properties at elevated temperatures. In addition, it resists many industrial chemicals, oils and solvents. Special grades include heat stabilised, flame retardant, food contact compliant, blow molding and extrusion grades. Concentrates offered include black pigments, UV protection additives, heat stabilisers, and flame retardants. Hytrel® thermoplastic polyester elastomer is plasticiser free.

The good melt stability of Hytrel® thermoplastic polyester elastomer normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations.

For disposal, local regulations have to be observed.

Hytrel® thermoplastic polyester elastomer typically is used in demanding applications in the automotive, fluid power, electrical/electronic, consumer goods, appliance and power tool, sporting goods, furniture, industrial and off-road transportation/equipment industry.

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.

The 72 Shore D hardness is based on a legacy method and is still used for grade identification purposes.

Typical applications:

Tubing, wire and cable jackets, gears and sprockets, oil field parts.

Product information

Resin Identification	TPC-ET	ISO 1043
Part Marking Code	>TPC-ET<	ISO 11469
ISO designation	ISO 20029-TPC-ET,,GLN,70-22-075	

Rheological properties

Melt volume-flow rate 12	cm ³ /10min ISO 1133
Temperature 240	°C
Load 2.16	kg
Melt mass-flow rate 13	g/10min ISO 1133
Melt mass-flow rate, Temperature 240	°C
Melt mass-flow rate, Load 2.16	kg
Moulding shrinkage, parallel 1.6	% ISO 294-4, 2577
Moulding shrinkage, normal 1.6	% ISO 294-4, 2577

Typical mechanical properties

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Tensile modulus	550 MPa	ISO 527-1/-2
Tensile stress at yield	27 MPa	ISO 527-1/-2
Tensile strain at yield	23 %	ISO 527-1/-2
Stress at 5% strain	14 MPa	ISO 527-1/-2
Stress at 10% strain	23 MPa	ISO 527-1/-2
Tensile stress at 50% strain, 1BA	24 MPa	ISO 527-1/-2
Tensile stress at break	50 MPa	ISO 527-1/-2

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Nominal strain at break	530		ISO 527-1/-2
Tensile strain at break	>300		ISO 527-1/-2
Flexural modulus		MPa	ISO 178
Shear Modulus		MPa	ISO 6721
Tensile creep modulus, 1h		MPa	ISO 899-1
Tensile creep modulus, 1000h		MPa	ISO 899-1
Charpy notched impact strength, 23°C		kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C		kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -40 °C		kJ/m ²	ISO 179/1eA
Tensile notched impact strength, 23°C		kJ/m ²	ISO 8256/1
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Izod notched impact strength, -40°C		kJ/m²	ISO 180/1A
Poisson's ratio	0.47	0.0	100.074
Brittleness temperature	-97	°C	ISO 974
Shore D hardness, 15s	64		ISO 48-4 / ISO 868
Shore D hardness, max	68	1.81/	ISO 868
Tear strength, parallel		kN/m	ISO 34-1
Tear strength, normal		kN/m	ISO 34-1
Abrasion resistance	100	mm ³	ISO 4649
Thermal properties			
Melting temperature, 10°C/min	218	°C	ISO 11357-1/-3
Glass transition temperature, 1 Hz		°C	ISO 6721
Temperature of deflection under load, 1.8 MPa		°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	100		ISO 75-1/-2
Vicat softening temperature, 50 ° C/h 50N	140		ISO 306
Vicat softening temperature, 50 °C/h 10N	205		ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C		E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion		E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, normal, -40-23°C	130	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),		E-6/K	ISO 11359-1/-2
normal			
Thermal conductivity of melt	0.15	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	8E-8		ISO 22007-4
Specific heat capacity of melt		J/(kg K)	ISO 22007-4
RTI, electrical, 1.5mm		°ĊŰ	UL 746B
RTI, impact, 1.5mm		°C	UL 746B
RTI, strength, 1.5mm	75	°C	UL 746B
Flammability			
•	LID	ologo	IEO 60605 11 10
Burning Behav. at 1.5mm nom. thickn.		class	IEC 60695-11-10
Thickness tested		mm	IEC 60695-11-10
UL recognition	yes	0/	UL 94
Oxygen index	23	70	ISO 4589-1/-2
FMVSS Class	DNI		ISO 3795 (FMVSS 302)

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Electrical properties

Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity	4 3.5 160 E 300 E 2E10 C >1E15 C	E-4 Ohm.m Ohm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2
Electric strength Comparative tracking index		XV/mm	IEC 60243-1 IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.6 %	Sim. to ISO 62
Water absorption, Immersion 24h	0.3 %	Sim. to ISO 62
Density	1260 kg/m ³	ISO 1183
Density of melt	1110 kg/m ³	

VDA Properties

Light stability delta l	-3	DIN 53236
Light stability delta a	-0.1	DIN 53236
Light stability delta b	15	DIN 53236
Light stability delta E	16	DIN 53236
Emission of organic compounds	300 μgC/g	VDA 277

Injection

Drying Recommended	yes
Drying Temperature	110 °C
Drying Time, Dehumidified Dryer	2-3 h
Processing Moisture Content	≤0.08 %
Melt Temperature Optimum	245 °C
Min. melt temperature	235 °C
Max. melt temperature	255 °C
Mold Temperature Optimum	50 °C
Min. mould temperature	45 °C
Max. mould temperature	55 °C
Hold pressure range	≤70 MPa
Ejection temperature	149 °C

Extrusion

Drying Temperature	100 - 120	°C
Drying Time, Dehumidified Dryer	2 - 3	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	235	°C
Melt Temperature Range	225 - 245	°C

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Characteristics

Processing Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion,

Casting, Thermoforming

Delivery form Pellets

Special characteristics Light stabilised or stable to light

Automotive

OEM STANDARD ADDITIONAL INFORMATION

General Motors GMW17186P-TPC-ET-Type 2
General Motors GMW17327P-TPC-ET-Type 5

Hyundai MS220-24 Type B Mercedes-Benz DBL5562.50 TPC

Stellantis - ChryslerMS-DB-448 / CPN-2312NaturalStellantis - ChryslerMS-DB-448 / CPN-2760BlackStellantis - ChryslerMS-DB-448 / CPN-5033Natural

VW Group VW 50123 TPC-ET 55D

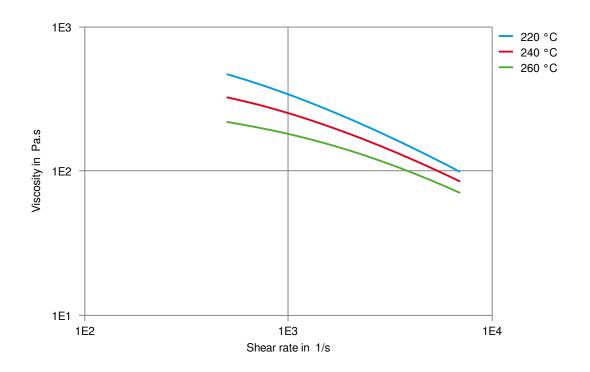
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Viscosity-shear rate



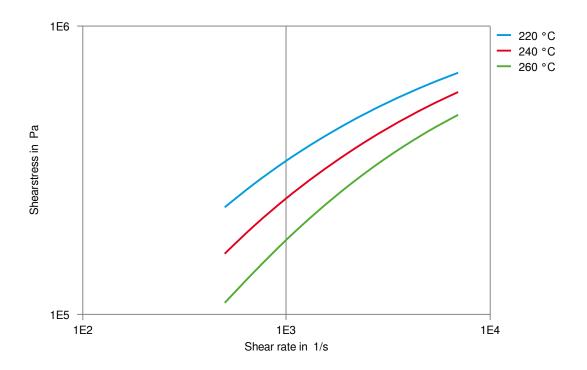
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Hytrel® 7246 THERMOPLASTIC POLYESTER ELASTOMER

Shearstress-shear rate



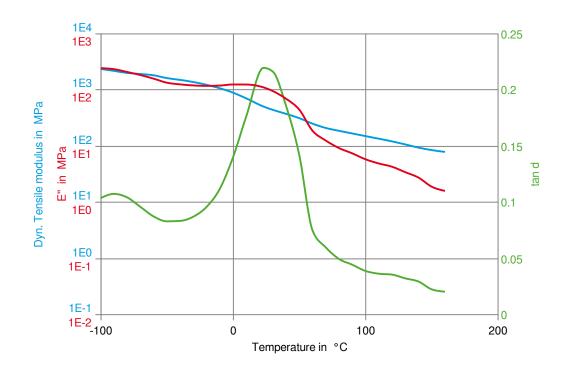
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Dynamic Tensile modulus-temperature



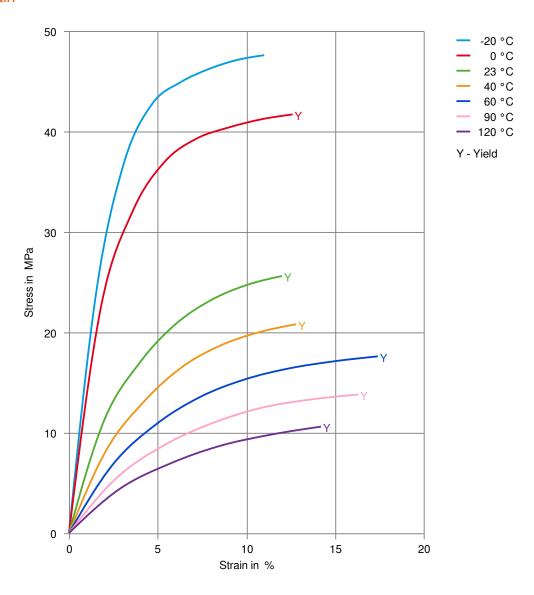
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Stress-strain



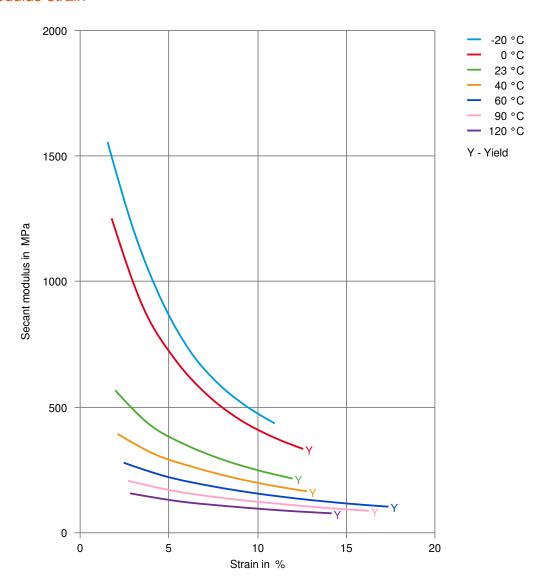
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Secant modulus-strain



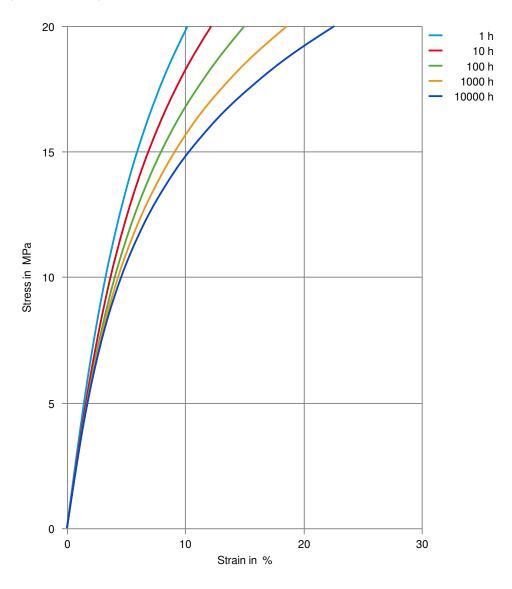
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Stress-strain (isochronous) 23°C



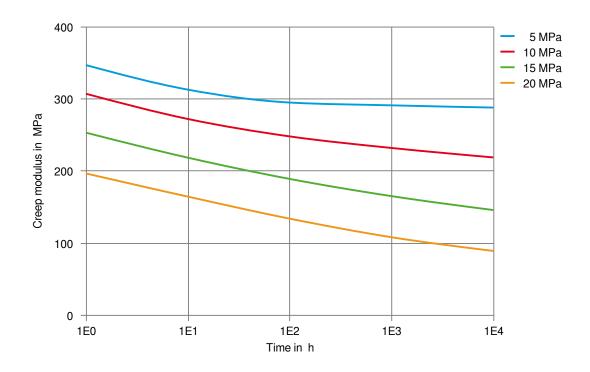
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Creep modulus-time 23°C



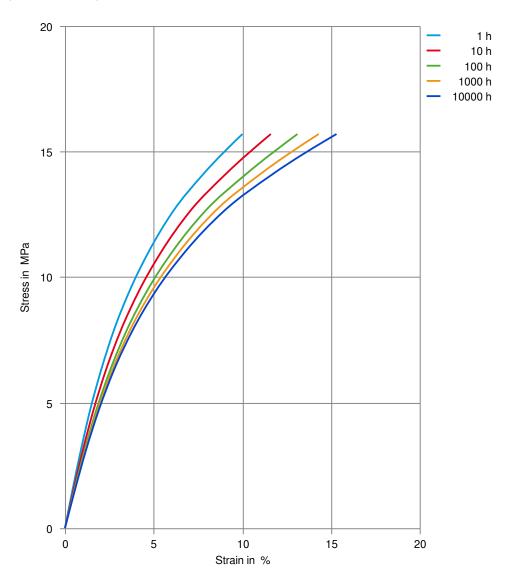
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Stress-strain (isochronous) 40°C



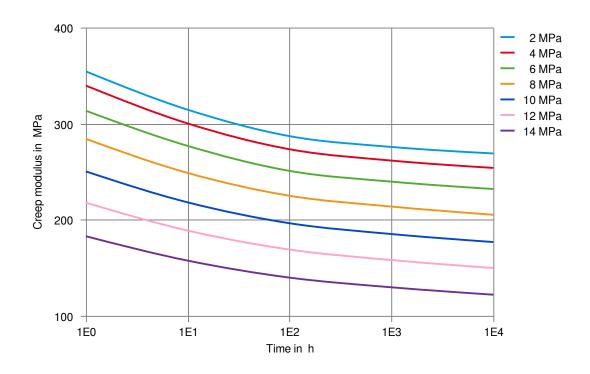
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Creep modulus-time 40°C



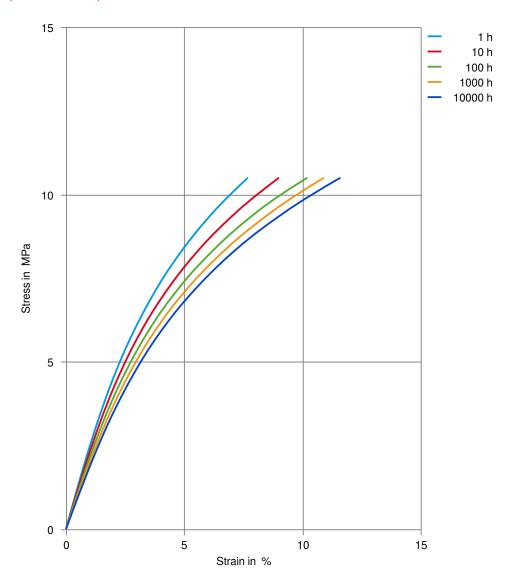
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Stress-strain (isochronous) 80°C



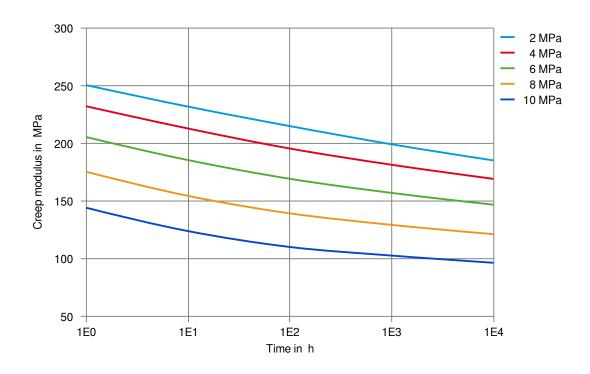
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Creep modulus-time 80°C



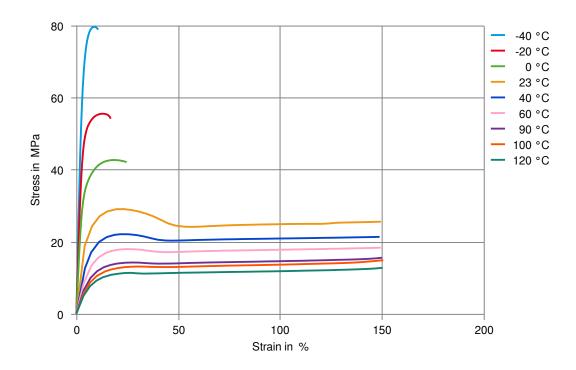
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Stress-Strain (Flexible Materials)



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Hytrel® 7246

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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C
- X Hydrochloric Acid (36% by mass), 23°C
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- ✓ Sulfuric Acid (5% by mass), 23°C
- X Chromic Acid solution (40% by mass), 23°C

Bases

- ✓ Sodium Hydroxide solution (35% by mass), 23°C
- ✓ Sodium Hydroxide solution (1% by mass), 23°C
- ✓ Ammonium Hydroxide solution (10% by mass), 23°C

Alcohols

- ✓ Isopropyl alcohol, 23°C
- ✓ Methanol, 23°C
- ✓ Ethanol, 23°C

Hydrocarbons

- ✓ n-Hexane, 23°C
- ✓ Toluene, 23°C
- ✓ iso-Octane, 23°C

Ketones

X Acetone, 23°C

Ethers

X Diethyl ether, 23°C

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- X SAE 10W40 multigrade motor oil, 130°C
- ★ SAE 80/90 hypoid-gear oil, 130°C
- ✓ Insulating Oil, 23°C
- X Motor oil OS206 304 Ref.Eng.Oil, ISP, 135°C
- X Automatic hypoid-gear oil Shell Donax TX, 135°C

Standard Fuels

- X ISO 1817 Liquid 1 E5, 60°C
- X ISO 1817 Liquid 2 M15E4, 60°C
- X ISO 1817 Liquid 3 M3E7, 60°C
- X ISO 1817 Liquid 4 M15, 60°C
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ➤ Diesel fuel (pref. ISO 1817 Liquid F), >90°C

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Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ✗ Sodium Hypochlorite solution (10% by mass), 23°C
- ✓ Sodium Carbonate solution (20% by mass), 23°C
- ✓ Sodium Carbonate solution (2% by mass), 23°C
- ✓ Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethyl Acetate, 23°C
- X Hydrogen peroxide, 23°C
- ➤ DOT No. 4 Brake fluid, 130°C
- X DOT No. 4 Brake fluid, 120°C
- ➤ Ethylene Glycol (50% by mass) in water, 108°C
- ✓ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23°C
- ✓ 50% Oleic acid + 50% Olive Oil, 23°C
- ✓ Water, 23°C
- X Water, 90°C
- ✓ Phenol solution (5% by mass), 23°C
- ★ Coolant Glysantin G48, 1:1 in water, 125°C

Symbols used:

✓ possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

★ not recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

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Revised: 2025-05-15 Source: Celanese Materials Database

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