

Hytrel® 7246 ECO-B 452

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 ECO-B 452 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. It has the same performance and processing properties as Hytrel® 7246.

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

Hytrel® 7246 ECO-B 452 belongs to the Hytrel® ECO-B family. The products of this family are partially produced using bio-feedstock derived from waste*. This results in reduced lifecycle greenhouse gas emissions and lower fossil resource use.

*certified bio-circular according to ISCC Plus mass balance approach.

Typical applications:

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

[2-Pagers](#)

Product information

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

Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

Typical mechanical properties

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
Nominal strain at break	530 %	ISO 527-1/-2
Tensile strain at break	>300 %	ISO 527-1/-2
Flexural modulus	550 MPa	ISO 178
Shear Modulus	280 MPa	ISO 6721
Tensile creep modulus, 1h	360 MPa	ISO 899-1
Tensile creep modulus, 1000h	310 MPa	ISO 899-1
Charpy notched impact strength, 23°C	36 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -40°C	7 kJ/m ²	ISO 179/1eA
Tensile notched impact strength, 23°C	300 kJ/m ²	ISO 8256/1
Izod notched impact strength, 23°C	38 kJ/m ²	ISO 180/1A
Izod notched impact strength, -40°C	7.0 kJ/m ²	ISO 180/1A
Poisson's ratio	0.47	
Brittleness temperature	-97 °C	ISO 974
Shore D hardness, 15s	64	ISO 48-4 / ISO 868
Shore D hardness, max	68	ISO 868
Tear strength, parallel	180 kN/m	ISO 34-1
Tear strength, normal	170 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, 10°C/min	25 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	50 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	100 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	140 °C	ISO 306
Vicat softening temperature, 50°C/h 10N	205 °C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	120 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	180 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	130 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	170 E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.15 W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	8E-8 m ² /s	ISO 22007-4
Specific heat capacity of melt	2150 J/(kg K)	ISO 22007-4
RTI, electrical, 1.5mm	85 °C	UL 746B
RTI, impact, 1.5mm	85 °C	UL 746B
RTI, strength, 1.5mm	75 °C	UL 746B

Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	IEC 60695-11-10
Thickness tested	1.5 mm	IEC 60695-11-10
UL recognition	yes	UL 94
Oxygen index	23 %	ISO 4589-1/-2
FMVSS Class	DNI	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4	IEC 62631-2-1
Relative permittivity, 1MHz	3.5	IEC 62631-2-1
Dissipation factor, 100Hz	160 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	300 E-4	IEC 62631-2-1
Volume resistivity	2E10 Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15 Ohm	IEC 62631-3-2
Electric strength	20 kV/mm	IEC 60243-1
Comparative tracking index	600	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 I	-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	240 °C
Max. melt temperature	260 °C
Mold Temperature Optimum	45 °C
Min. mould temperature	45 °C
Max. mould temperature	55 °C
Hold pressure range	≤70 MPa

Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

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

Characteristics

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Casting, Thermoforming
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light
Sustainability	Bio-Content

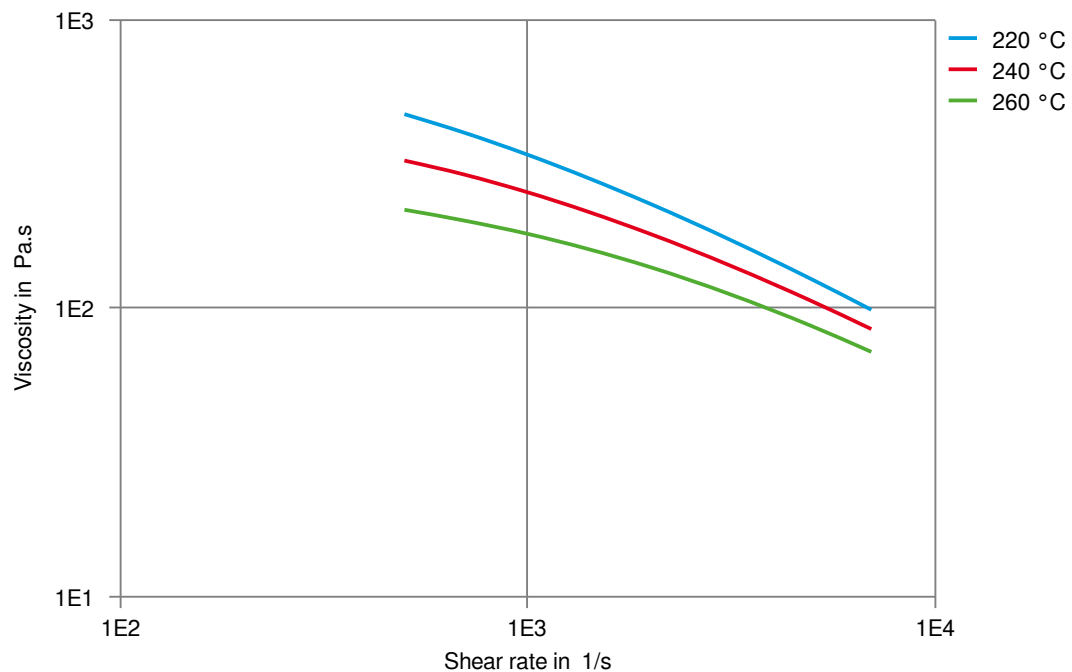
Automotive

OEM	STANDARD
Hyundai	MS220-24 Type B
Mercedes-Benz	DBL5562.50 TPC
VW Group	VW 50123 TPC-ET 55D

Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

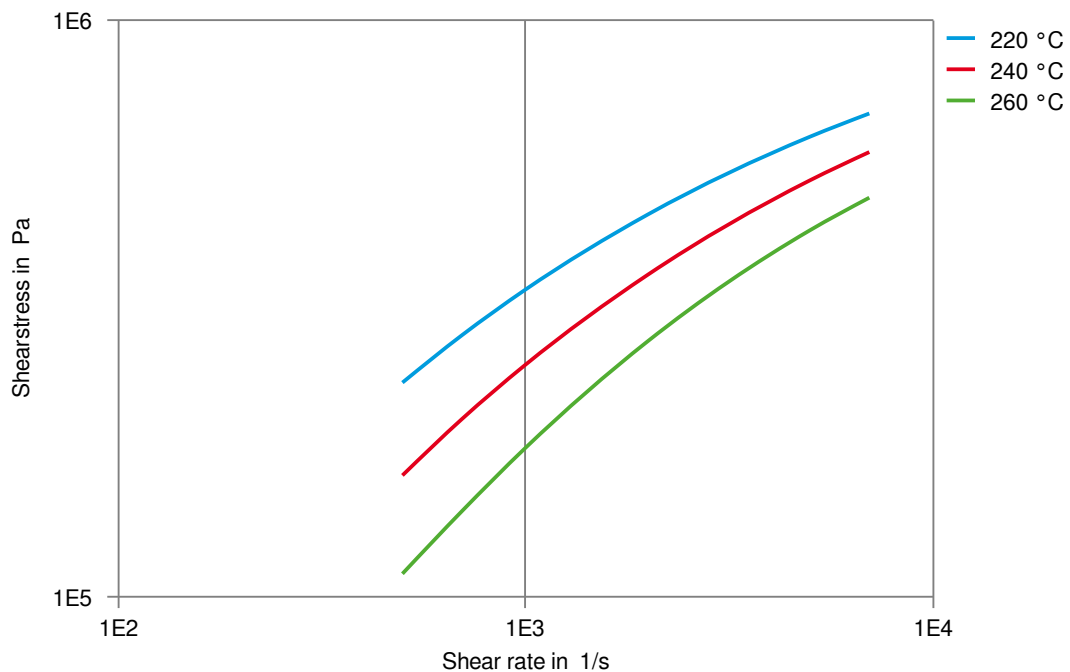
Viscosity-shear rate



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

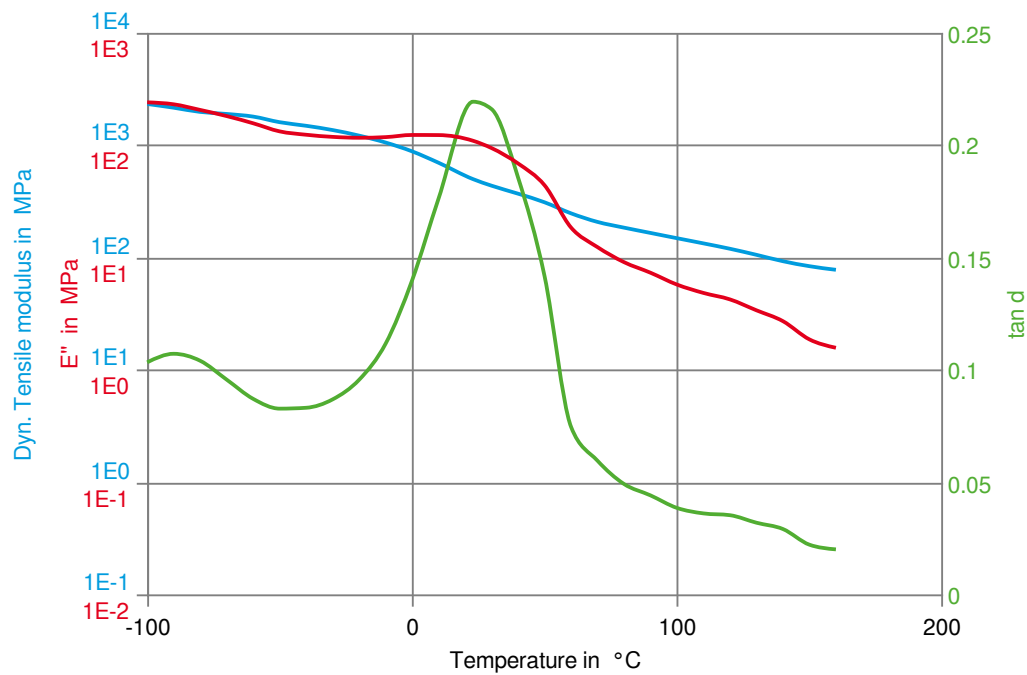
Shearstress-shear rate



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

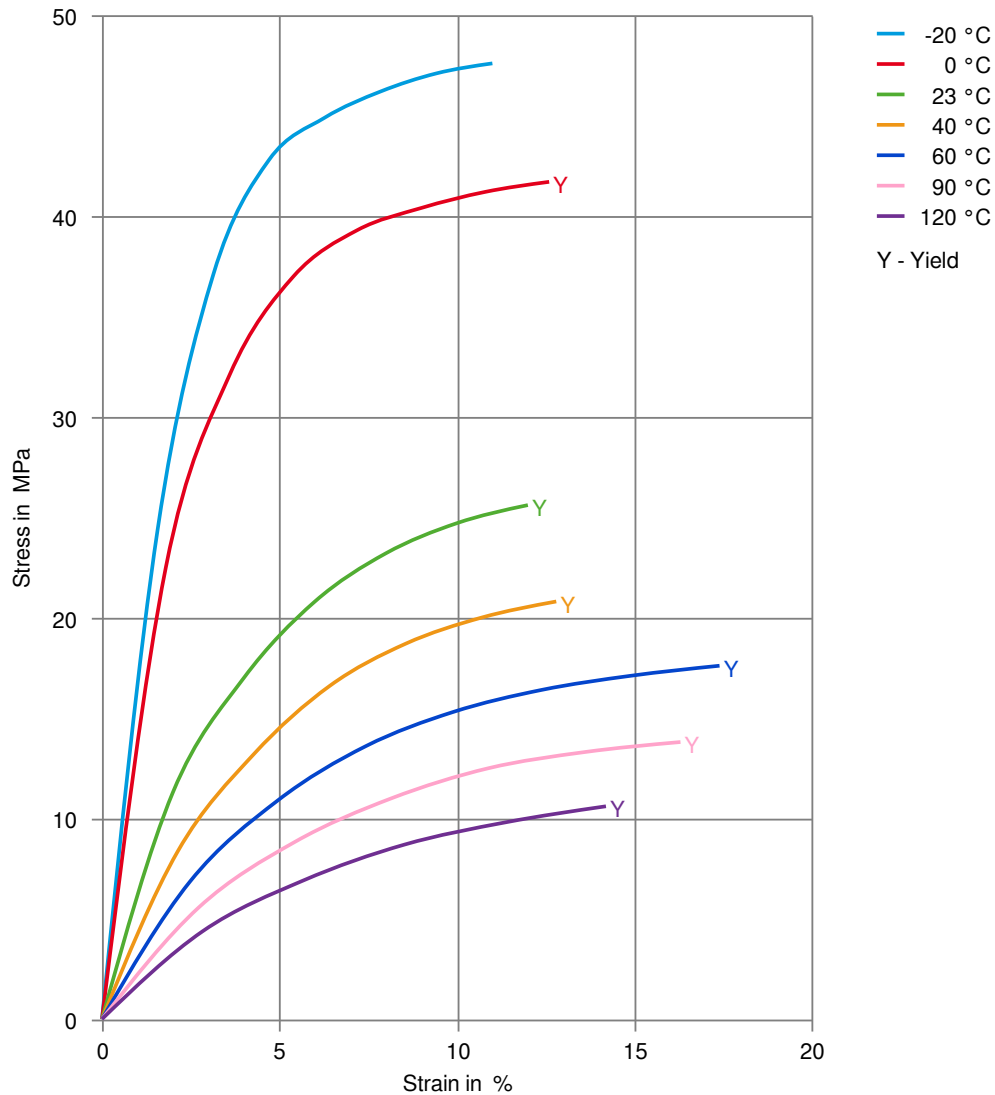
Dynamic Tensile modulus-temperature



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

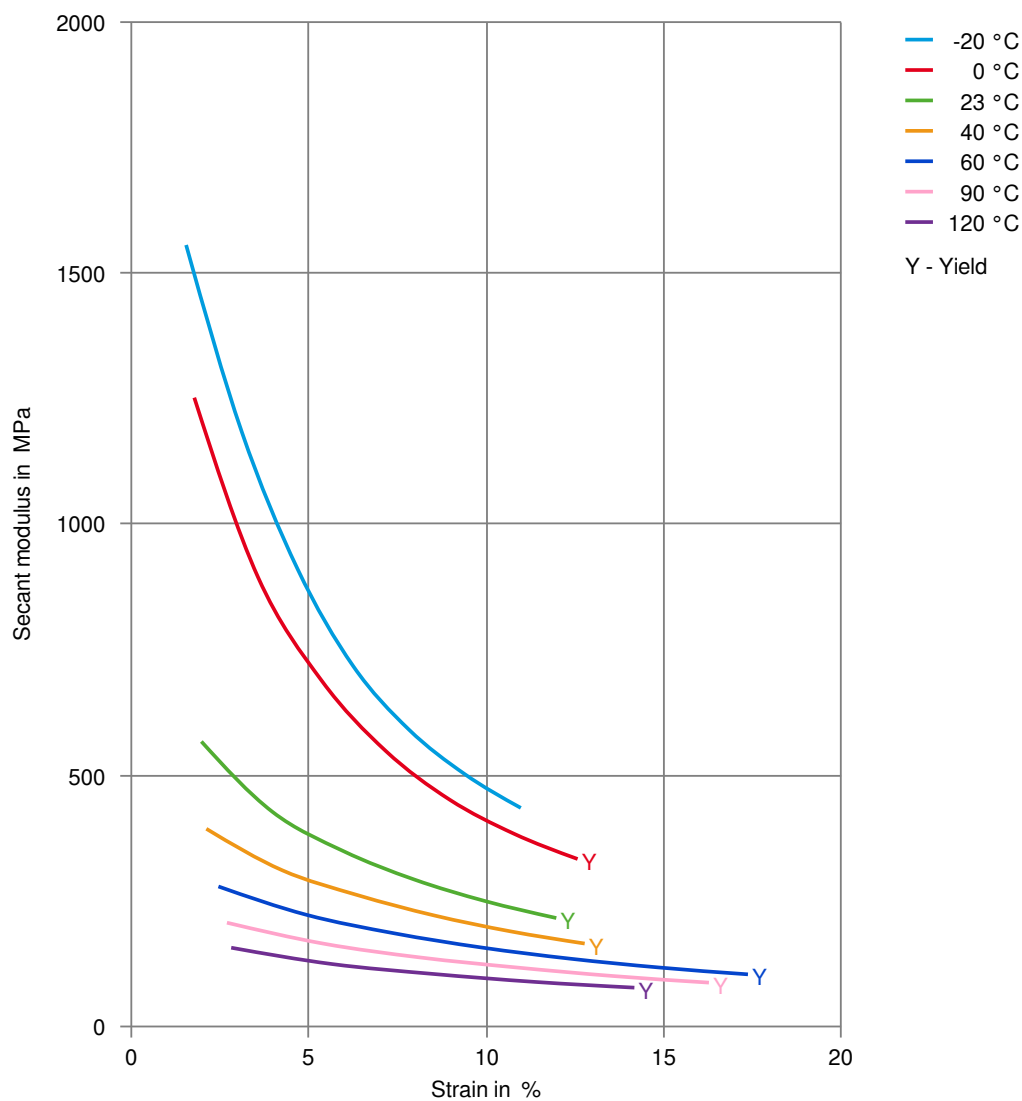
Stress-strain



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

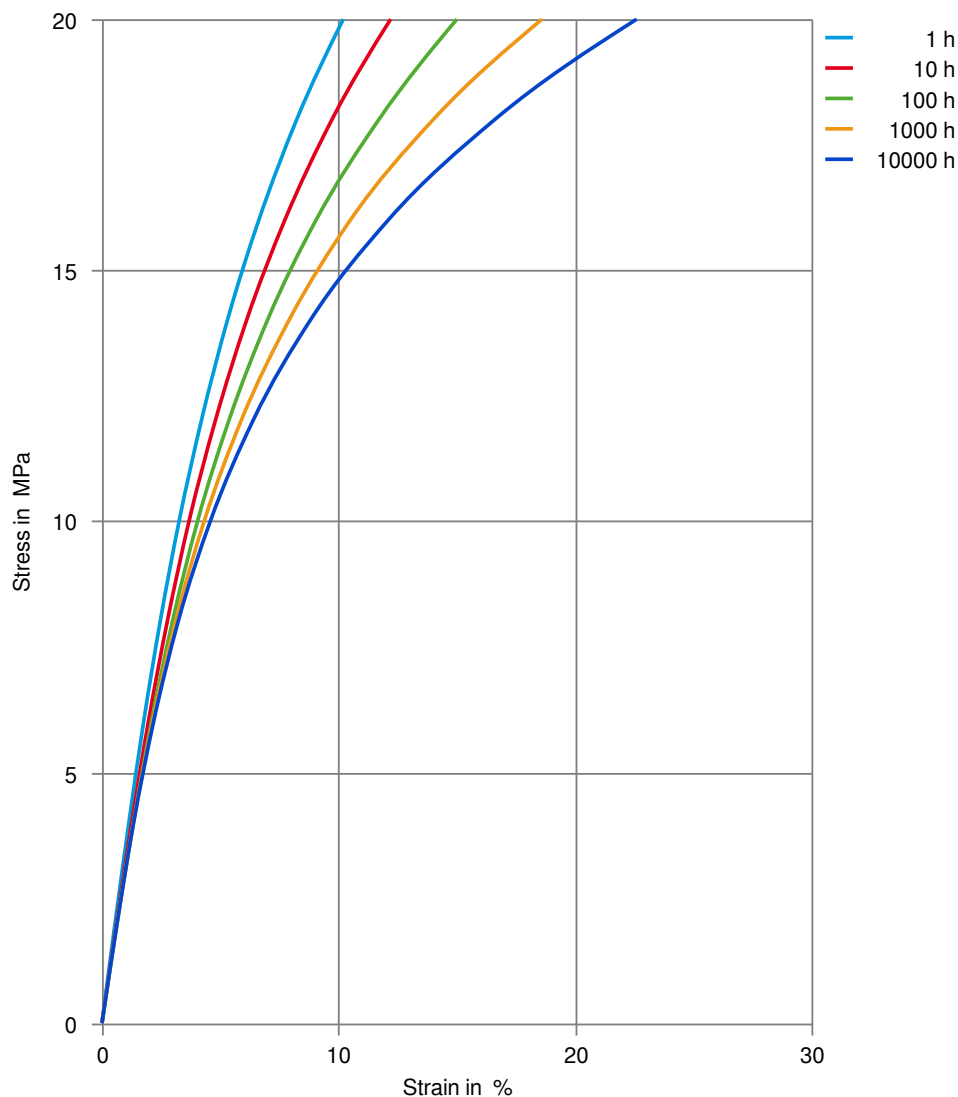
Secant modulus-strain



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

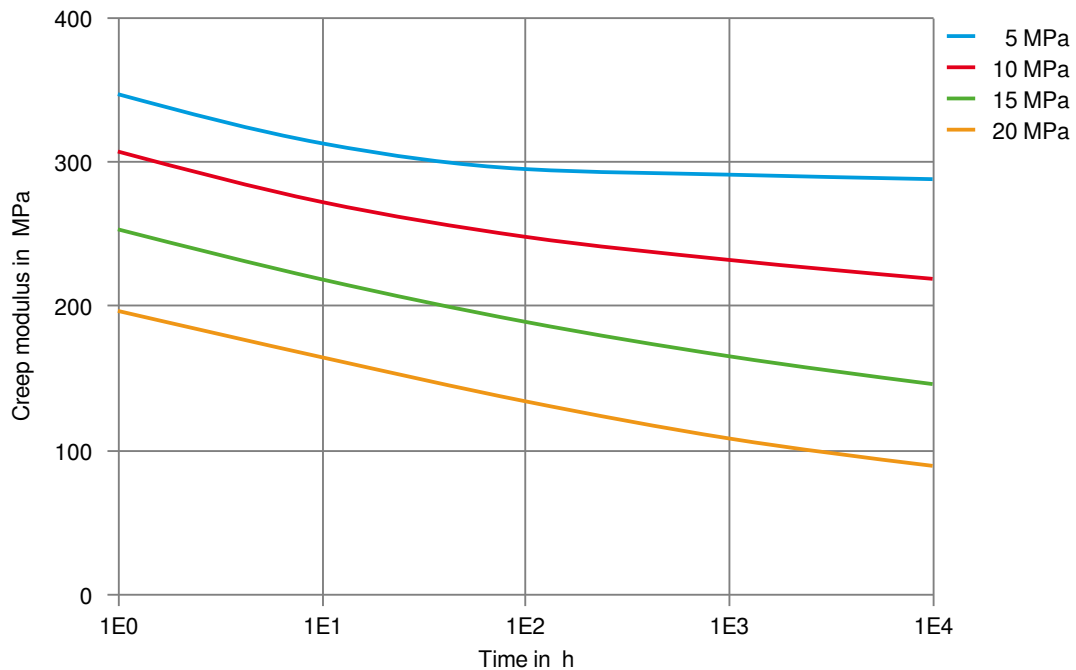
Stress-strain (isochronous) 23°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

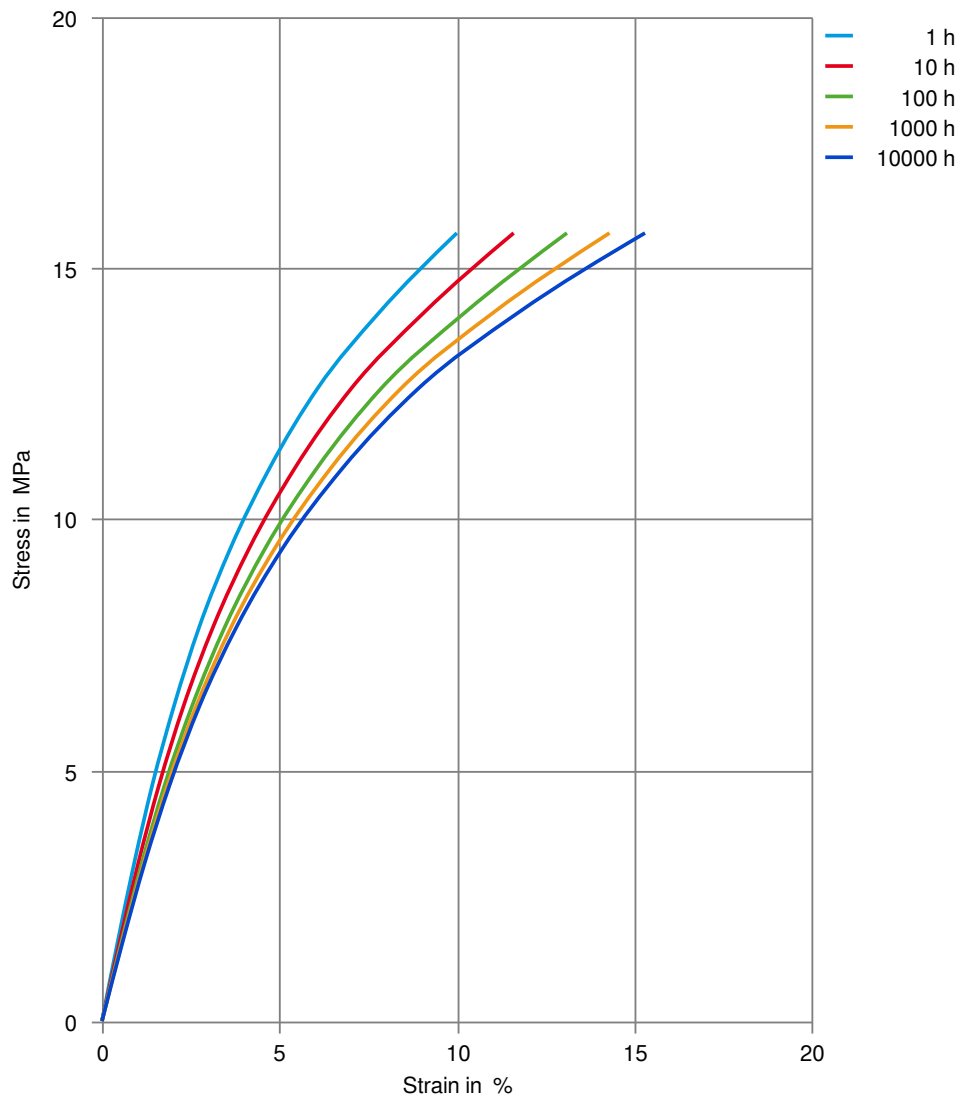
Creep modulus-time 23°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

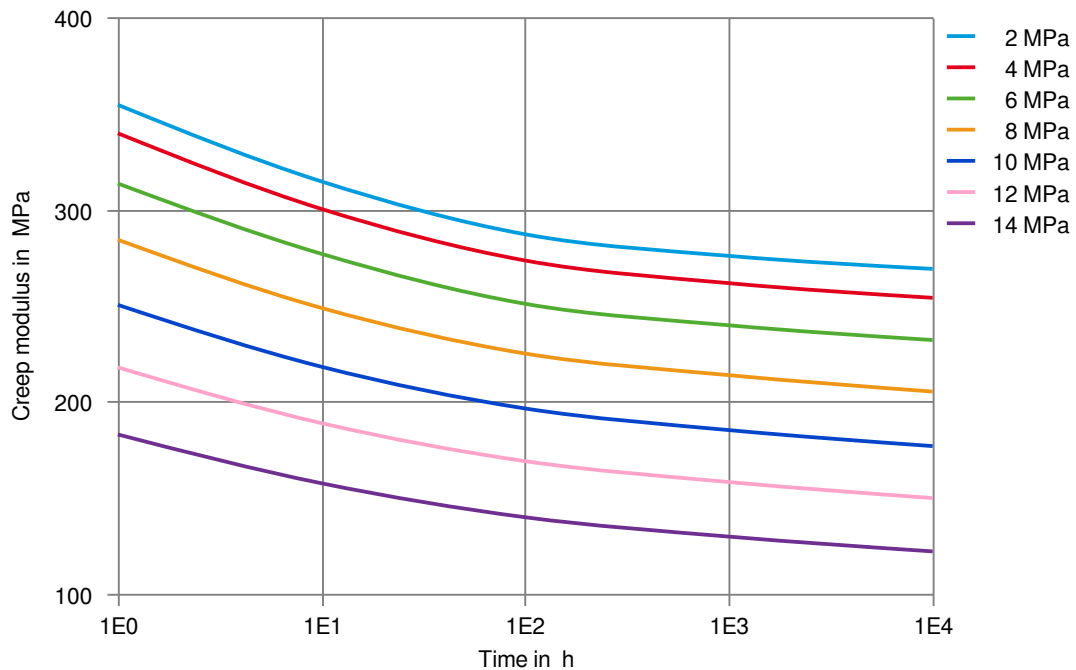
Stress-strain (isochronous) 40°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

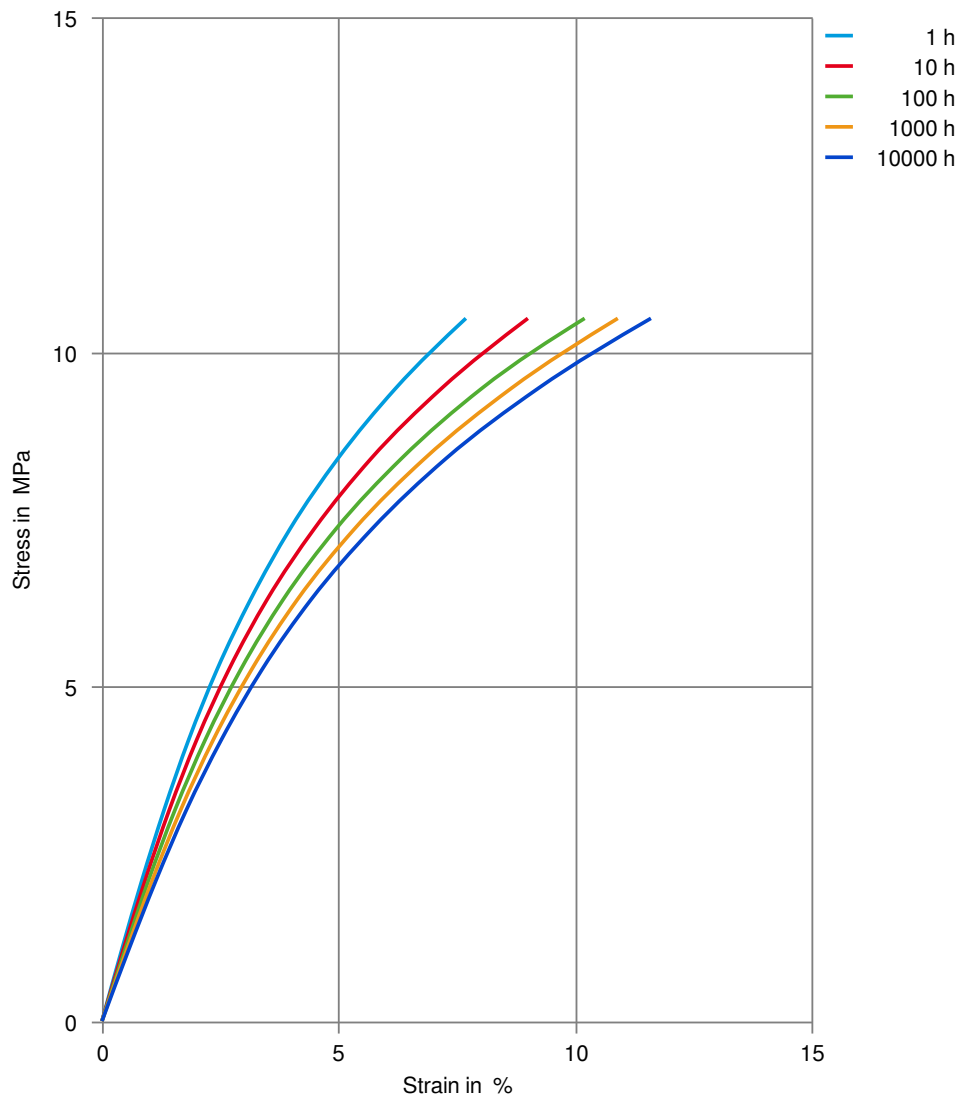
Creep modulus-time 40°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

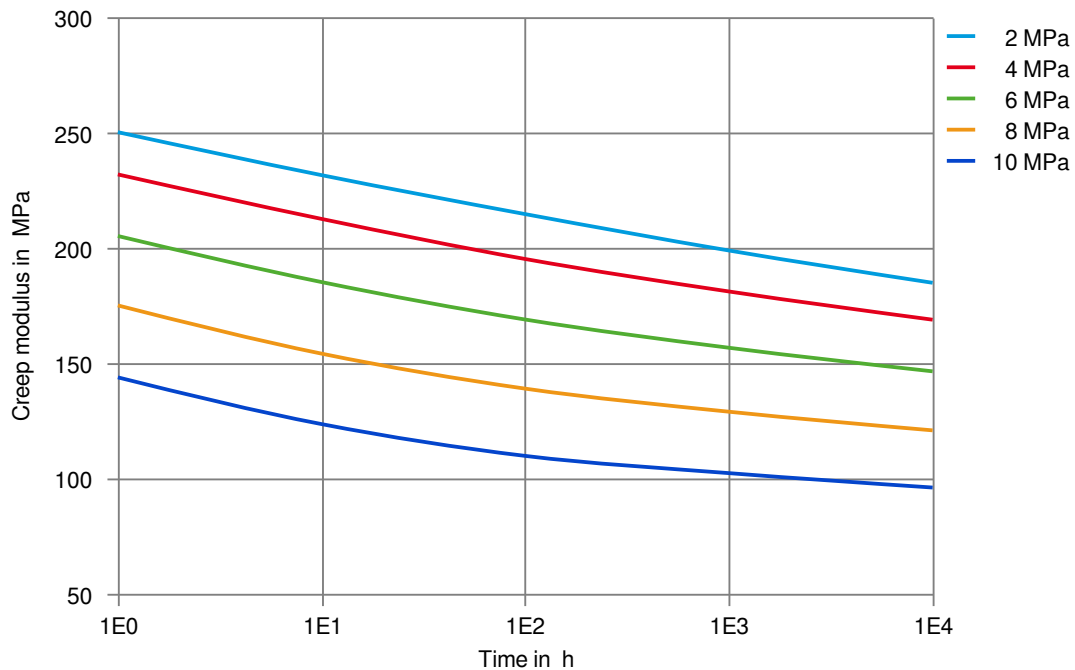
Stress-strain (isochronous) 80°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

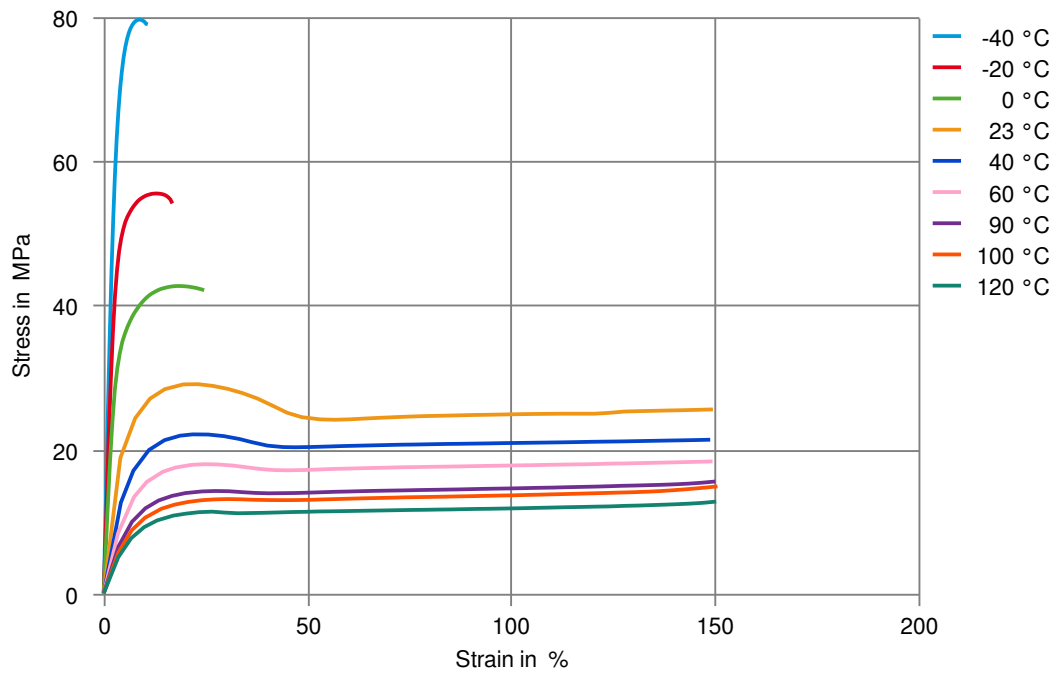
Creep modulus-time 80°C



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

Stress-Strain (Flexible Materials)



Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

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
- ✗ Hydrochloric Acid (36% by mass), 23°C
- ✗ Nitric Acid (40% by mass), 23°C
- ✗ Sulfuric Acid (38% by mass), 23°C
- ✓ Sulfuric Acid (5% by mass), 23°C
- ✗ 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

- ✗ Acetone, 23°C

Ethers

- ✗ Diethyl ether, 23°C

Mineral oils

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

Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5, 60°C
- ✗ ISO 1817 Liquid 2 - M15E4, 60°C
- ✗ ISO 1817 Liquid 3 - M3E7, 60°C
- ✗ 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

Hytrel® 7246 ECO-B 452

THERMOPLASTIC POLYESTER ELASTOMER

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
- ✗ Hydrogen peroxide, 23°C
- ✗ DOT No. 4 Brake fluid, 130°C
- ✗ 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
- ✗ 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).