DuPont™ Hytrel® 5526

THERMOPLASTIC POLYESTER ELASTOMER

Product Information

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, DuPont recommends, 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® 5526 is a medium modulus Hytrel® grade with nominal durometer hardness of 55D. It contains non-discoloring stabilizer. It is specially recommended for injection molding applications requiring high flow properties.

Typical applications:

Seals, packing and gaskets; gears and bearings.

General information	Value	Unit	Test Standard
Resin Identification	TPC-ET	-	ISO 1043
Part Marking Code	>TPC-ET<	-	ISO 11469
Rheological properties	**Value**	**Unit**	**Test Standard**
Melt volume-flow rate	17.5	cm^3/10min	ISO 1133
Melt mass-flow rate	18	g/10min	ISO 1133
Temperature	220	°C	ISO 1133
Load	2.16	kg	ISO 1133
Moulding shrinkage, parallel	1.4	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4	%	ISO 294-4, 2577
Mechanical properties (TPE)	**Value**	**Unit**	**Test Standard**
Yield stress	14	MPa	ISO 527-1/-2
Yield strain	37	%	ISO 527-1/-2
Stress at 5% strain	6.9	MPa	ISO 527-1/-2
Stress at 10% strain	11	MPa	ISO 527-1/-2
Stress at 50% strain	14	MPa	ISO 527-1/-2
Stress at break	43	MPa	ISO 527-1/-2
Strain at break	>300	%	ISO 527-1/-2
Nominal strain at break	780	%	ISO 527-1/-2
Tear strength, parallel	133	kN/m	ISO 34-1
Tear strength, normal	133	kN/m	ISO 34-1
Abrasion resistance	120	mm^3	ISO 4649
Shore D hardness, 15s	51	-	ISO 868
Shore D hardness, max	55	-	ISO 868
Mechanical properties	**Value**	**Unit**	**Test Standard**
Tensile Modulus	190	MPa	ISO 527-1/-2
Flexural Modulus	200	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	170	MPa	
1000h	130	MPa	

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Charpy impact strength			ISO 179/1eU
23°C	N	kJ/m²	
-30°C	N	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
23°C	N	kJ/m²	
-30°C	150[P]	kJ/m²	
-40°C	30	kJ/m²	
Tensile notched impact strength, 23°C	270	kJ/m²	ISO 8256/1
Izod notched impact strength, -40°C	115	kJ/m²	ISO 180/1A
Brittleness temperature	-98	°C	ISO 974

P: Partial Break

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	203	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-20	°C	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	45	°C	
0.45 MPa	65	°C	
Vicat softening temperature			ISO 306
50°C/h, 50N	75	°C	
50°C/h, 10N	180	°C	
Coeff. of linear therm. expansion, parallel	197	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	186	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.19	W/(m K)	-
Eff. thermal diffusivity	9E-8	m²/s	-
Spec. heat capacity of melt	2110	J/(kg K)	-
RTI, electrical			UL 746B
1.5mm	50	°C	
3mm	50	°C	
RTI, impact			UL 746B
1.5mm	50	°C	
3mm	50	°C	
RTI, strength			UL 746B
1.5mm	50	°C	
3mm	50	°C	

Flammability	Value	Unit	Test Standard
Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	UL	-	UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	3	mm	IEC 60695-11-10
UL recognition	UL	-	UL 94
Oxygen index	21	%	ISO 4589-1/-2
Burning rate, Thickness 1 mm	28[1]	mm/min	ISO 3795 (FMVSS 302)
Flammability, 3.0mm	HB	-	IEC 60695-11-10

1: SE/B

Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	4.9	-	
1MHz	4.6	-	
Dissipation factor			IEC 60250
100Hz	90	E-4	
1MHz	375	E-4	
Volume resistivity	4E11	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	20	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

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Other properties	Value	Unit	Test Standard
Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.6	%	Sim. to ISO 62
Density	1190	kg/m³	ISO 1183
Density of melt	1040	kg/m³	-
Water Absorption, Immersion 24h	0.6	%	ASTM D 570
VDA Properties	**Value**	**Unit**	**Test Standard**
Odour	5	class	VDA 270
Fogging, G-value (condensate)	0.1	mg	ISO 6452
Injection	**Value**	**Unit**	**Test Standard**
Drying Recommended	yes	-	-
Drying Temperature	100	°C	-
Drying Time, Dehumidified Dryer	2 - 3	h	-
Processing Moisture Content	≤0.08	%	-
Melt Temperature Optimum	230	°C	-
Min. melt temperature	220	°C	-
Max. melt temperature	250	°C	-
Mold Temperature Optimum	45	°C	-
Min. mould temperature	45	°C	-
Max. mould temperature	55	°C	-

Characteristics			
Processing	• Injection Moulding	• Thermoforming	
Delivery form	• Pellets		
Special characteristics	• Light stabilised or stable to light		
Regional Availability	• North America • Europe	• Asia Pacific • South and Central America	• Near East/Africa • Global

Processing Texts

Injection molding

PREPROCESSING

Drying recommended = Yes
Drying temperature = 100°C
Drying time, dehumidified dryer = 2-3 h
Processing moisture content = <0.08 %

PROCESSING

Melt temperature optimum = 230°C
Melt temperature range = 220-250°C
Mold temperature optimum = 45°C
Mold temperature range = 45-55°C

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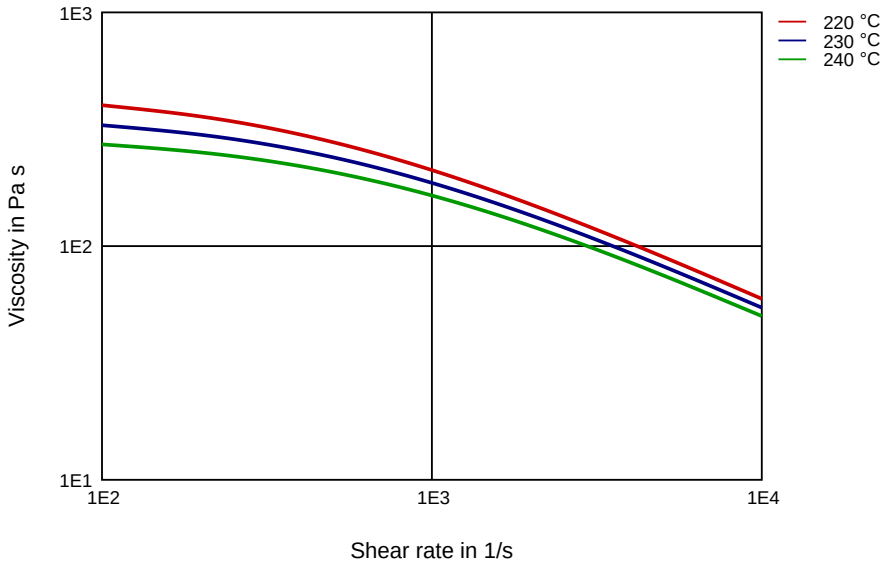
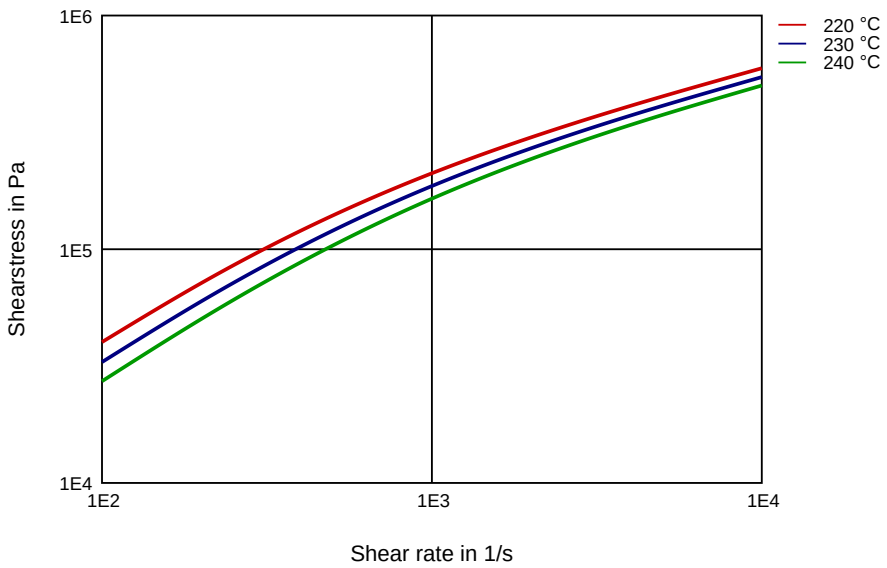
Diagrams

Viscosity-shear rate



Shearstress-shear rate



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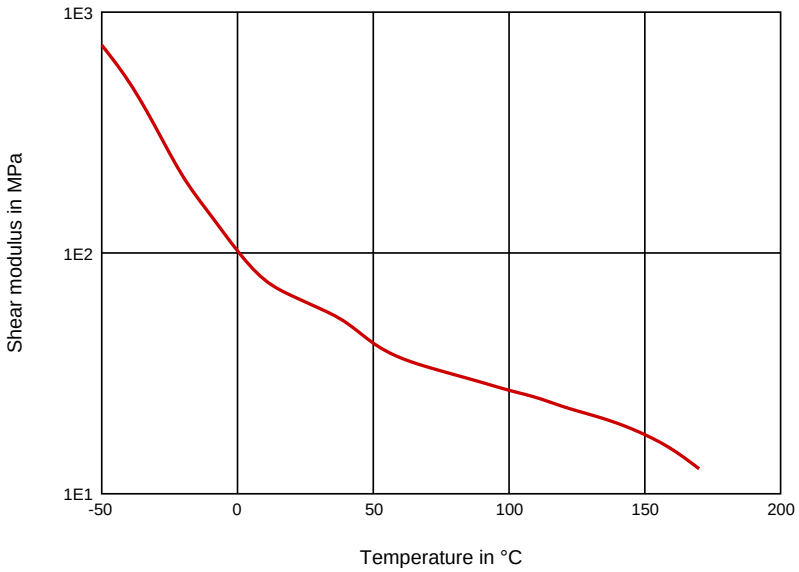
Dynamic Shear modulus-temperature



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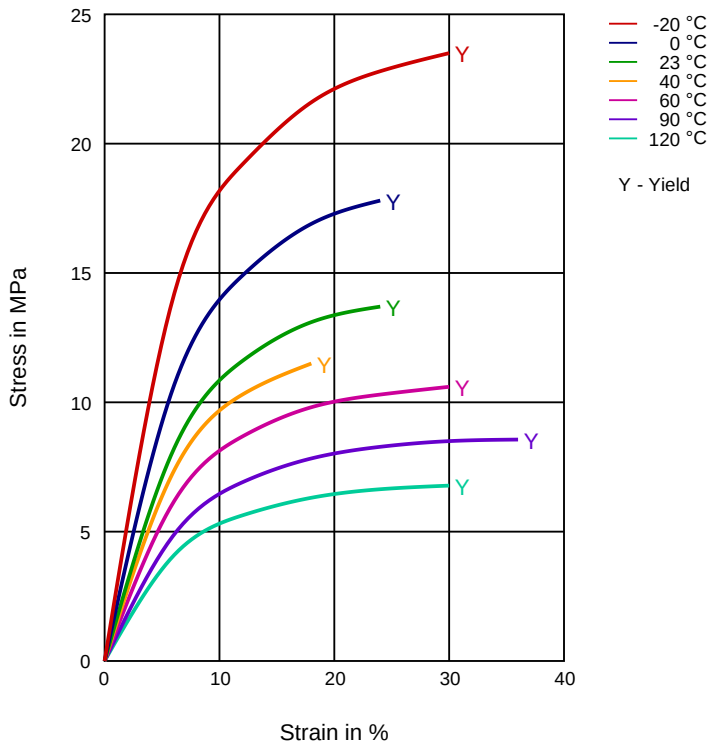
Stress-strain



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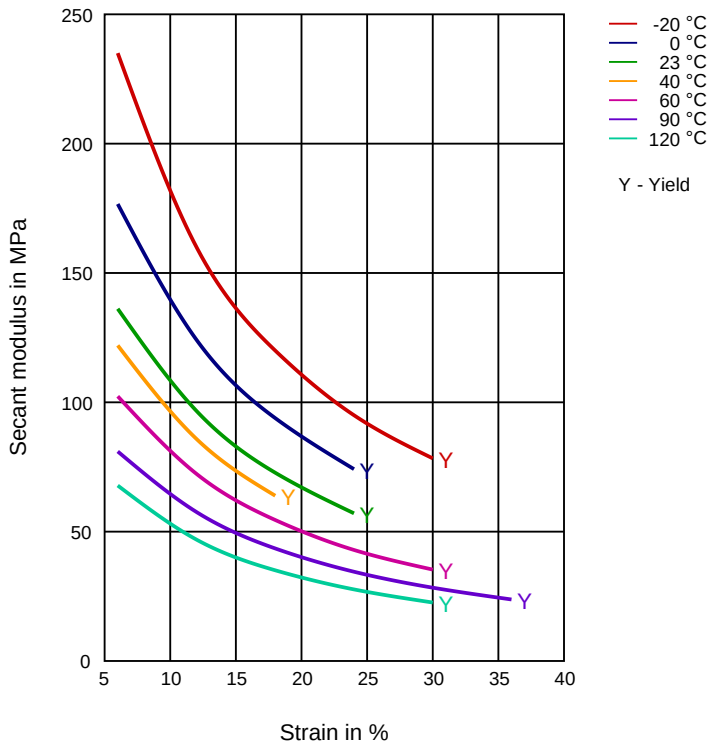
Secant modulus-strain



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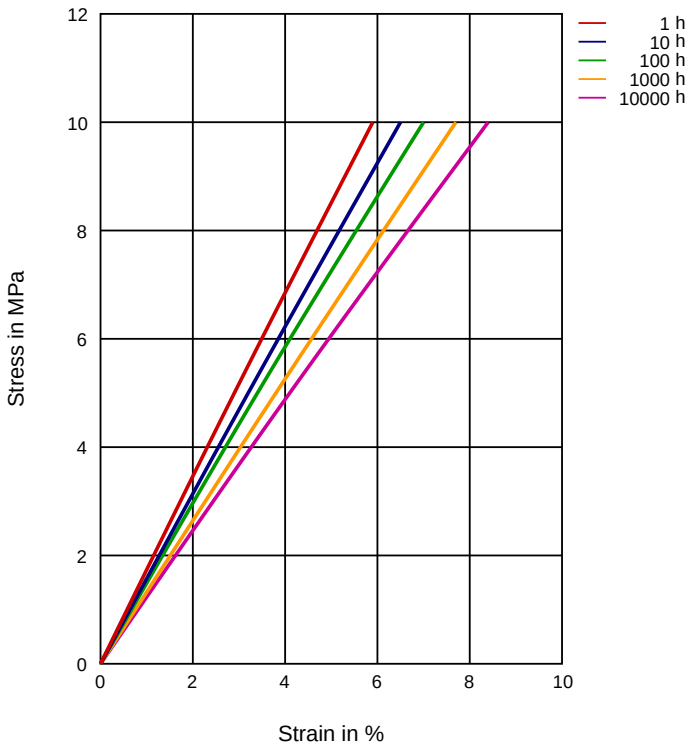
Stress-strain (isochronous) 23°C



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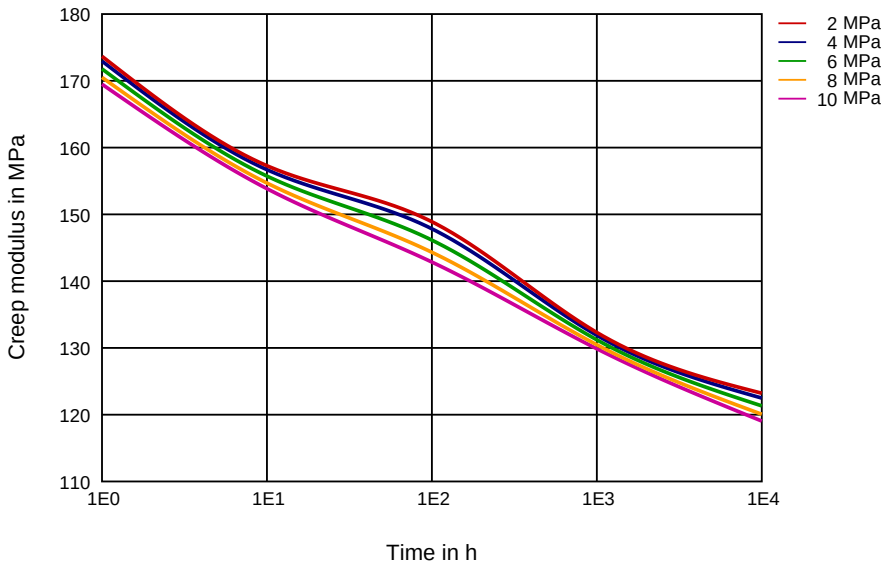
Creep modulus-time 23 °C



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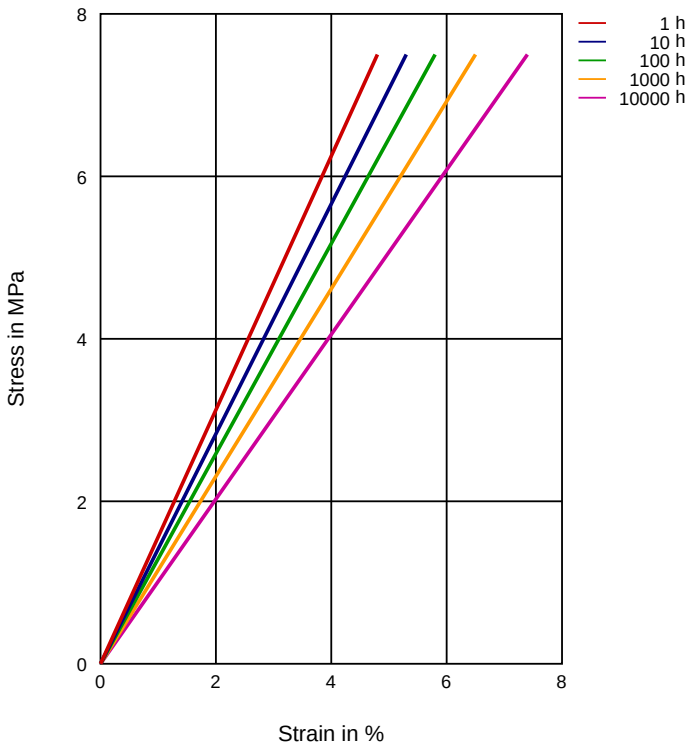
THERMOPLASTIC POLYESTER ELASTOMER

Stress-strain (isochronous) 40°C



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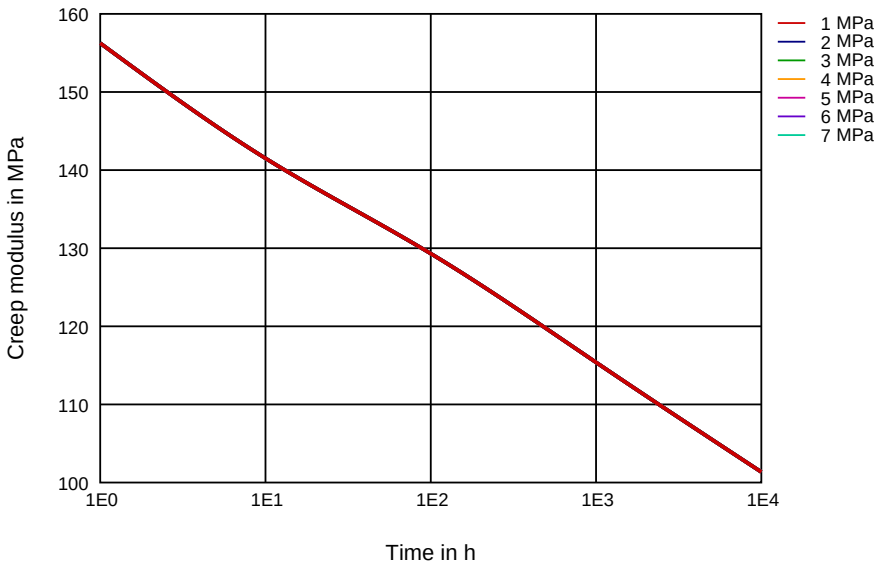
THERMOPLASTIC POLYESTER ELASTOMER

Creep modulus-time 40°C



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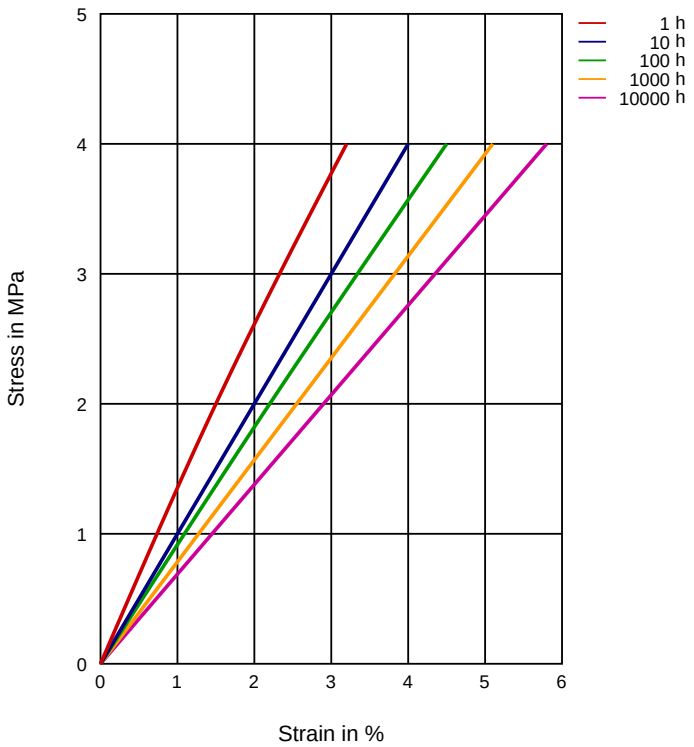
Stress-strain (isochronous) 90°C



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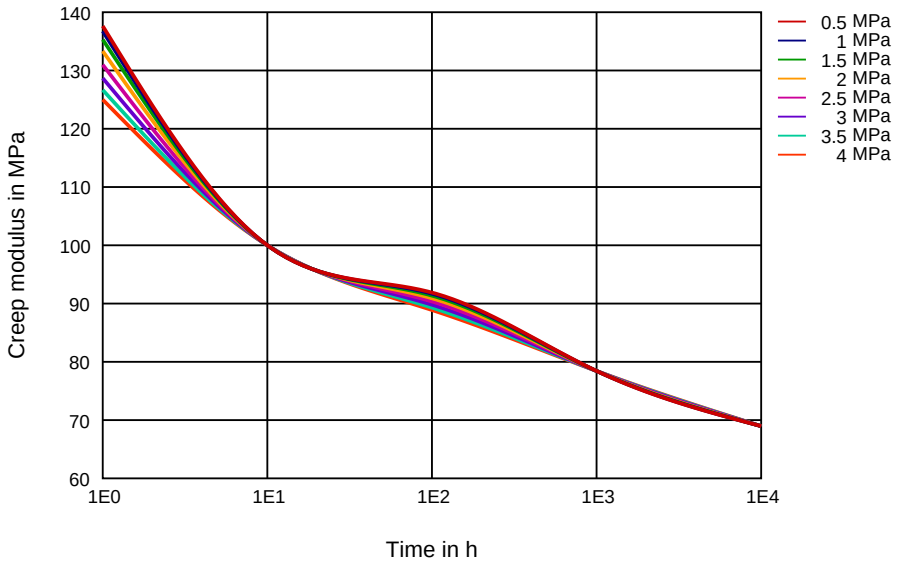
THERMOPLASTIC POLYESTER ELASTOMER

Creep modulus-time 90°C



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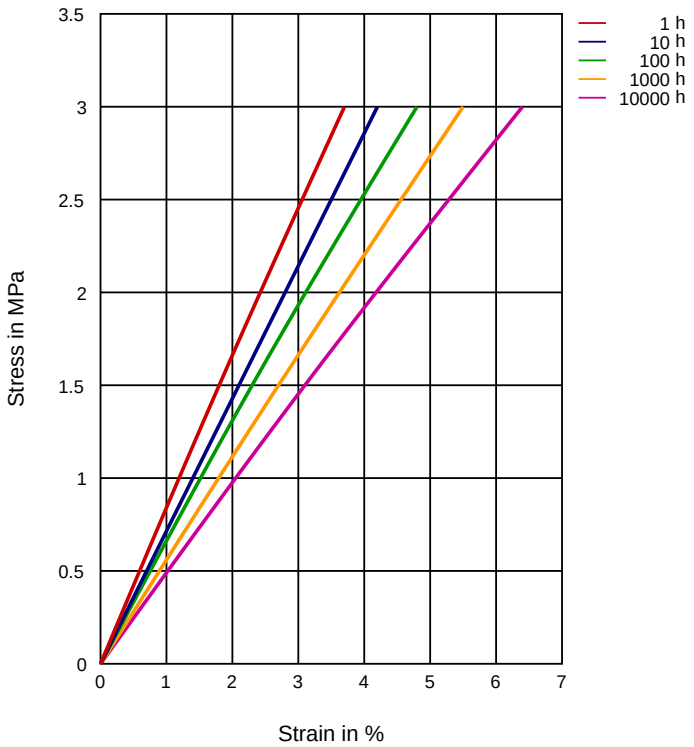
Stress-strain (isochronous) 110°C



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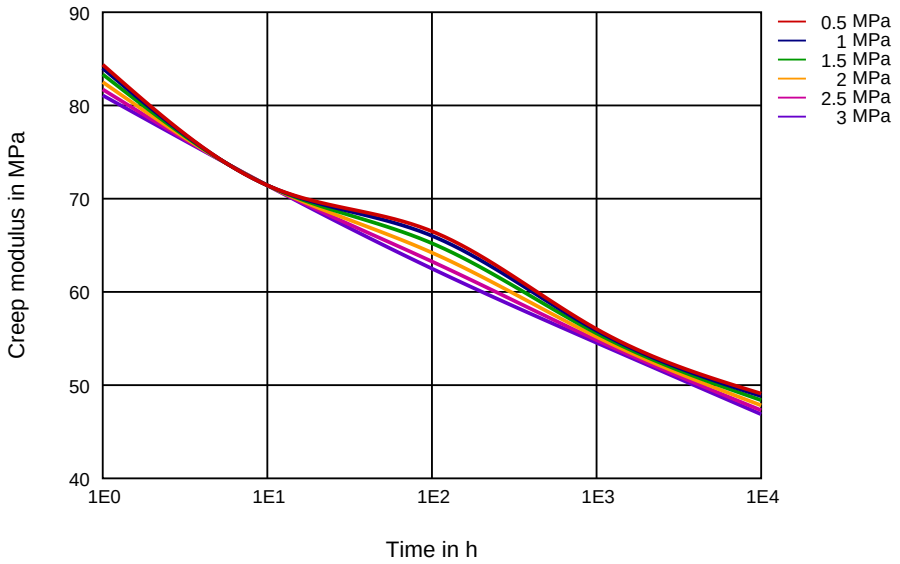
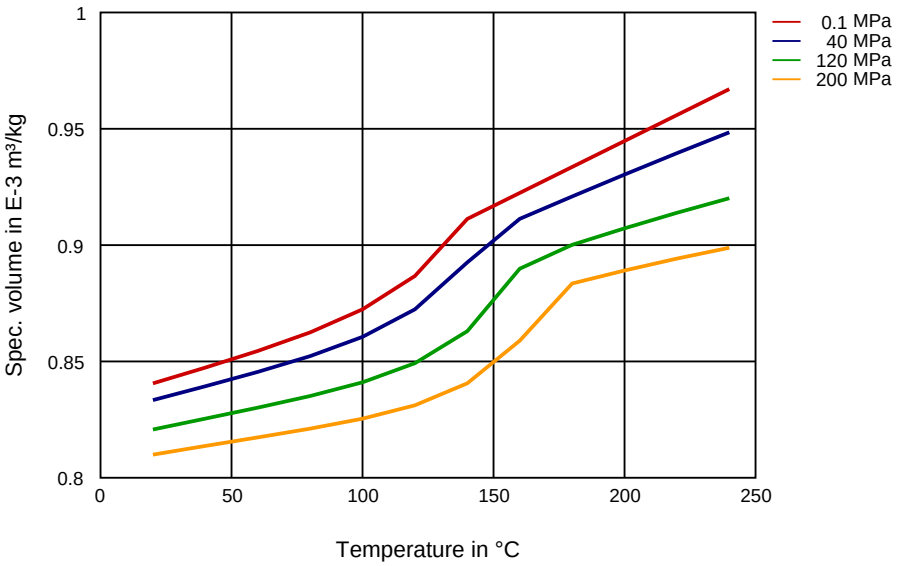
THERMOPLASTIC POLYESTER ELASTOMER

Creep modulus-time 110°C



Specific volume-temperature (pvT)



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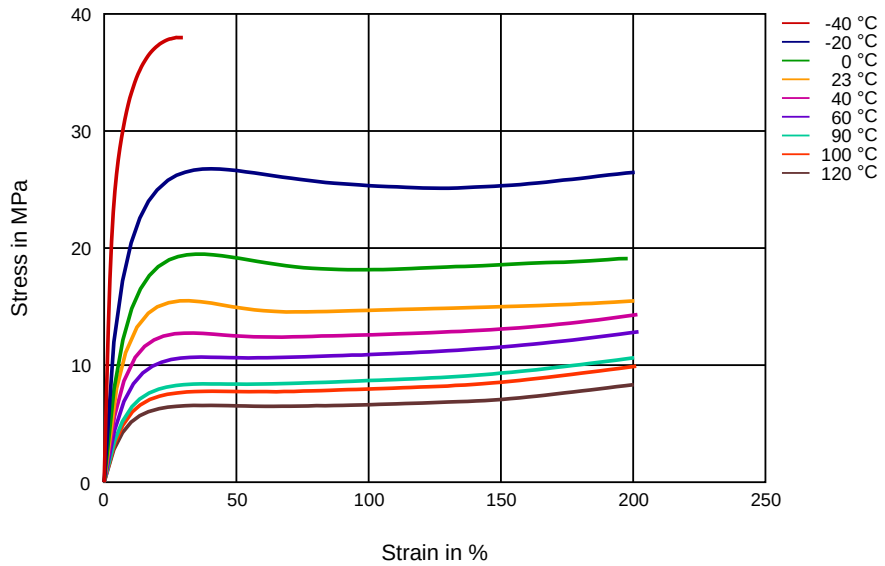
Stress-Strain (TPE)



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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)
- ✗ 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)
- ✗ Hydraulic oil Pentosin CHF 202 (125°C)

Standard Fuels

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

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✗	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)

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)
✗	Ethylene Glycol (50% by mass) in water (108°C)
✓	50% Oleic acid + 50% Olive Oil (23°C)
✓	Water (23°C)
✗	Water (90°C)
✓	Phenol solution (5% by mass) (23°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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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