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Hytrel® HTR8223 BK320

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® HTR8223 BK320 is designed for blow moulding or processing techniques requiring high melt viscosity. It has nominal hardness of 42D.

Typical applications:
Constant velocity joint boots.

Product information

Resin Identification	TPC-ET	ISO 1043
Part Marking Code	>TPC-ET<	ISO 11469

Rheological properties

Melt volume-flow rate	10	cm^3/10min	ISO 1133
Temperature	230	°C	
Load	10	kg	
Melt mass-flow rate	13	g/10min	ISO 1133
Melt mass-flow rate, Temperature	230	°C	
Melt mass-flow rate, Load	10	kg	
Moulding shrinkage, parallel	1.6	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	75	MPa	ISO 527-1/-2
Stress at 5% strain	3.5	MPa	ISO 527-1/-2
Stress at 10% strain	5.5	MPa	ISO 527-1/-2
Tensile stress at 50% strain, 1BA	10	MPa	ISO 527-1/-2
Tensile stress at 100% strain	13	MPa	ISO 527-1/-2
Stress at 300% strain	19	MPa	ISO 527-1/-2
Tensile stress at break	26	MPa	ISO 527-1/-2
Nominal strain at break	680	%	ISO 527-1/-2
Tensile strain at break	>300	%	ISO 527-1/-2
Flexural modulus	79	MPa	ISO 178
Charpy impact strength, -40°C	N	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, -40°C	110	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	N	kJ/m^2	ISO 180/1A

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Izod notched impact strength, -45°C	N	kJ/m²	ISO 180/1A
Brittleness temperature	-100	°C	ISO 974
Shore D hardness, 15s	36		ISO 48-4 / ISO 868
Shore D hardness, max	42		ISO 868
Tear strength, parallel	120	kN/m	ISO 34-1
Tear strength, normal	130	kN/m	ISO 34-1
Abrasion resistance	22	mm³	ISO 4649

Thermal properties

Melting temperature, 10°C/min	195	°C	ISO 11357-1/-3
Glass transition temperature, 1 Hz	-48	°C	ISO 6721
Vicat softening temperature, 50°C/h 10N	150	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	170	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	170	E-6/K	ISO 11359-1/-2
Effective thermal diffusivity, flow	5.44E-8	m²/s	ISO 22007-4

Flammability

FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Dissipation factor, 100Hz	70	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	125	E-4	IEC 62631-2-1
Volume resistivity	9E10	Ohm.m	IEC 62631-3-1
Surface resistivity	2E14	Ohm	IEC 62631-3-2
Electric strength	18	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	0.8	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.6	%	Sim. to ISO 62
Density	1130	kg/m³	ISO 1183
Density of melt	980	kg/m³	

Injection

Drying Recommended	yes	
Drying Temperature	110	°C
Drying Time, Dehumidified Dryer	3 - 4	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	35	°C

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Max. mould temperature	46	°C
Ejection temperature	110	°C

Extrusion

Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	230	°C

Blow Molding

Drying Temperature	≤100	°C
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	235	°C

Characteristics

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Coatable, Blow Moulding, Casting, Thermoforming
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light, Heat stabilised or stable to heat

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
General Motors	GMW17479P-TPC-ET-Type 1B	
Mercedes-Benz	DBL5562.15	
Mercedes-Benz	DBL5562.17	
Mercedes-Benz	DBL5562.31	
Mercedes-Benz	DBL5562.33	
Mercedes-Benz	DBL5562.34	
Mercedes-Benz	DBL5562.36	
Mercedes-Benz	DBL5562.50	
Stellantis	B62 0300 / 61/212E-210M/H710(grease X71 3124)/13/J8/M5/R4	01994_15_00207
VW Group	TL 522 81-A TPC-ET	
VW Group	TL 522 81-B TPC-ET	
VW Group	TL 522 81-D TPC-ET	
VW Group	VW 50123 TPC-ET	

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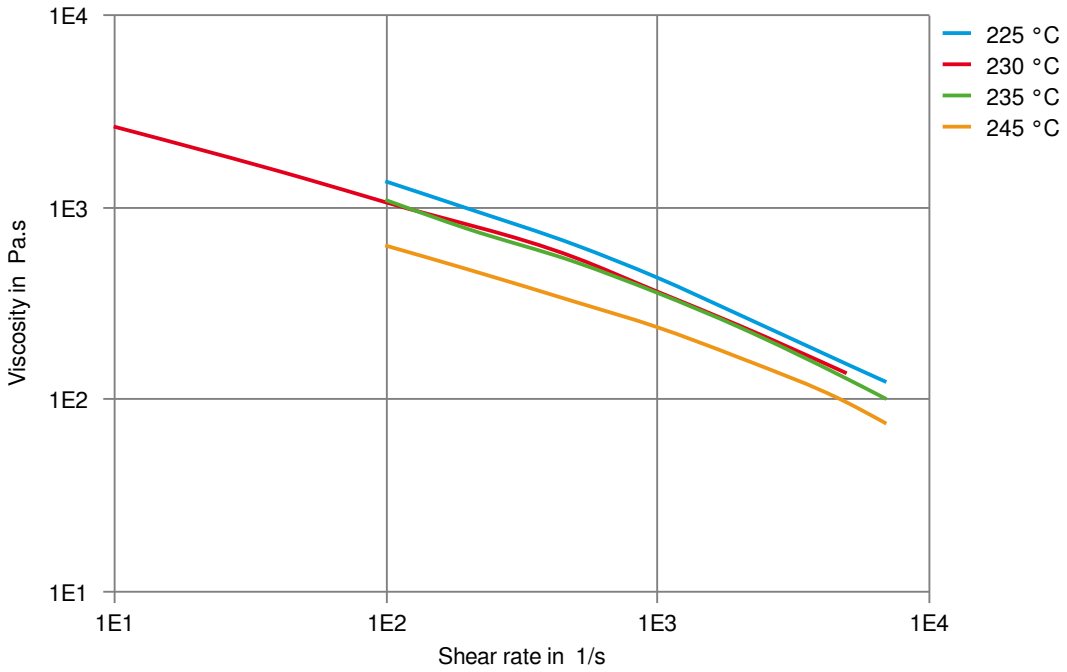
Viscosity-shear rate



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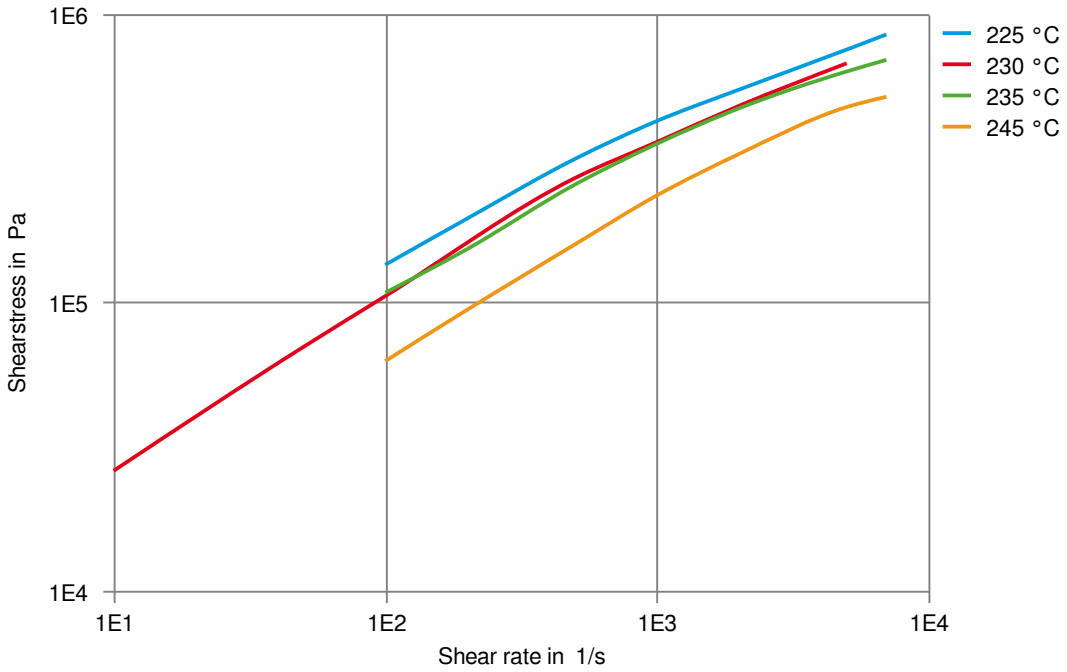
Shearstress-shear rate



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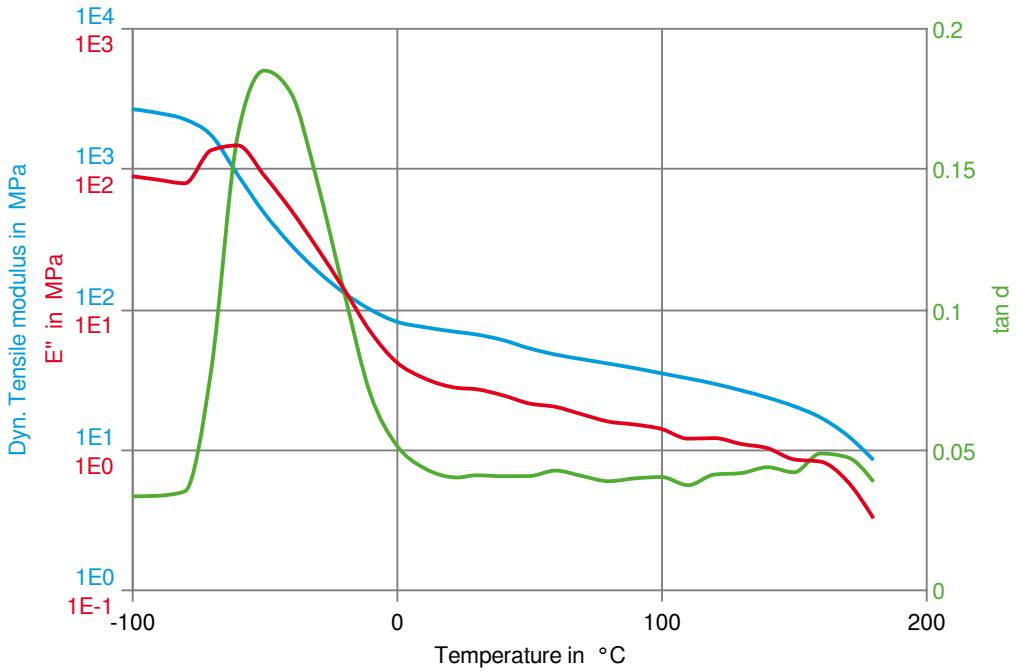
Dynamic Tensile modulus-temperature



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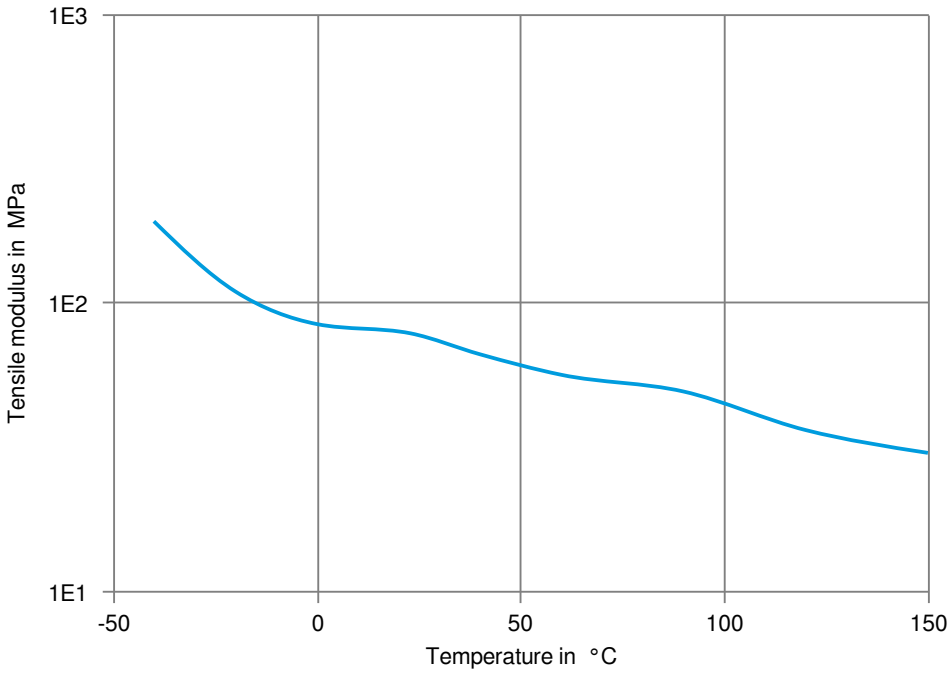
THERMOPLASTIC POLYESTER ELASTOMER

Tensile modulus-temperature



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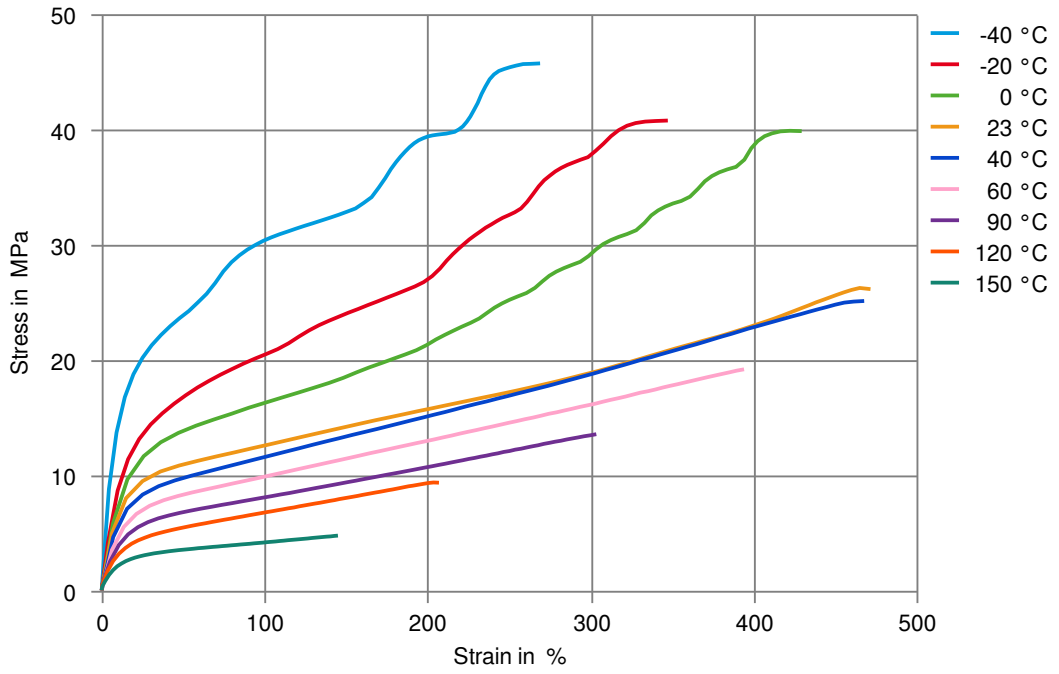
Stress-Strain (Flexible Materials)



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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

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

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

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).

Revised: 2025-04-22 Source: Celanese Materials Database