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Hytrel® HTR8936 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® HTR8936 BK320 is a high viscosity thermoplastic polyester elastomer designed for blow moulding with superior acidity resistance and heat aging.

Product information

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

Rheological properties

Melt mass-flow rate	3	g/10min	ISO 1133
Melt mass-flow rate, Temperature	240	°C	
Melt mass-flow rate, Load	10	kg	
Moulding shrinkage, parallel	1.9	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.8	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	173	MPa	ISO 527-1/-2
Stress at 5% elongation	7[1]	MPa	ISO 527-1/-2 or ISO 37
Stress at 10% elongation	10[1]	MPa	ISO 527-1/-2 or ISO 37
Tensile stress at 50% elongation	17[1]	MPa	ISO 527-1/-2 or ISO 37
Tensile stress at break	30[1]	MPa	ISO 527-1/-2
Tensile strain at break	>300[1]	%	ISO 527-1/-2
Flexural modulus	176	MPa	ISO 178
Charpy notched impact strength, -40 °C	124	kJ/m²	ISO 179/1eA
Izod notched impact strength, -40 °C	94.0	kJ/m²	ISO 180/1A
Poisson's ratio	0.48		
Brittleness temperature	-70	°C	ISO 974
Shore D hardness, 15s	50		ISO 48-4 / ISO 868
Tear strength, parallel	140	kN/m	ISO 34-1
Tear strength, normal	130	kN/m	ISO 34-1

[1]: measured on 1BA specimen pulled at 50mm/min

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Thermal properties

Melting temperature, 10 °C/min	205	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	44	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	64	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 10N	180	°C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23 °C	192	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	216	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160 °C	234	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23 °C	172	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	199	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160 °C	220	E-6/K	ISO 11359-1/-2
Thermal conductivity, flow	0.24	W/(m K)	ISO 22007-2
Thermal conductivity of melt	0.23	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2300[2]	J/(kg K)	ISO 22007-4
Specific heat capacity solid	1800[3]	J/(kg K)	ISO 22007-4

[2]: at 230 °C

[3]: at 20 °C

Flammability

FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38	mm/min	ISO 3795 (FMVSS 302)

Physical/Other properties

Humidity absorption, 2mm	0.25	%	Sim. to ISO 62
Water absorption, 2mm	0.75	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.75	%	Sim. to ISO 62
Density	1180	kg/m³	ISO 1183
Density of melt	1000	kg/m³	

Blow Molding

Drying Recommended	yes	
Drying Temperature	80 - 90	°C
Drying Time, Dehumidified Dryer	5 - 6	h
Processing Moisture Content	≤0.03	%
Melt Temperature Optimum	235	°C
Melt Temperature Range	225 - 240	°C
Swell ratio	2.3	
Mold Temperature Optimum	50	°C
Mold Temperature Range	30 - 70	°C

Characteristics

Processing	Injection Moulding, Extrusion, Blow Moulding, Thermoforming
Delivery form	Pellets
Special characteristics	U.V. stabilised or stable to weather, Heat stabilised or stable to heat, Hydrolysis resistant

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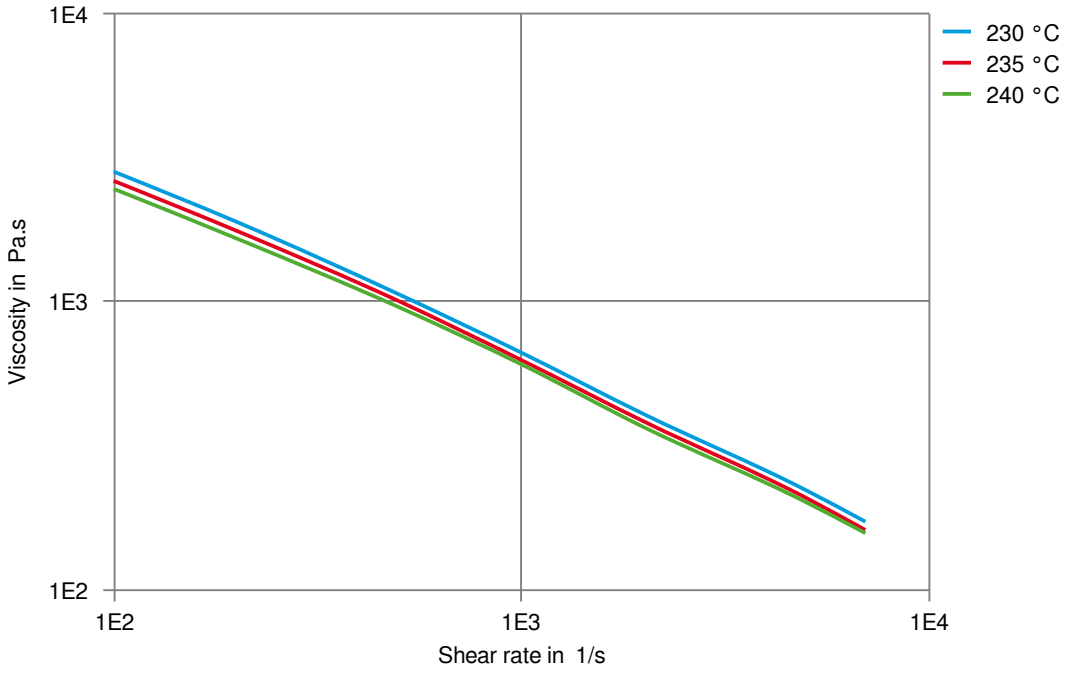
Automotive

OEM	STANDARD
VW Group	VW 50123 TPC-ET

Viscosity-shear rate



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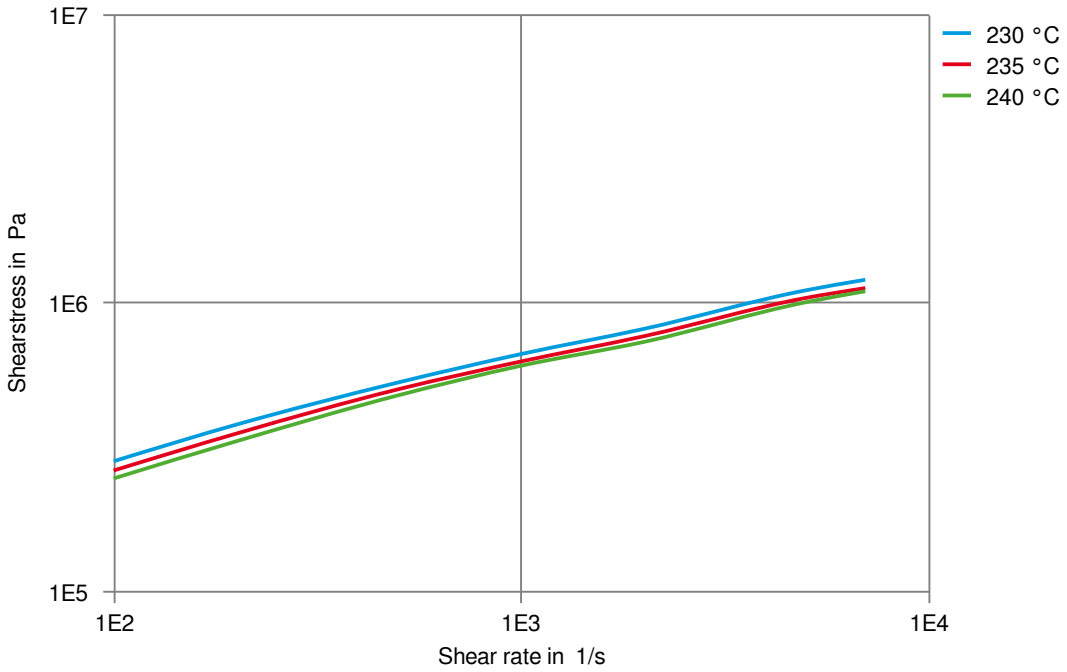
Shearstress-shear rate



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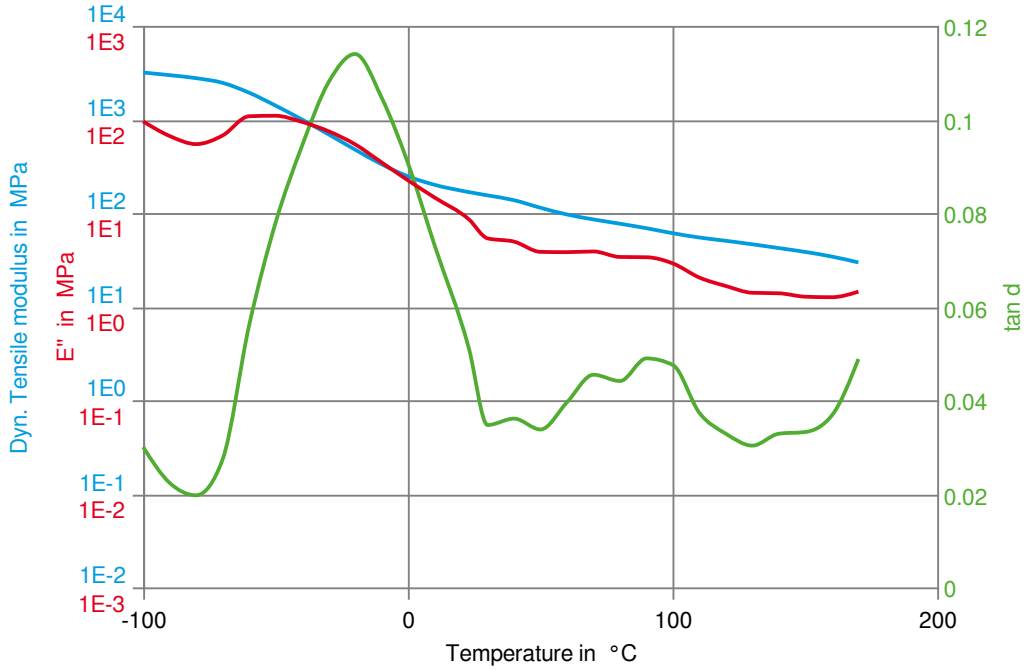
Dynamic Tensile modulus-temperature



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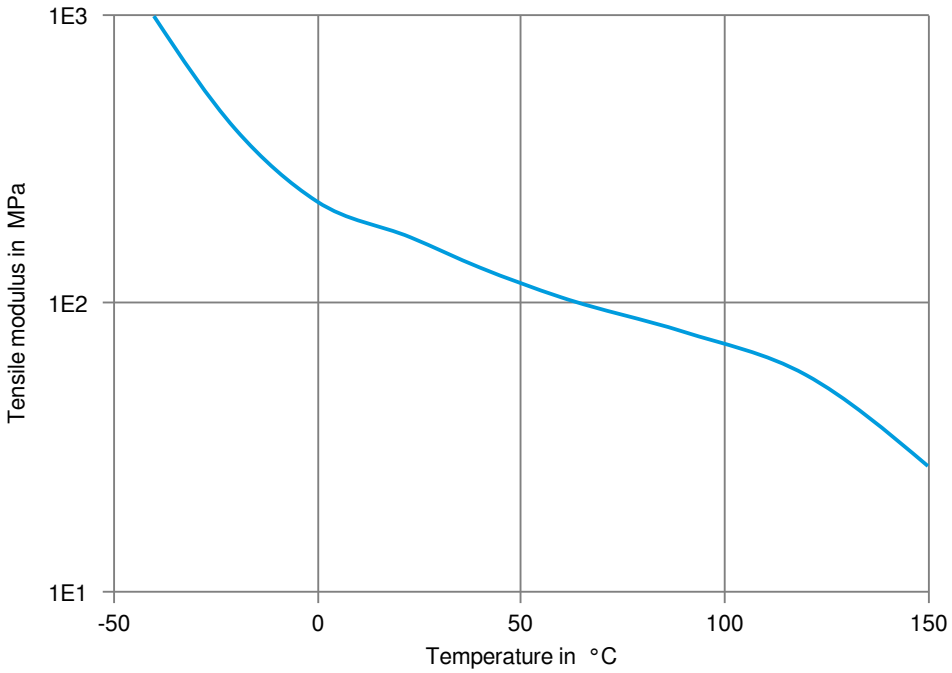
Tensile modulus-temperature



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Stress-Strain (Flexible Materials)