



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® HTR8341C BK320 is designed for blow molding or processing techniques requiring high melt viscosity. It has nominal hardness of 40D, is pigmented black with fine particle size carbon black, and contains a general purpose stabilizer. It shows excellent mechanical properties at elevated temperatures, superior fatigue, abrasion, and grease resistance.

Product information

Product information		
Resin Identification	TPC-ET	ISO 1043
Part Marking Code	>TPC-ET<	ISO 11469
Rheological properties		
Melt mass-flow rate	0.9 ^[1] g/10min	ISO 1133
Melt mass-flow rate, Temperature	230 °C	
Melt mass-flow rate, Load	2.16 kg	
Moulding shrinkage, parallel	1.6 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.5 %	ISO 294-4, 2577
[1]: 10 g/10min at 230 Celsius @10kg		
Typical mechanical properties		
Tensile modulus	80 MPa	ISO 527-1/-2
01 1400/ 1 1	0 MD	100 507 4/0

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Stress at 10% strain	6	MPa	ISO 527-1/-2
Tensile stress at 50% strain, 1BA	2	MPa	ISO 527-1/-2
Tensile stress at 100% strain	3	MPa	ISO 527-1/-2
Stress at 300% strain	3	MPa	ISO 527-1/-2
Tensile stress at break 2	8	MPa	ISO 527-1/-2
Nominal strain at break 35	0	%	ISO 527-1/-2
Tensile strain at break >30	0	%	ISO 527-1/-2
Flexural modulus 8	0	MPa	ISO 178
Charpy impact strength, 23°C	Ν	kJ/m²	ISO 179/1eU
Charpy impact strength, -30 °C	Ν	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	Ν	kJ/m²	ISO 179/1eA

Charpy notched impact strength, -40 $^{\circ}$ C N kJ/m² ISO 179/1eA Tensile notched impact strength, 23 $^{\circ}$ C 300 kJ/m² ISO 8256/1 lzod notched impact strength, 23 $^{\circ}$ C N kJ/m² ISO 180/1A

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Poisson's ratio Brittleness temperature Shore D hardness, 15s Shore D hardness, max Tear strength, parallel Tear strength, normal [2]: -77°C measured according to ISO 812 / 2011		°C kN/m kN/m	ISO 974 ISO 48-4 / ISO 868 ISO 868 ISO 34-1 ISO 34-1
Tribological properties			
Coefficient of static friction, against steel	0.2		ISO 8295
Thermal properties			
Melting temperature, 10 ° C/min	207	°C	ISO 11357-1/-3
Glass transition temperature, 1 Hz		°C	ISO 6721
Freezing temperature, 10°C/min	167		ISO 11357-1/-2
Temperature of deflection under load, 1.8 MPa		°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa		°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 10N	158		ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C		E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	170	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, normal, -40-23°C	240	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),	200	E-6/K	ISO 11359-1/-2
normal			
Thermal conductivity of melt		W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	5.44E-8		ISO 22007-4
Specific heat capacity of melt	2100	J/(kg K)	ISO 22007-4
Flammability			
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm		mm/min	ISO 3795 (FMVSS 302)
Floatrical properties			
Electrical properties			
Dissipation factor, 100Hz		E-4	IEC 62631-2-1
Dissipation factor, 1MHz		E-4	IEC 62631-2-1
Volume resistivity		Ohm.m	IEC 62631-3-1
Surface resistivity	4E14		IEC 62631-3-2
Electric strength		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	0.5		Sim. to ISO 62
Density	1140	kg/m³	ISO 1183
Density of melt		kg/m³	

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Injection

Drying Recommended	yes
Drying Temperature	100 °C
Drying Time, Dehumidified Dryer	3-4 h
Processing Moisture Content	≤0.08 %
Melt Temperature Optimum	240 °C
Min. melt temperature	230 °C
Max. melt temperature	250 °C
Mold Temperature Optimum	45 °C
Min. mould temperature	40 °C
Max. mould temperature	50 °C
Ejection temperature	154 °C

Blow Molding

Drying Temperature	≤110 °C
Processing Moisture Content	≤0.02 %

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

Chery Q/SQR S1-111-2012

General Motors GMW17479P-TPC-ET-Type 1A

Hyundai MS220-08 Type A Mercedes-Benz DBL5562.15 DBL5562.17 Mercedes-Benz Mercedes-Benz DBL5562.31 Mercedes-Benz DBL5562.33 Mercedes-Benz DBL5562.34 Mercedes-Benz DBL5562.36 Mercedes-Benz DBL5562.50 TPC

Stellantis B62 0300 / 61/213M-215E 01994_15_00077

VW Group (-)/13/J2/M5/Q1/R4/Z9

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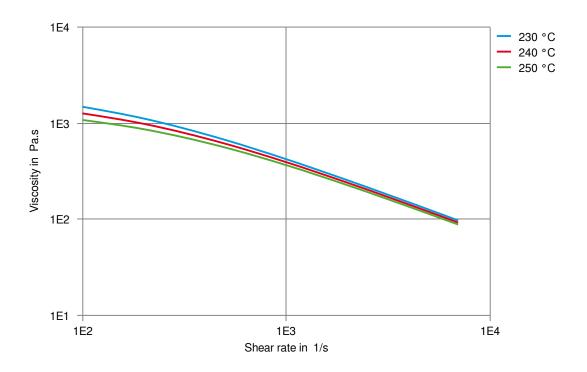
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Viscosity-shear rate



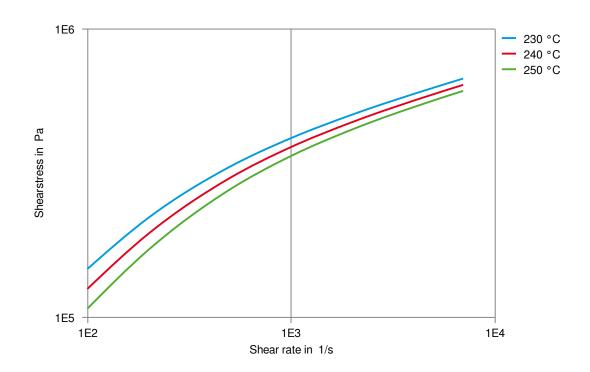
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Shearstress-shear rate



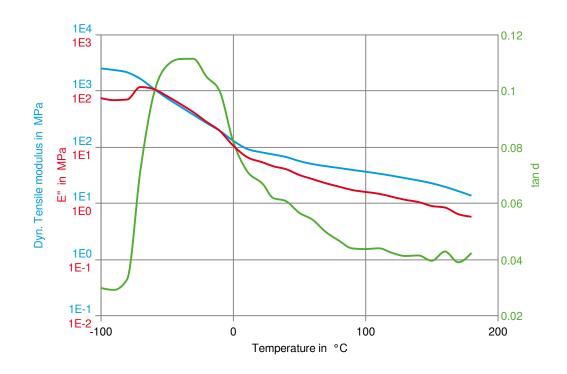
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Hytrel® HTR8341C BK320 THERMOPLASTIC POLYESTER ELASTOMER

Dynamic Tensile modulus-temperature



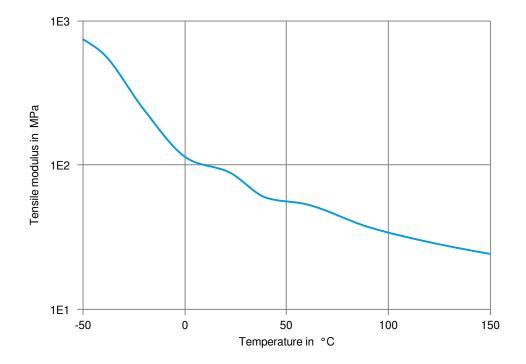
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Hytrel® HTR8341C BK320 THERMOPLASTIC POLYESTER ELASTOMER

Tensile modulus-temperature



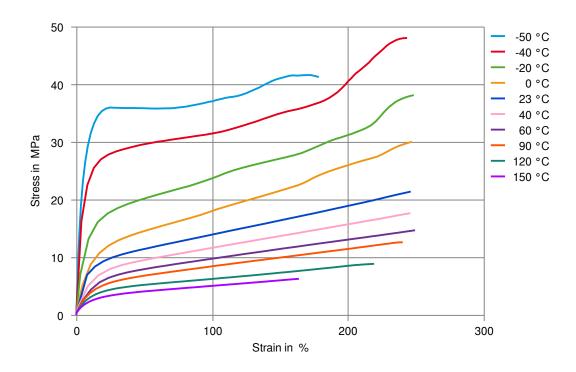
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Stress-Strain (Flexible Materials)



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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
- 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 Automatic hypoid-gear oil Shell Donax TX, 135°C

Standard Fuels

- ★ 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
- **★** 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

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).

x 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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