

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® G4074 is a low modulus grade with nominal hardness of 40D. It contains discoloring stabilizer. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion.

Typical applications:

Hose and tubing, hose jackets, wire and cable jackets, film and sheeting, moulded products. Not suited for light-colored finished products.

Product information	
Resin Identification TPC-ET	ISO 1043
Part Marking Code >TPC-ET<	ISO 11469
Rheological properties	
Melt volume-flow rate 5	cm ³ /10min ISO 1133
Temperature 190	°C
Load 2.16	kg
Melt mass-flow rate 5.3	g/10min ISO 1133
Melt mass-flow rate, Temperature 190	°C
Melt mass-flow rate, Load 2.16	kg
Moulding shrinkage, parallel 0.8	% ISO 294-4, 2577
Moulding shrinkage, normal 0.8	% ISO 294-4, 2577
Typical mechanical properties	
Tensile modulus 55	MPa ISO 527-1/-2
Stress at 5% strain 2.5	MPa ISO 527-1/-2
Stress at 10% strain 4.4	MPa ISO 527-1/-2
Tensile stress at 50% strain, 1BA 8	MPa ISO 527-1/-2
Tensile stress at break 20	MPa ISO 527-1/-2
Nominal strain at break 360	% ISO 527-1/-2
Tensile strain at break 250	% ISO 527-1/-2
Flexural modulus 65	MPa ISO 178
Shear Modulus 16	MPa ISO 6721
Tensile creep modulus, 1000h 35	MPa ISO 899-1
Charpy impact strength, 23°C N	kJ/m ² ISO 179/1eU

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Charpy impact strength, -30°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Charpy notched impact strength, -40°C Puncture - maximum force, -30°C Puncture energy, -30°C Izod notched impact strength, 23°C Izod notched impact strength, -40°C Brittleness temperature Shore D hardness, 15s Shore D hardness, max Tear strength, parallel Tear strength, normal	N N 3000 37 N -60 33 40 86 96	J kJ/m² kJ/m² °C kN/m kN/m	ISO 179/1eU ISO 179/1eA ISO 179/1eA ISO 179/1eA ISO 6603-2 ISO 6603-2 ISO 180/1A ISO 180/1A ISO 974 ISO 48-4 / ISO 868 ISO 34-1 ISO 34-1
Abrasion resistance	50	mm ³	ISO 4649
Thermal properties			
Melting temperature, 10°C/min	170	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-45		ISO 11357-1/-3
Vicat softening temperature, 50°C/h 10N	115		ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	220	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	210	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, normal, -40-23°C	180	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	0.26	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	5.44E-8	m²/s	ISO 22007-4
Specific heat capacity of melt	2050	J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm		°Č	UL 746B
RTI, electrical, 1.5mm	90	°C	UL 746B
RTI, electrical, 3.0mm	90	°C	UL 746B
RTI, impact, 0.75mm	50	°C	UL 746B
RTI, impact, 1.5mm	85	°C	UL 746B
RTI, impact, 3.0mm	85	°C	UL 746B
RTI, strength, 0.75mm	50	°C	UL 746B
RTI, strength, 1.5mm	85	°C	UL 746B
RTI, strength, 3.0mm	85	°C	UL 746B
TGA curve	available		ISO 11359-1/-2
Flammability			
Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested		mm	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h		class	IEC 60695-11-10
Thickness tested		mm	IEC 60695-11-10
UL recognition	yes		UL 94
Oxygen index	20	%	ISO 4589-1/-2
FMVSS Class	B	, •	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm		mm/min	ISO 3795 (FMVSS 302)
	51		

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Electrical properties Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength	2E13	E-4 Ohm.m	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1
Physical/Other properties			
Density Density of melt		kg/m³ kg/m³	ISO 1183
Film Properties			
WVTR, 23°C/85%r.h. Oxygen transmission rate, 23°C/85% Thickness of specimen		g/(m ^{2*} d) cm ³ /(m ^{2*} d*bar) mm	DIS 15106-1/-2 DIS 15105-1/-2
VDA Properties			
Odour	4	class	VDA 270
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Mold Temperature Mold Temperature Max. mould temperature Max. mould temperature Ejection temperature	30 50	h % °C °C	
Extrusion			
Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Melt Temperature Range	80 2 - 3 ≤0.06 195 185 - 200	% °C	
Characteristics			
Processing	Injection Moulding, Film Extrusion	, Extrusion, Sheet Extrusion	n, Other Extrusion,

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Casting, Thermoforming
Delivery form	Pellets
Special characteristics	Heat stabilised or stable to heat
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Hytrel[®] G4074 THERMOPLASTIC POLYESTER ELASTOMER

Additional information

Profile extrusion

PREPROCESSING

Drying temperature = $80 \degree C$ Drying time, dehumidified dryer = 2-3 h Processing moisture content = <0.06 %

PROCESSING

Melt temperature optimum = 195 °C Melt temperature range = 185-200 °C

Automotive

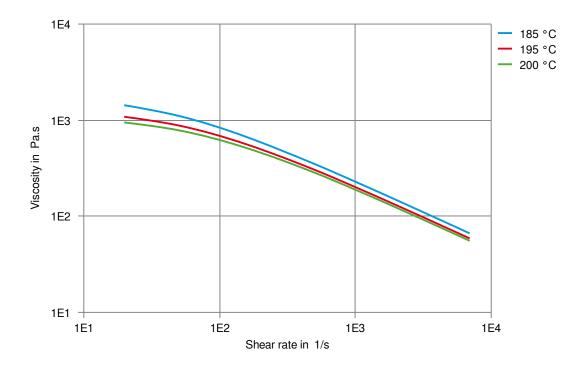
OEM Bosch General Motors Stellantis - Chrysler STANDARD N28 BN34-OX035 GMW17187P-TPC-ET-Type 2 MS-DB-448 / CPN-3095 ADDITIONAL INFORMATION

Black





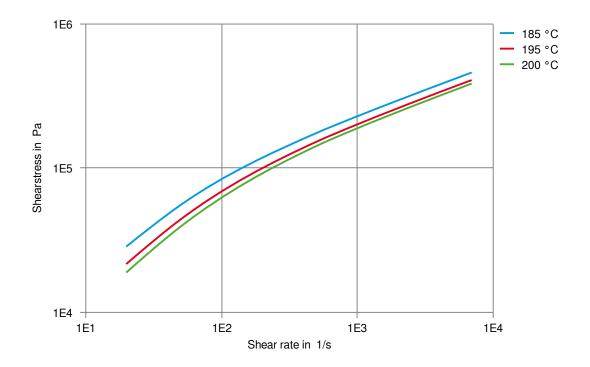
Viscosity-shear rate







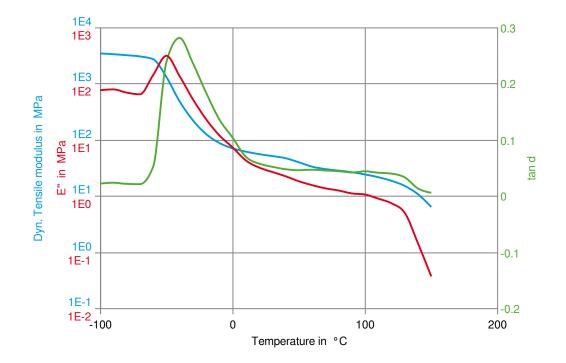
Shearstress-shear rate





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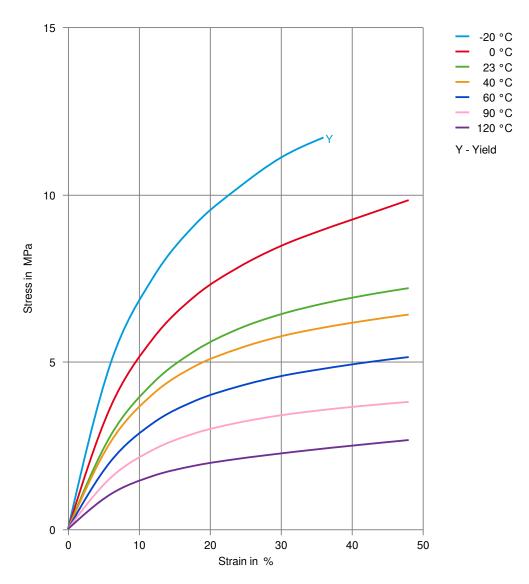
Dynamic Tensile modulus-temperature





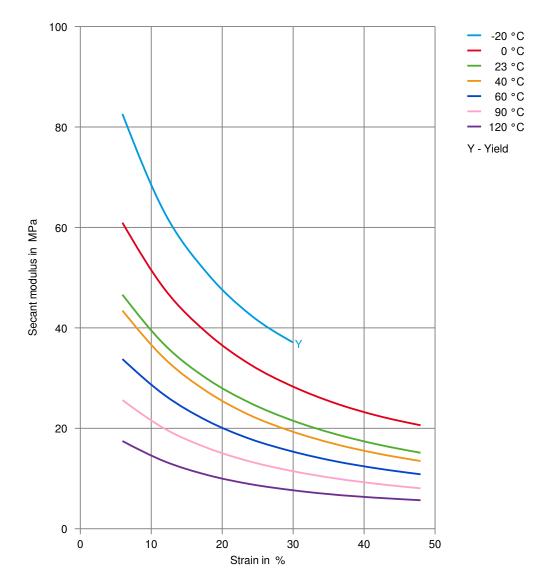


Stress-strain





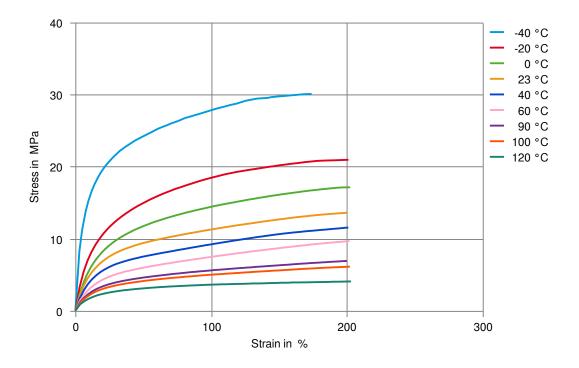
Secant modulus-strain







Stress-Strain (Flexible Materials)





Hytrel[®] G4074 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
- X Nitric Acid (40% by mass), 23°C
- X 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

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
- X SAE 80/90 hypoid-gear oil, 130 °C
- ✓ Insulating Oil, 23°C

Standard Fuels

- × ISO 1817 Liquid 1 E5, 60°C
- ¥ 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
- X 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

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THERMOPLASTIC POLYESTER ELASTOMER

- ✓ 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
- X 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).

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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