



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® 6359FG is a high performance thermoplastic polyester elastomer developed for applications in contact with food.

FOOD CONTACT

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. For details, individual compliance statements are available from our representative.

Typical applications:

Conveyor belts and tubing, containers with good permeation resistance to gases and liquids.

Product information

1 Toddot imorniation			
Resin Identification Part Marking Code	TPC-ET >TPC-ET<		ISO 1043 ISO 11469
Rheological properties			
Melt volume-flow rate	8.5	cm ³ /10min	ISO 1133
Temperature	230	°C	
Load	2.16	kg	
Melt mass-flow rate	9	g/10min	ISO 1133
Melt mass-flow rate, Temperature	230	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	1.5	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.5	%	ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus	260	MPa	ISO 527-1/-2
Tensile stress at yield	19	MPa	ISO 527-1/-2
Tensile strain at yield	27	%	ISO 527-1/-2
Stress at 5% strain	12	MPa	ISO 527-1/-2
Stress at 10% strain	15	MPa	ISO 527-1/-2
Tensile stress at break	41	MPa	ISO 527-1/-2
Tensile strain at break	>300	%	ISO 527-1/-2

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Charpy impact strength, 23°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Charpy notched impact strength, -40°C Izod notched impact strength, 23°C Izod notched impact strength, -40°C Poisson's ratio Brittleness temperature Shore D hardness, 15s Shore D hardness, max Tear strength, parallel Tear strength, normal [P]: Partial Break	110 ^[P] 25 15 81 19.0 0.48 -100 58 63 160	kJ/m² kJ/m² kJ/m² kJ/m² kJ/m² kJ/m² c kJ/m²	ISO 179/1eU ISO 179/1eA ISO 179/1eA ISO 179/1eA ISO 180/1A ISO 180/1A ISO 974 ISO 48-4 / ISO 868 ISO 868 ISO 34-1 ISO 34-1
Thermal properties			
Melting temperature, 10°C/min Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa Temperature of deflection under load, 0.45 MPa Vicat softening temperature, 50°C/h 50N Vicat softening temperature, 50°C/h 10N Thermal conductivity of melt Effective thermal diffusivity, flow Specific heat capacity of melt TGA curve	45 85 100 195 0.14 5.44E-8	°C °C °C °C W/(m K)	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 ISO 306 ISO 306 ISO 22007-2 ISO 22007-4 ISO 22007-4 ISO 11359-1/-2
Flammability			
FMVSS Class Burning rate, Thickness 1 mm	B <80	mm/min	ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
Electrical properties			
Comparative tracking index	600		IEC 60112
Physical/Other properties Humidity absorption, 2mm Water absorption, 2mm Density Density of melt			Sim. to ISO 62 Sim. to ISO 62 ISO 1183
VDA Properties			
Odour Fogging, G-value (condensate)		class mg	VDA 270 ISO 6452

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Injection

Drying Recommended	yes	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	2 - 3	h
Processing Moisture Content	≤0.08	%
Melt Temperature Optimum	240	°C
Min. melt temperature	235	°C
Max. melt temperature	260	°C
Mold Temperature Optimum	45	°C
Min. mould temperature	45	°C
Max. mould temperature	55	°C
Hold pressure range	≤70	MPa

Extrusion

Drying Temperature	90 - 110	°C
Drying Time, Dehumidified Dryer	2 - 3	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	230	°C
Melt Temperature Range	225 - 240	°C

Characteristics

Processing Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion,

Casting

Delivery form Pellets

Special characteristics Light stabilised or stable to light

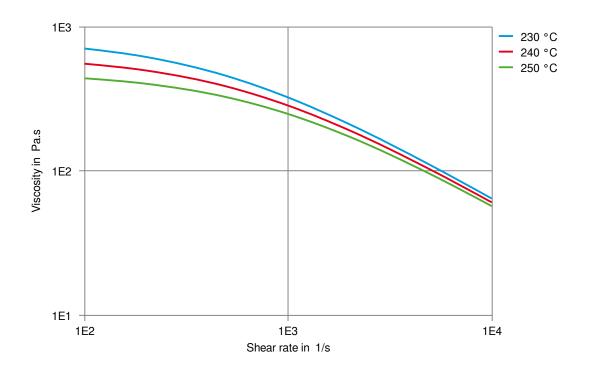
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Viscosity-shear rate



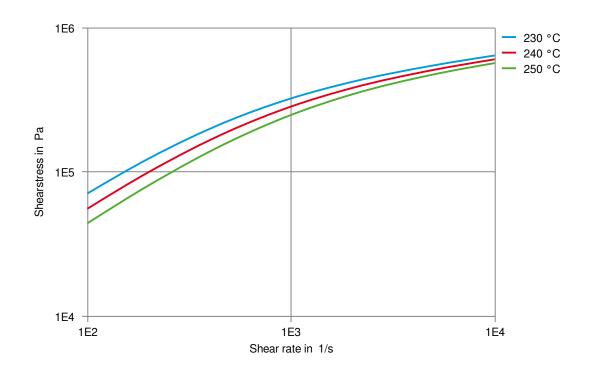
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Shearstress-shear rate



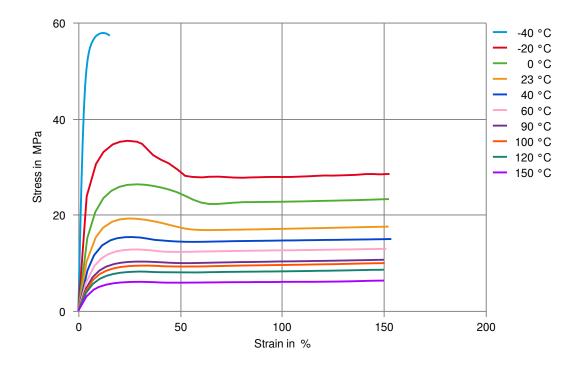
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Stress-Strain (Flexible Materials)



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Hytrel® 6359FG NC010

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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
- ★ SAE 10W40 multigrade motor oil, 130°C
- X SAE 80/90 hypoid-gear oil, 130 °C
- ✓ Insulating Oil, 23°C

Standard Fuels

- X 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

Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ★ Sodium Hypochlorite solution (10% by mass), 23°C

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

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