Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

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

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

Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

THERMOPLASTIC POLYESTER ELASTOMER

Charpy impact strength, 23 °C	N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23 °C	110[P]	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30 °C	25	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40 °C	15	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23 °C	81	kJ/m²	ISO 180/1A
Izod notched impact strength, -40 °C	19.0	kJ/m²	ISO 180/1A
Poisson's ratio	0.48		
Brittleness temperature	-100	°C	ISO 974
Shore D hardness, 15s	58		ISO 48-4 / ISO 868
Shore D hardness, max	63		ISO 868
Tear strength, parallel	160	kN/m	ISO 34-1
Tear strength, normal	170	kN/m	ISO 34-1

[P]: Partial Break

Thermal properties

Melting temperature, 10 °C/min	211	°C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	-5	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	45	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	85	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	100	°C	ISO 306
Vicat softening temperature, 50 °C/h 10N	195	°C	ISO 306
Thermal conductivity of melt	0.14	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	5.44E-8	m²/s	ISO 22007-4
Specific heat capacity of melt	2160	J/(kg K)	ISO 22007-4
TGA curve	available		ISO 11359-1/-2

Flammability

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

Electrical properties

Comparative tracking index	600		IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.6	%	Sim. to ISO 62
Density	1220	kg/m³	ISO 1183
Density of melt	1040	kg/m³	

VDA Properties

Odour	2.5	class	VDA 270
Fogging, G-value (condensate)	0.1	mg	ISO 6452

Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

THERMOPLASTIC POLYESTER ELASTOMER

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

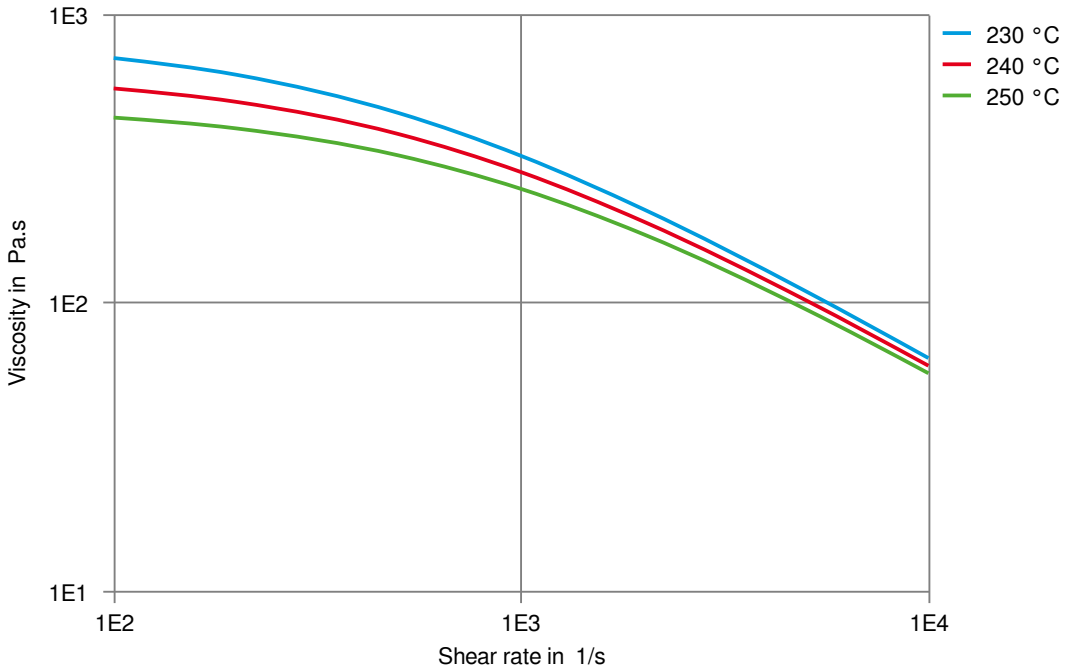
Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Casting
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light

Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

THERMOPLASTIC POLYESTER ELASTOMER

Viscosity-shear rate

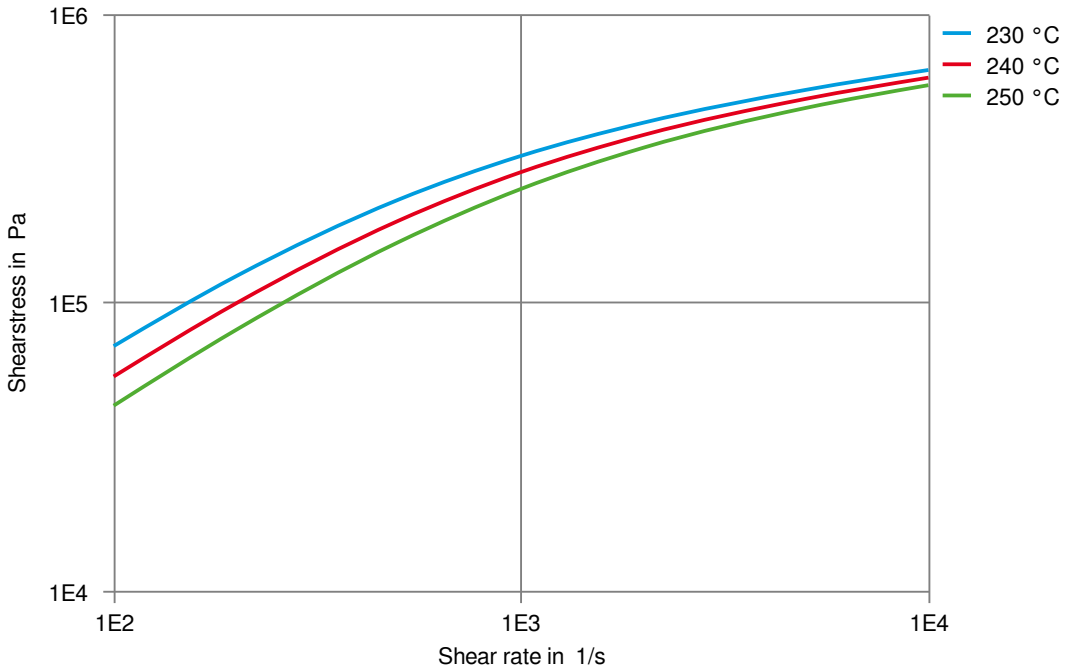


Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

THERMOPLASTIC POLYESTER ELASTOMER

Shearstress-shear rate

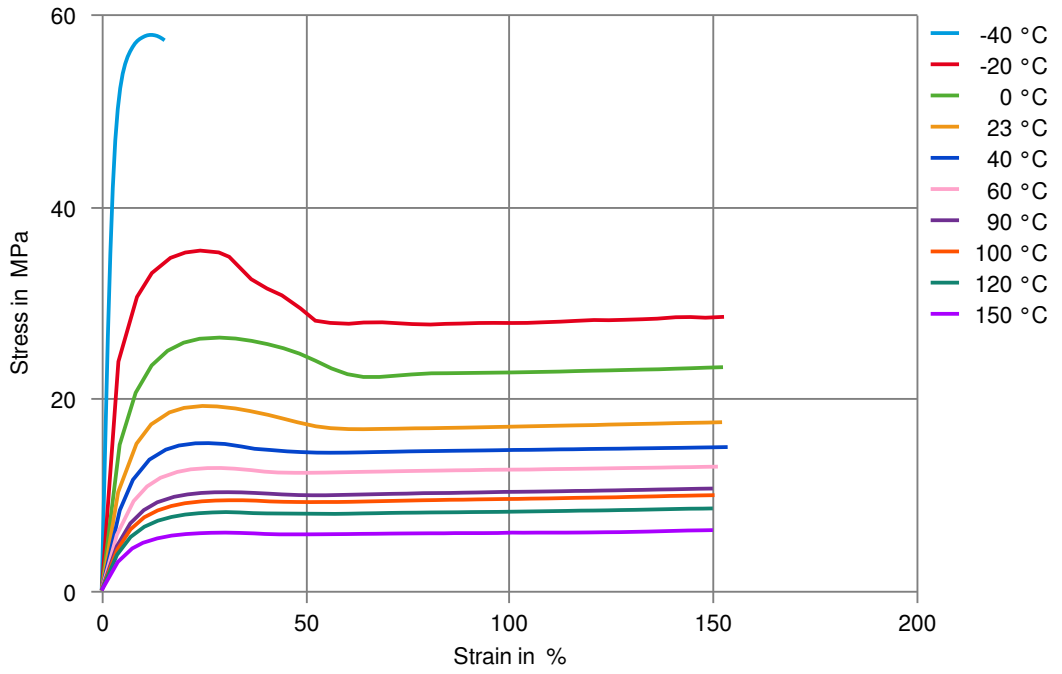


Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

THERMOPLASTIC POLYESTER ELASTOMER

Stress-Strain (Flexible Materials)



Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

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
- ✘ 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

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

Salt solutions

- ✔ Sodium Chloride solution (10% by mass), 23°C
- ✘ Sodium Hypochlorite solution (10% by mass), 23°C

Celanese
The chemistry inside innovation™

Hytrel® 6359FG NC010

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
- ✘ 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