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Hytrel® DYM350BK

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® DYM350BK is a medium modulus polyester alloy suited for injection molding of Air Bag Deployment Doors. It has a nominal durometer hardness of 55D and contains fine particle size carbon black.

Typical applications:
Air bag deployment door.

Product information

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

Rheological properties

Melt volume-flow rate	14	cm^3/10min	ISO 1133
Temperature	240	°C	
Load	2.16	kg	
Melt mass-flow rate	15	g/10min	ISO 1133
Melt mass-flow rate, Temperature	240	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	1.4	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.5	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	370	MPa	ISO 527-1/-2
Tensile stress at yield	15	MPa	ISO 527-1/-2
Tensile strain at yield	43	%	ISO 527-1/-2
Stress at 5% strain	10.5	MPa	ISO 527-1/-2
Stress at 10% strain	13	MPa	ISO 527-1/-2
Tensile stress at 50% strain, 1BA	16	MPa	ISO 527-1/-2
Tensile stress at break	35	MPa	ISO 527-1/-2
Nominal strain at break	600	%	ISO 527-1/-2
Tensile strain at break	>300	%	ISO 527-1/-2
Flexural modulus	430	MPa	ISO 178
Charpy impact strength, 23°C	N	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, -30°C	120[P]	kJ/m^2	ISO 179/1eA

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Charpy notched impact strength, -40 °C	130	kJ/m²	ISO 179/1eA
Puncture - maximum force, 23 °C	3200	N	ISO 6603-2
Puncture energy, 23 °C	39	J	ISO 6603-2
Brittleness temperature	-100	°C	ISO 974
Shore D hardness, 15s	50		ISO 48-4 / ISO 868
Shore D hardness, max	55		ISO 868
Tear strength, parallel	130	kN/m	ISO 34-1
Tear strength, normal	100	kN/m	ISO 34-1

[P]: Partial Break

Thermal properties

Melting temperature, 10 °C/min	222	°C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	-55	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	40	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	50	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 10N	170	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	180	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	180	E-6/K	ISO 11359-1/-2
Effective thermal diffusivity, flow	5.44E-8	m²/s	ISO 22007-4
TGA curve	available		ISO 11359-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	3	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Oxygen index	22	%	ISO 4589-1/-2
FMVSS Class	SE/B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	23	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4.6		IEC 62631-2-1
Relative permittivity, 1MHz	4.4		IEC 62631-2-1
Dissipation factor, 100Hz	70	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	230	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	5E14	Ohm	IEC 62631-3-2
Electric strength	20	kV/mm	IEC 60243-1

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Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.6	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.6	%	Sim. to ISO 62
Density	1180	kg/m³	ISO 1183
Density of melt	1000	kg/m³	

VDA Properties

Emission of organic compounds	2.7	µgC/g	VDA 277
Odour	5	class	VDA 270

Injection

Drying Recommended	yes	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Processing Moisture Content	≤0.05	%
Melt Temperature Optimum	250	°C
Min. melt temperature	235	°C
Max. melt temperature	260	°C
Mold Temperature Optimum	35	°C
Min. mould temperature	25	°C
Max. mould temperature	45	°C
Ejection temperature	157	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Mercedes-Benz	DBL5562.50 TPC	
Stellantis - Chrysler	MS-DB-585 / CPN-3887	Black

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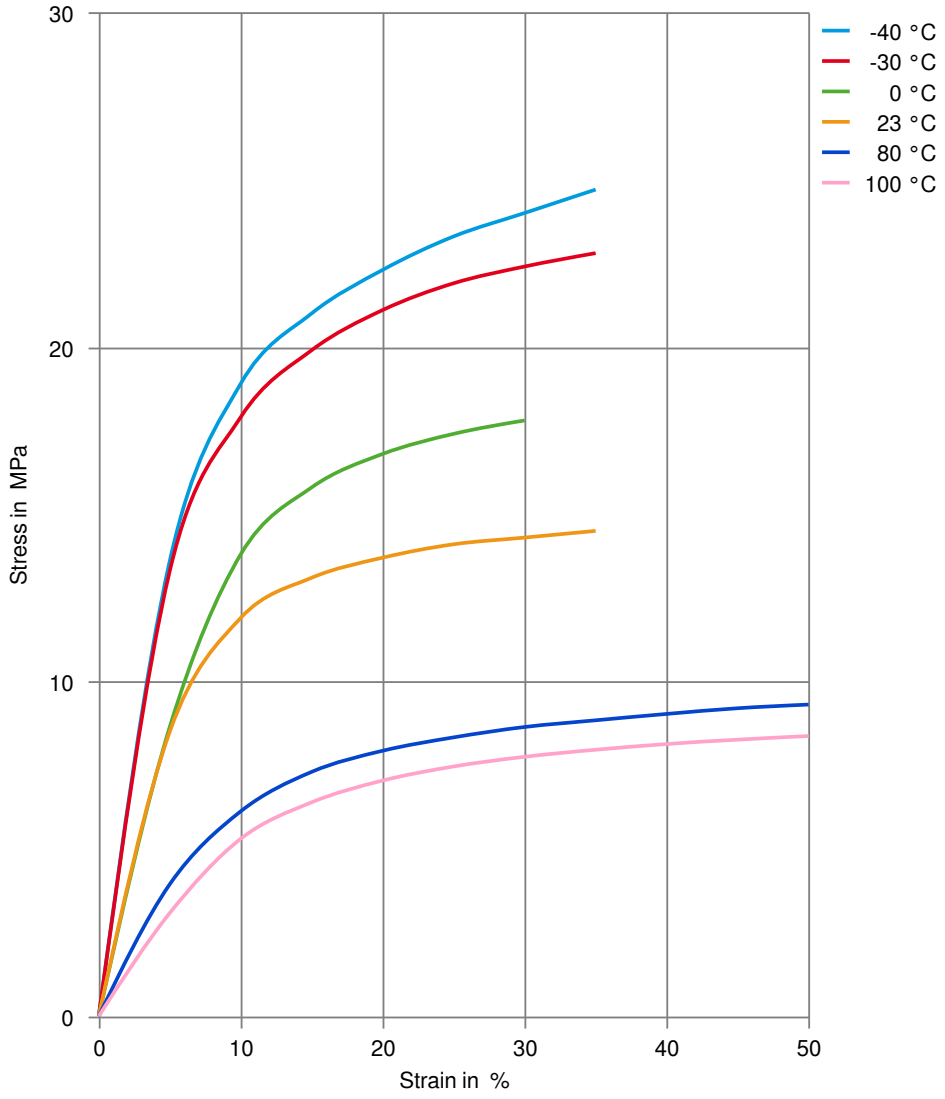
Stress-strain



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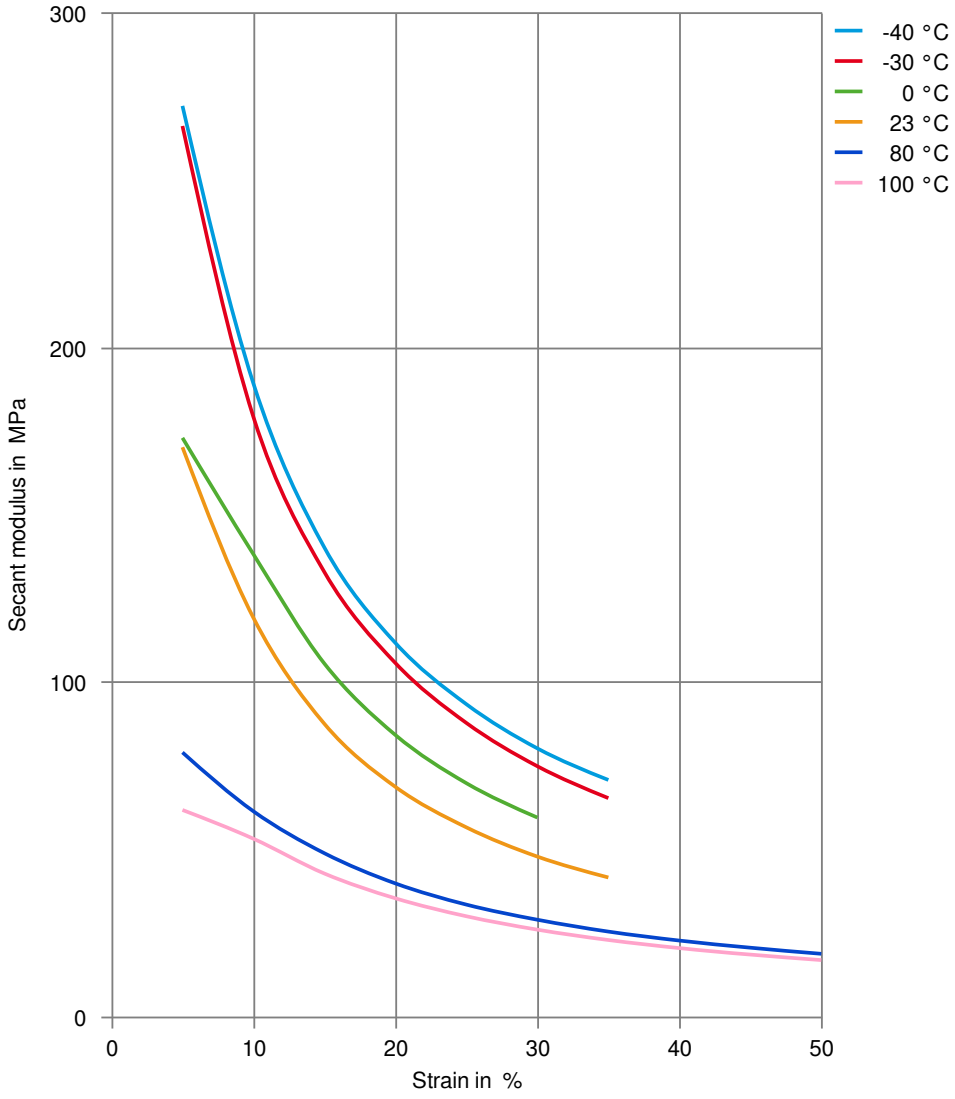
Secant modulus-strain



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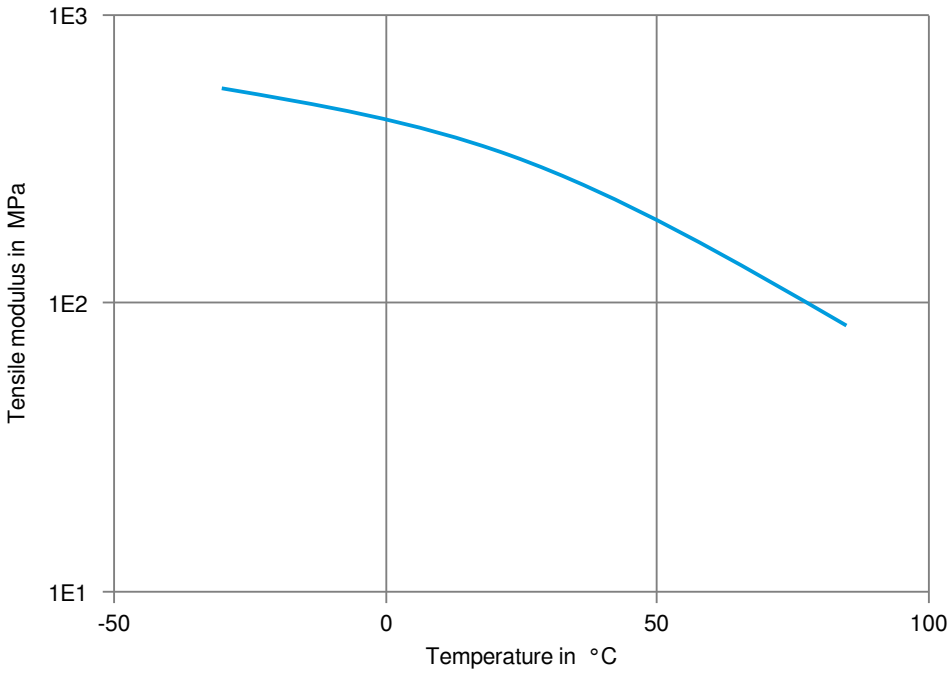
Tensile modulus-temperature



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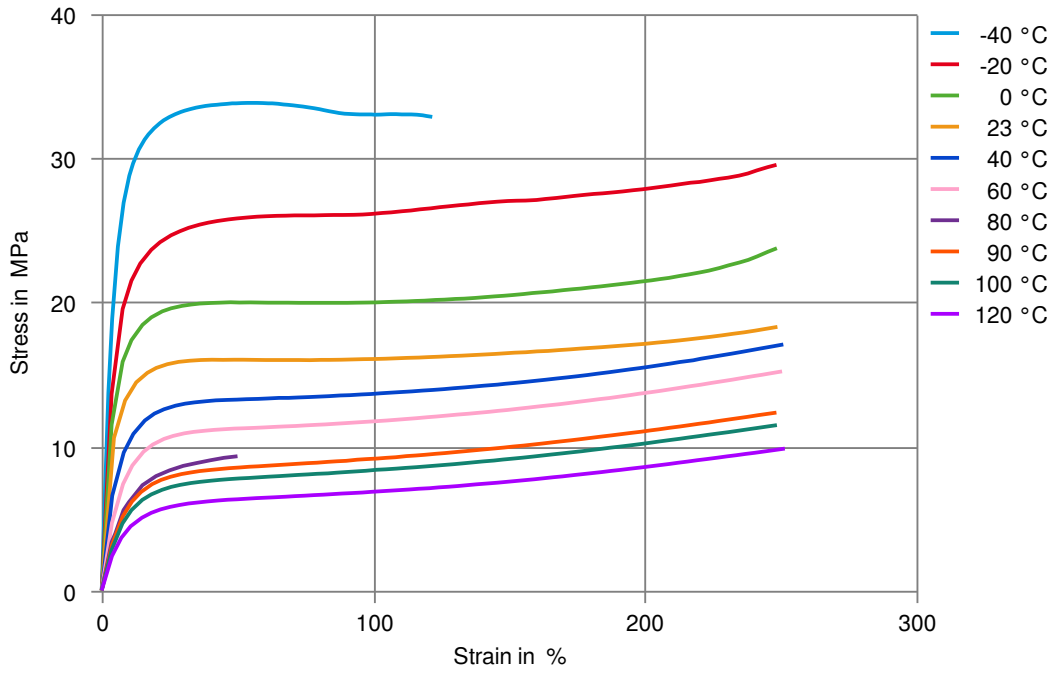
Stress-Strain (Flexible Materials)



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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
- ✘ 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

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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
- ✘ 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: 2025-04-18 Source: Celanese Materials Database