



# Hytrel® DYM250S BK472

## 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, DuPont recommends, 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® DYM250S BK472 is a medium modulus resin suited for injection molding of Air Bag Deployment Doors. It has a nominal durometer hardness of 49D 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	13 cm <sup>3</sup> /10min	ISO 1133
Melt mass-flow rate	13 g/10min	ISO 1133
Temperature	240 °C	ISO 1133
Load	2.16 kg	ISO 1133
Melt mass-flow rate, Temperature	240 °C	ISO 1133
Melt mass-flow rate, Load	2.16 kg	ISO 1133
Moulding shrinkage, parallel	1.2 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.2 %	ISO 294-4, 2577

### Typical mechanical properties

Tensile Modulus	295 MPa	ISO 527-1/-2
Stress at 5% strain	7.8 MPa	ISO 527-1/-2
Stress at 10% strain	9.7 MPa	ISO 527-1/-2
Stress at 50% strain	12.5 MPa	ISO 527-1/-2

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Stress at 100% strain	14 MPa	ISO 527-1/-2
Stress at 300% strain	18 MPa	ISO 527-1/-2
Stress at break	30 MPa	ISO 527-1/-2
Nominal strain at break	600 %	ISO 527-1/-2
Strain at break	>300 %	ISO 527-1/-2
Flexural Modulus	350 MPa	ISO 178
Charpy notched impact strength, -30°C	110 <sup>[P]</sup> kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -40°C	120 kJ/m <sup>2</sup>	ISO 179/1eA
Brittleness temperature	-100 °C	ISO 974
Shore D hardness, 15s	44 -	ISO 48-4
Shore D hardness, max	49 -	ISO 48-4
Tear strength, parallel	110 kN/m	ISO 34-1
Tear strength, normal	90 kN/m	ISO 34-1

[P]: Partial Break

### Thermal properties

Melting temperature, 10°C/min	222 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	41 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	48 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 10N	150 °C	ISO 306

### Flammability

FMVSS Class	B -	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	24 mm/min	ISO 3795 (FMVSS 302)

### Other properties

Density	1160 kg/m <sup>3</sup>	ISO 1183
Density of melt	995 kg/m <sup>3</sup>	

### VDA Properties

Emission of organic compounds	9.5 µgC/g	VDA 277
Odour	4 class	VDA 270
Fogging, F-value (refraction)	100 %	ISO 6452
Fogging, G-value (condensate)	mg	ISO 6452

### Injection

Drying Recommended	yes
Drying Temperature	100 °C
Drying Time, Dehumidified Dryer	3 - 4 h
Processing Moisture Content	≤0.05 %
Melt Temperature Optimum	245 °C
Min. melt temperature	240 °C
Max. melt temperature	250 °C

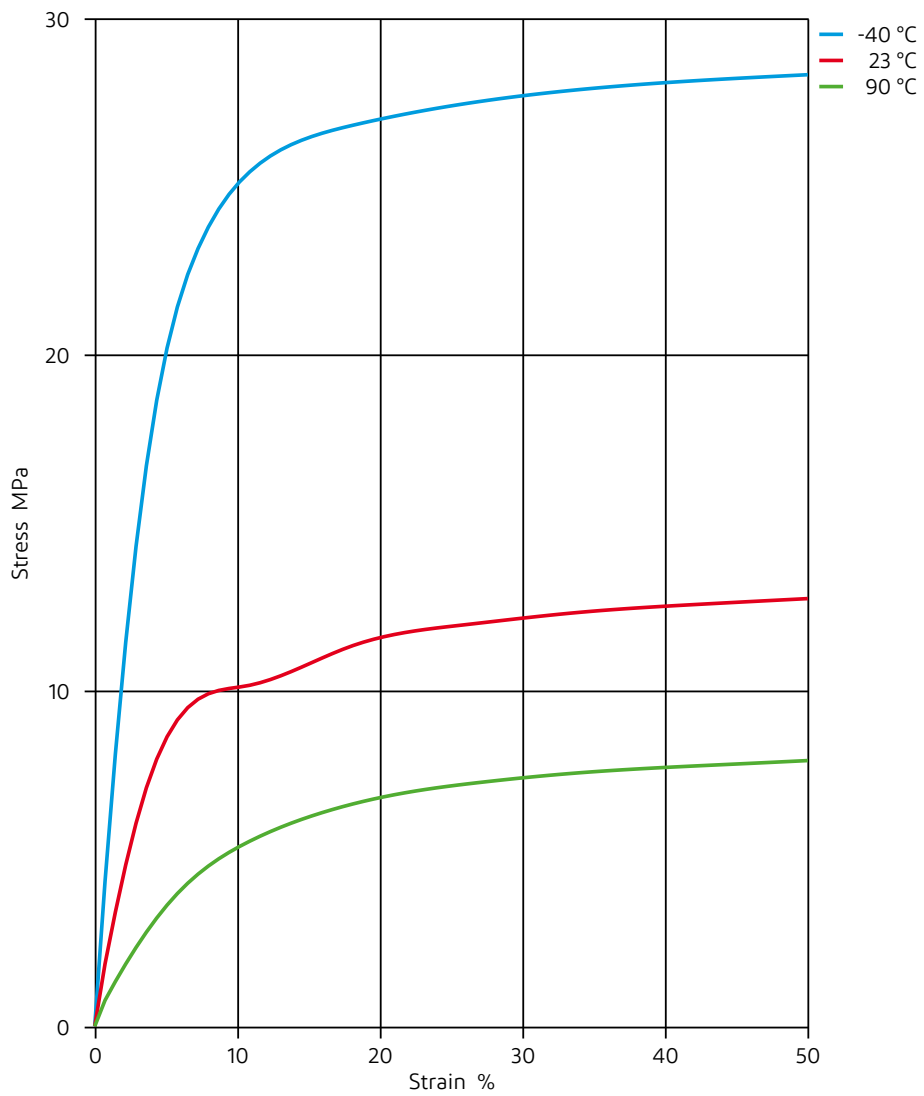


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Mold Temperature Optimum	45 °C
Min. mould temperature	40 °C
Max. mould temperature	55 °C

## Stress-strain

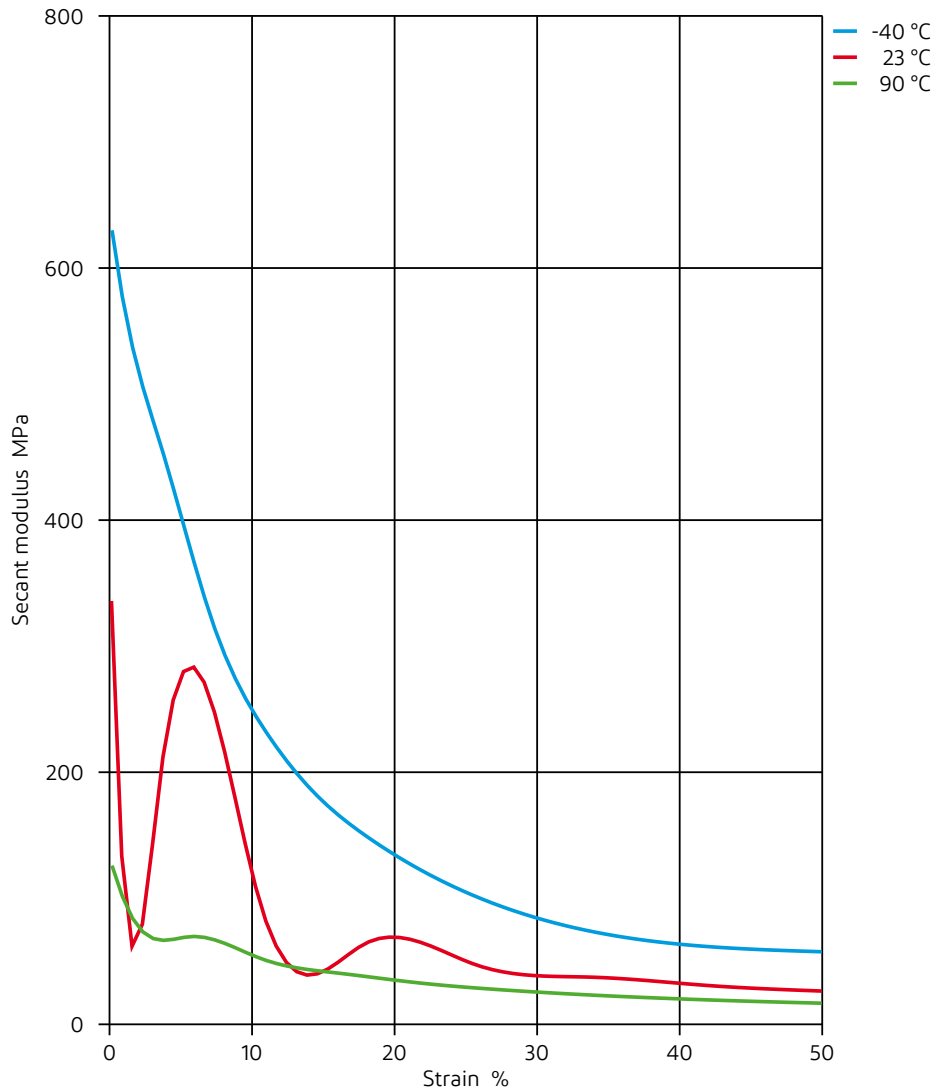




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## Secant modulus-strain



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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



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## THERMOPLASTIC POLYESTER ELASTOMER

### 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
- ✗ 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).

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