

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 Part Marking Code | TPC-ET+PBT >TPC-ET+PBT< | | ISO 1043 ISO 11469 |
|---|----------------------------|------------------------|-----------------------|
| Rheological properties | | | |
| Melt volume-flow rate | | cm ³ /10min | ISO 1133 |
| Temperature | 240 | | |
| Load | 2.16 | - | |
| Melt mass-flow rate | | g/10min | ISO 1133 |
| Melt mass-flow rate, Temperature | 240 | | |
| 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/m² | ISO 179/1eU |
| Charpy impact strength, -30 °C | | kJ/m² | ISO 179/1eU |
| Charpy notched impact strength, -30°C | 120 ^[P] | kJ/m² | ISO 179/1eA |

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THERMOPLASTIC POLYESTER ELASTOMER

| Charpy notched impact strength, -40°C Puncture - maximum force, 23°C Puncture energy, 23°C Brittleness temperature Shore D hardness, 15s Shore D hardness, max Tear strength, parallel Tear strength, normal [P]: Partial Break | 3200 39 -100 50 55 130 | J | ISO 179/1eA ISO 6603-2 ISO 6603-2 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 10N Coefficient of linear thermal expansion (CLTE), parallel Coefficient of linear thermal expansion (CLTE), | 50 170 180 | 0° °C °C | ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 ISO 306 ISO 11359-1/-2 ISO 11359-1/-2 |
| normal Effective thermal diffusivity, flow TGA curve | 5.44E-8 available | | ISO 22007-4 ISO 11359-1/-2 |
| Flammability | | | |
| Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index FMVSS Class Burning rate, Thickness 1 mm | 1.5 yes HB 3 yes 22 SE/B | class mm class mm % mm/min | IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302) |
| Electrical properties | | | |
| Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength | 230 >1E13 5E14 | 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 |



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Physical/Other properties

| Humidity absorption, 2mm Water absorption, 2mm Water absorption, Immersion 24h Density Density of melt | | % | Sim. to ISO 62 Sim. to ISO 62 Sim. to ISO 62 ISO 1183 |
|--|-------------------------------------|--------------------------------------|--|
| VDA Properties | | | |
| Emission of organic compounds Odour | | μgC/g class | VDA 277 VDA 270 |
| Injection | | | |
| Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Mold Temperature Optimum Min. mould temperature Max. mould temperature Ejection temperature | 25 | h % °C °C °C °C °C | |
| Characteristics | | | |
| Processing | Injection Moulding | | |
| Delivery form | Pellets | | |
| Special characteristics | Light stabilised or stable to light | | |
| Automotive | | | |

OEM Mercedes-Benz

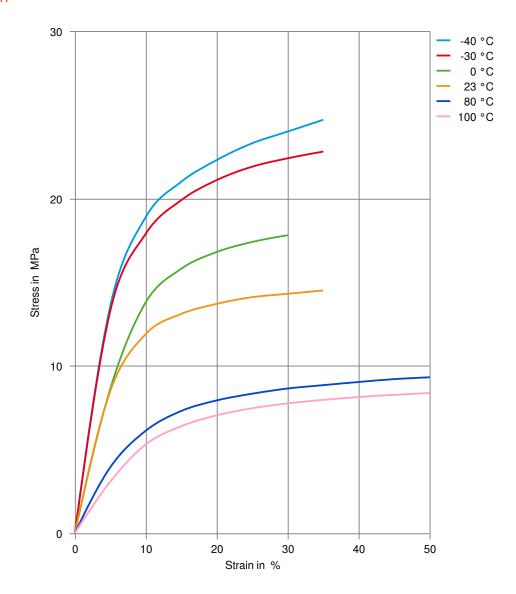
Mercedes-Benz Stellantis - Chrysler STANDARD DBL5562.50 TPC MS-DB-585 / CPN-3887 ADDITIONAL INFORMATION

Black





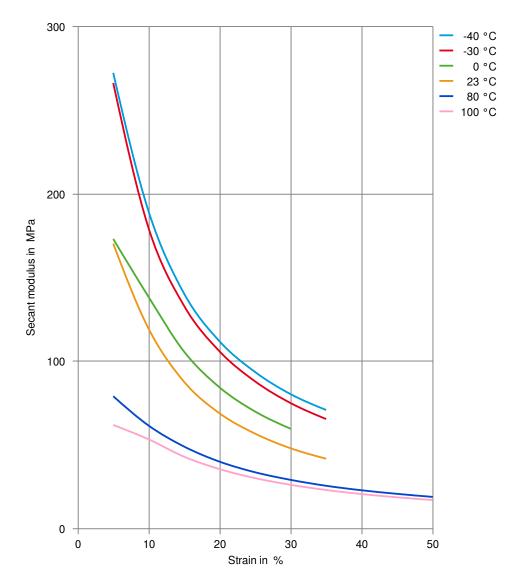
Stress-strain







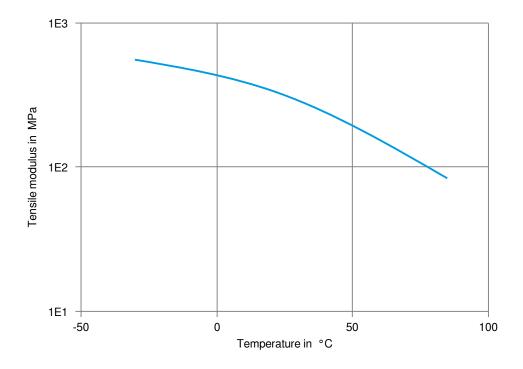
Secant modulus-strain







Tensile modulus-temperature

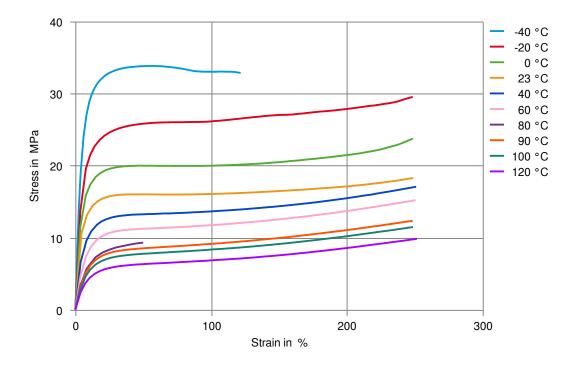






THERMOPLASTIC POLYESTER ELASTOMER

Stress-Strain (Flexible Materials)





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
- ¥ 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
- 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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Hytrel[®] DYM350BK

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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
- ★ 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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