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# Hytrel® HTR8332 BK320

## 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® HTR8332 BK320 is designed for blow molding or processing techniques requiring high melt viscosity. It has nominal hardness of 50D, is pigmented black with fine particle size carbon black, and contains a general purpose stabilizer. It shows excellent mechanical properties at elevated temperatures, superior fatigue, abrasion, and grease resistance.

## Product information

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

## Rheological properties

| | | | |
|---|---|---|---|
| Temperature | 230 | °C | |
| Load | 10 | kg | |
| Melt mass-flow rate | 10 | g/10min | ISO 1133 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile modulus | 106 | MPa | ISO 527-1/-2 |
| Stress at 10% elongation | 8 | MPa | ISO 527-1/-2 or ISO 37 |
| Tensile stress at break | 28 | MPa | ISO 527-1/-2 |
| Tensile strain at break | 300 | % | ISO 527-1/-2 |
| Flexural modulus | 100 | MPa | ISO 178 |
| Charpy notched impact strength, -30°C | N | kJ/m² | ISO 179/1eA |
| Poisson's ratio | 0.49 | | |
| Low temperature brittleness | -50 | °C | ISO 812 |
| Shore D hardness, 15s | 45 | | ISO 48-4 / ISO 868 |
| Tear strength, parallel | 100 | kN/m | ISO 34-1 |
| Tear strength, normal | 100 | kN/m | ISO 34-1 |

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## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 199 | °C | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | -40 | °C | ISO 11357-1/-3 |
| Vicat softening temperature, 50°C/h 10N | 163 | °C | ISO 306 |

## Flammability

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

## Physical/Other properties

| | | | |
|---|---|---|---|
| Water absorption, 2mm | 0.5 | % | Sim. to ISO 62 |
| Density | 1160 | kg/m³ | ISO 1183 |

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 100 | °C |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | ≤0.08 | % |
| Melt Temperature Optimum | 225 | °C |
| Min. melt temperature | 220 | °C |
| Max. melt temperature | 250 | °C |
| Mold Temperature Optimum | 45 | °C |
| Min. mould temperature | 45 | °C |
| Max. mould temperature | 55 | °C |

## Extrusion

| | | |
|---|---|---|
| Processing Moisture Content | ≤0.06 | % |
| Melt Temperature Optimum | 200 | °C |

## Blow Molding

| | | |
|---|---|---|
| Drying Temperature | 100 - 110 | °C |
| Drying Time, Dehumidified Dryer | 3 - 4 | h |
| Processing Moisture Content | ≤0.02 | % |
| Melt Temperature Optimum | 225 | °C |
| Melt Temperature Range | 220 - 240 | °C |
| Mold Temperature Optimum | 30 | °C |
| Mold Temperature Range | 20 - 40 | °C |

## Characteristics

| | |
|---|---|
| Processing | Injection Moulding, Extrusion, Blow Moulding |
| Delivery form | Pellets |
| Special characteristics | Light stabilised or stable to light, U.V. stabilised or stable to weather, Heat stabilised or stable to heat |

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## Additional information

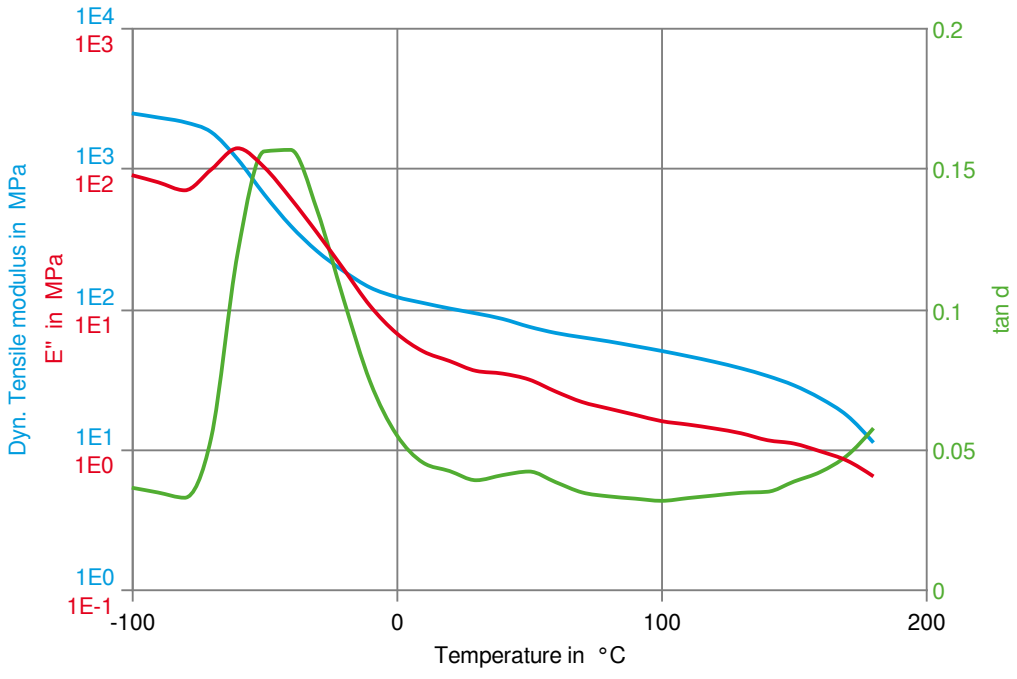
Blow molding

POSTPROCESSING

## Automotive

| OEM | STANDARD |
|---|---|
| Mercedes-Benz | DBL5562.50 TPC |

## Dynamic Tensile modulus-temperature



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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: 2025-04-22 Source: Celanese Materials Database