

Hytrel® 40CB

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® 40CB is a black master batch which can provide improved UV resistance when blended with other Hytrel® grades.

Product information

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

Thermal properties

Melting temperature, 10°C/min	154 °C	ISO 11357-1/-3
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Flammability

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

Electrical properties

Dissipation factor, 100Hz	60 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	100 E-4	IEC 62631-2-1
Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Electric strength	34 kV/mm	IEC 60243-1
Comparative tracking index	300	IEC 60112

Injection

Drying Recommended	yes
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Characteristics

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Coatable, Casting
Delivery form	Pellets

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Additional information

Injection molding

PREPROCESSING

Drying recommended = Yes
Drying temperature = 80 °C
Drying time, dehumidified dryer = 2-3 h
Processing moisture content = <0.08 %

Hytrel® 40CB may be pellet blended with all types of Hytrel® and then dried prior to melt blending in a reciprocating screw injection moulding machine.

PROCESSING

Generally, processing conditions used with the standard types of Hytrel® will be satisfactory for blends containing Hytrel® 40CB. To ensure good mixing during injection moulding, higher than normal back pressures should be employed.

For very thin parts more thorough mixing may be required. This can be done by extrusion blending and pelletizing prior to injection moulding.

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
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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
- ✓ 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).