



Hytrel[®] 3078 ECO-B 752

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® 3078 ECO-B 752 is a very low modulus grade, with nominal hardness of 30D. It contains non-discoloring stabilizer. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion. It has same performance and processing properties as Hytrel® 3078.

Hytrel® 3078 ECO-B 752 belongs to the Hytrel® ECO-B family. The products of this family are partially produced using biofeedstock derived from waste*. This results in reduced lifecycle greenhouse gas emissions and lower fossil resource use.

*certified bio-circular according to ISCC Plus mass balance approach.

Food compliance:

Refer to Hytrel® 3078FG

Typical applications:

Compounding, extrusion, injection moulded and over-moulded parts for consumer use.

Rheological properties

Melt volume-flow rate	5	cm ³ /10min	ISO 1133
Temperature	190	°C	
Load	2.16	kg	
Melt mass-flow rate	5	g/10min	ISO 1133
Melt mass-flow rate, Temperature	190	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	0.8	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.5	%	ISO 294-4, 2577

Typical mechanical properties

21			
Tensile modulus 2	2 ^[1]	MPa	ISO 527-1/-2
Stress at 10% strain	1.8	MPa	ISO 527-1/-2
Tensile stress at 50% strain, 1BA	5	MPa	ISO 527-1/-2
Tensile stress at break	24	MPa	ISO 527-1/-2
Nominal strain at break	900	%	ISO 527-1/-2
Tensile strain at break >3	300	%	ISO 527-1/-2
Flexural modulus	27	MPa	ISO 178

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Tensile creep modulus, 1000h		MPa	ISO 899-1
Charpy impact strength, 23°C		kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C		kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C		kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30 °C		kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40 °C		kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Izod notched impact strength, -40°C		kJ/m²	ISO 180/1A
Poisson's ratio	0.5		
Brittleness temperature	-98	°C	ISO 974
Shore D hardness, 15s	24		ISO 48-4 / ISO 868
Shore D hardness, max	30		ISO 868
Tear strength, parallel	80	kN/m	ISO 34-1
Tear strength, normal	77	kN/m	ISO 34-1
[1]: measured on 1BA specimen pulled at 50mm/min			
Thermal properties			
Melting temperature, 10 °C/min	170	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-60		ISO 11357-1/-3
Vicat softening temperature, 50°C/h 10N		°C	ISO 306
Coefficient of linear thermal expansion		E-6/K	ISO 11359-1/-2
(CLTE), parallel		_ 0,	100 11000 17 2
Coefficient of linear thermal expansion (CLTE),	206	E-6/K	ISO 11359-1/-2
normal	200	L 0/10	100 11003 1/ 2
Thermal conductivity of melt	0.15	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	5.44E-8		ISO 22007-4
Specific heat capacity of melt		J/(kg K)	ISO 22007-4
RTI, electrical, 1.5mm		°C	UL 746B
RTI, electrical, 3.0mm		°C	UL 746B
RTI, impact, 1.5mm		°C	UL 746B
·		°C	UL 746B
RTI, impact, 3.0mm			UL 746B
RTI, strength, 1.5mm		°C	
RTI, strength, 3.0mm	50	°C	UL 746B
Flammability			
Burning Behav. at 1.5mm nom. thickn.		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	19	%	ISO 4589-1/-2
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	33	mm/min	ISO 3795 (FMVSS 302)

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Electrical properties

Relative permittivity, 100Hz	5.4	IEC 62631-2-1
Relative permittivity, 1MHz	5.3	IEC 62631-2-1
Dissipation factor, 100Hz	70 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	150 E-4	IEC 62631-2-1
Volume resistivity	1E11 Ohm.m	IEC 62631-3-1
Surface resistivity	1E14 Ohm	IEC 62631-3-2
Electric strength	18 kV/mm	IEC 60243-1

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.8	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.5	%	Sim. to ISO 62
Density	1070	kg/m³	ISO 1183
Density of melt	940	kg/m ³	

Injection

Drying Recommended	yes
Drying Temperature	80 °C
Drying Time, Dehumidified Dryer	2-3 h
Processing Moisture Content	≤0.08 %
Melt Temperature Optimum	205 °C
Min. melt temperature	190 °C
Max. melt temperature	210 °C
Mold Temperature Optimum	30 °C
Min. mould temperature	30 °C
Max. mould temperature	40 °C

Extrusion

Drying Temperature	70 - 90 °C
Drying Time, Dehumidified Dryer	2-3 h
Processing Moisture Content	≤0.06 %
Melt Temperature Optimum	200 °C
Melt Temperature Range	190 - 205 °C

Characteristics

Processing Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion,

Coatable, Calendering, Casting, Thermoforming

Delivery form Pellets

Special characteristics Light stabilised or stable to light

Sustainability Bio-Content

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Additional information

Profile extrusion

PREPROCESSING

Drying temperature = 80 °C
Drying time, dehumidified dryer = 2-3 h
Processing moisture content = <0.06 %

PROCESSING

Melt temperature optimum = 200 °C Melt temperature range = 190-205 °C

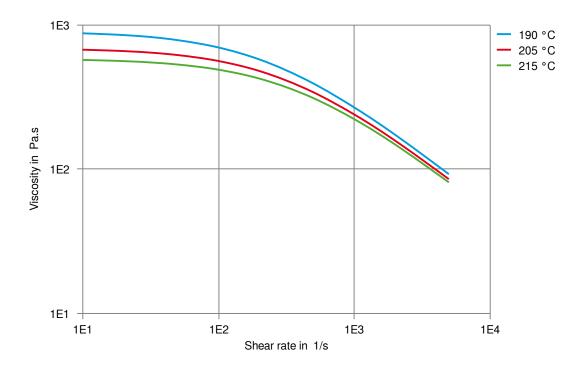
Viscosity-shear rate

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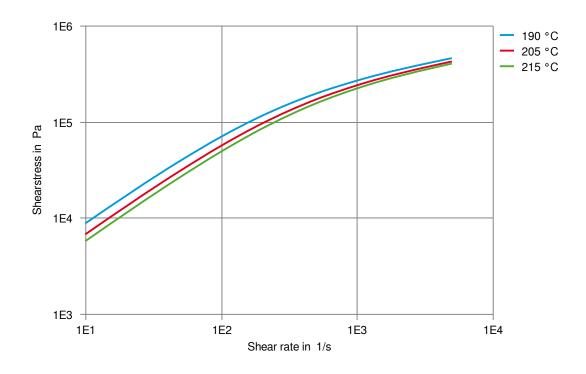
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Shearstress-shear rate



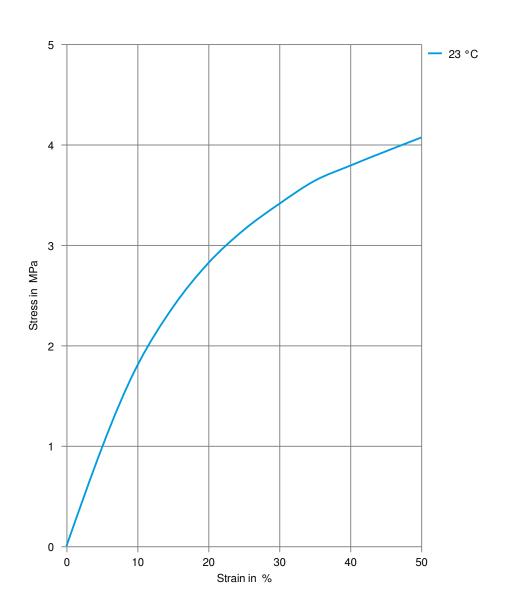
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Stress-strain



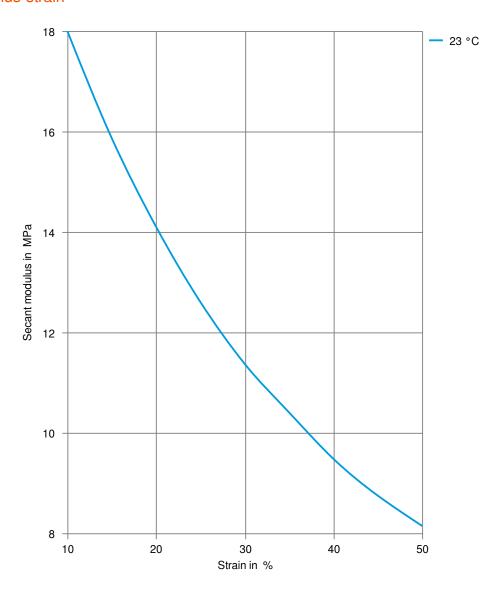
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Secant modulus-strain



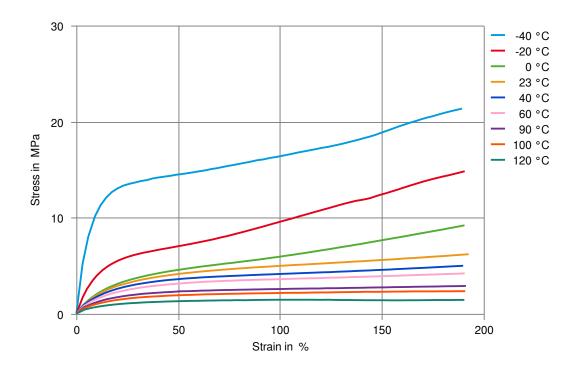
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Stress-Strain (Flexible Materials)



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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
- X 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
- X 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

- X ISO 1817 Liquid 1 E5, 60°C
- X ISO 1817 Liquid 2 M15E4, 60°C
- X ISO 1817 Liquid 3 M3E7, 60°C
- X 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
- 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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NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any e

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