

Hytrel[®] 4039 ECO-B 652 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® 4039 ECO-B 652 is a low modulus grade with nominal hardness of 40D and high fluidity. It contains nondiscoloring stabilizer. It has same performance and processing properties as Hytrel® 4039.

Hytrel® 4039 ECO-B 652 belongs to the Hytrel® ECO-B family. The products of this family are partially produced using bio-feedstock 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.

Rheological properties

Melt volume-flow rate 22	cm ³ /10min ISO 1133
Temperature 220	°C
Load 2.16	kg
Melt mass-flow rate 22	g/10min ISO 1133
Melt mass-flow rate, Temperature 220	°C
Melt mass-flow rate, Load 2.16	kg
Moulding shrinkage, parallel 1.0	% ISO 294-4, 2577
Moulding shrinkage, normal 0.9	% ISO 294-4, 2577
Typical mechanical properties	
Tensile modulus 45	MPa ISO 527-1/-2
Stress at 10% strain 3.2	MPa ISO 527-1/-2
Tensile stress at 50% strain, 1BA 6.7	MPa ISO 527-1/-2
Tensile stress at break 29	MPa ISO 527-1/-2
Nominal strain at break 800	% ISO 527-1/-2
Tensile strain at break >300	% ISO 527-1/-2
Flexural modulus 45	MPa ISO 178
Charpy impact strength, 23°C N	kJ/m ² ISO 179/1eU
Charpy impact strength, -30 °C N	kJ/m ² ISO 179/1eU
Charpy notched impact strength, 23°C N	kJ/m ² ISO 179/1eA
Charpy notched impact strength, -30 °C N	kJ/m ² ISO 179/1eA
	kJ/m ² ISO 179/1eA
Izod notched impact strength, 23°C N	kJ/m ² ISO 180/1A
Izod notched impact strength, -40°C N	kJ/m ² ISO 180/1A
Brittleness temperature -96	°C ISO 974

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Shore D hardness, 15s Shore D hardness, max Tear strength, parallel Tear strength, normal		kN/m kN/m	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, 0.45 MPa Vicat softening temperature, 50°C/h 10N Coeff. of linear therm. expansion, parallel, -40-23°C	130	°C °C	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 306 ISO 11359-1/-2
Coefficient of linear thermal expansion		E-6/K	ISO 11359-1/-2
(CLTE), parallel Coeff. of linear therm. expansion, normal, -40-23°C Coefficient of linear thermal expansion (CLTE), normal		E-6/K E-6/K	ISO 11359-1/-2 ISO 11359-1/-2
RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 1.5mm RTI, strength, 3.0mm	50 50 50 50	2° 2° 2° 2° 2° 2°	UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability			
Burning Behav. at 1.5mm nom. thickn. Oxygen index FMVSS Class Burning rate, Thickness 1 mm	20 B	class % mm/min	IEC 60695-11-10 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 Comparative tracking index	3E14	E-4 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 IEC 60112
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

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Film Properties WVTR, 23°C/85%r.h. Thickness of specimen	900 0.025	g/(m²*d) mm	DIS 15106-1/-2
VDA Properties Emission of organic compounds	10	μgC/g	VDA 277
Odour		class	VDA 270
Injection			
Drying Recommended	yes		
Drying Temperature	100	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.08		
Melt Temperature Optimum	225	-	
Min. melt temperature	220	-	
Max. melt temperature	250		
Mold Temperature Optimum		°C	
Min. mould temperature		°C	
Max. mould temperature	40	°C	
Extrusion			
Drying Temperature	90 - 110	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.06	%	
Melt Temperature Optimum	215	°C	
Melt Temperature Range	210 - 225	°C	

Characteristics

Processing	Injection Moulding, Coatable, Casting, Thermoforming
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light
Sustainability	Bio-Content

Additional information

Injection molding

PREPROCESSING

Drying recommended = Yes Drying temperature = 100 °C Drying time, dehumidified dryer = 2-3 h Processing moisture content = <0.08 %

PROCESSING

Melt temperature range = 220-250 °C Melt temperature optimum = 225 °C (+) **18816996168** Ponciplastics.com



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Mold temperature optimum = $40 \degree C$ Mold temperature range = $30-40\degree C$

Profile extrusion

PREPROCESSING

Drying temperature = 100 °C Drying time, dehumidified dryer = 2-3 h Processing moisture content = <0.06 %

PROCESSING

Melt termperature range = 205-230 °C Melt temperature optimum = 215 °C

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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 not intended for use in medical or dental implants. Regardless of any such product 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 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 the lowest that texist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the m

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