

Product Texts

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® 4056 is a low modulus Hytrel® grade with nominal durometer hardness of 40D and with high impact resistance down to -40°C. It contains a non-discoloring stabilizer. It is recommended for extrusion and compounding.

Typical applications:

Hose and tubing, hose jackets, wire and cable jackets, film and sheeting, belting and seals, .

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
^[C] Melt volume-flow rate, MVR	5	cm ³ /10min	ISO 1133
Temperature	190	°C	-
Load	2.16	kg	-
^[C] Molding shrinkage, parallel	0.2	%	ISO 294-4, 2577
^[C] Molding shrinkage, normal	0.4	%	ISO 294-4, 2577
^[C] Density of melt	1020	kg/m ³	-
^[C] Eff. thermal diffusivity	8.5E-8	m ² /s	-
ASTM Data			
Melt Flow Index, MFI	5.3	g/10min	ASTM D 1238
Temperature	190	°C	-
Load	2.16	kg	-
Mold Shrinkage, MD	0.005	mm/mm	ASTM D 955

[C]: CAMPUS

Mechanical properties	Value	Unit	Test Standard
ISO Data			
^[C] Tensile Modulus	60	MPa	ISO 527
^[C] Tensile creep modulus, 1h	54	MPa	ISO 899-1
^[C] Tensile creep modulus, 1000h	40	MPa	ISO 899-1
^[C] Charpy impact strength, +23°C	N	kJ/m ²	ISO 179/1eU
^[C] Charpy impact strength, -30°C	N	kJ/m ²	ISO 179/1eU
^[C] Charpy notched impact strength, +23°C	N	kJ/m ²	ISO 179/1eA
^[C] Charpy notched impact strength, -30°C	N	kJ/m ²	ISO 179/1eA
^[C] Tensile notched impact strength, +23°C	230	kJ/m ²	ISO 8256/1
^[C] Puncture - maximum force, +23°C	1500	N	ISO 6603-2
^[C] Puncture - maximum force, -30°C	2800	N	ISO 6603-2
^[C] Puncture energy, +23°C	19	J	ISO 6603-2
^[C] Puncture energy, -30°C	37	J	ISO 6603-2
^[C] Stress at 10% elongation	4.6	MPa	ISO 527
^[C] Stress at break TPE	22	MPa	ISO 527
^[C] Strain at break TPE	>300	%	ISO 527
^[C] Abrasion resistance	200	mm ³	ISO 4649
^[C] Shore D hardness	37	-	ISO 7619-1
ASTM Data			
Tensile Strength at Break	21	MPa	ASTM D 638
Elongation at Break	700	%	ASTM D 638

Hytre® 4056

TPC

Celanese

Flexural Modulus	62	MPa	ASTM D 790
Shore D Hardness	40	-	ASTM D 2240
Izod Impact notched, 1/8 in	N	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	N	J/m	ASTM D 256
Temperature	-40	°C	-

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Thermal properties	Value	Unit	Test Standard
ISO Data			
^[C] Melting temperature, 10°C/min	152	°C	ISO 11357-1/-3
^[C] Glass transition temperature, 10°C/min	-50	°C	ISO 11357-1/-2
^[C] Temp. of deflection under load, 0.45 MPa	48	°C	ISO 75-1/-2
^[C] Coeff. of linear therm. expansion, parallel	130	E-6/K	ISO 11359-1/-2
^[C] Coeff. of linear therm. expansion, normal	160	E-6/K	ISO 11359-1/-2
^[C] Burning Behav. at 1.5 mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	-
Yellow Card available	yes	-	-
^[C] Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.8	mm	-
Yellow Card available	yes	-	-
^[C] Oxygen index	20	%	ISO 4589-1/-2
ASTM Data			
UL 94 Flame rating	HB	-	UL 94
Thickness tested	1.5	mm	-
Coefficient of Thermal Expansion, MD	130	E-6/K	ASTM D 696
Coefficient of Thermal Expansion, TD	160	E-6/K	ASTM D 696
DTUL @ 66 psi	54	°C	ASTM D 648
Melting Temperature	150	°C	ASTM D 3418

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Electrical properties	Value	Unit	Test Standard
ISO Data			
^[C] Relative permittivity, 100Hz	5.2	-	IEC 62631-2-1
^[C] Relative permittivity, 1MHz	4.7	-	IEC 62631-2-1
^[C] Dissipation factor, 100Hz	110	E-4	IEC 62631-2-1
^[C] Dissipation factor, 1MHz	525	E-4	IEC 62631-2-1
^[C] Volume resistivity	7E10	Ohm*m	IEC 62631-3-1
^[C] Surface resistivity	2E14	Ohm	IEC 62631-3-2
^[C] Electric strength	18	kV/mm	IEC 60243-1
^[C] Comparative tracking index	600	-	IEC 60112
ASTM Data			
Dielectric Strength, Short Time	16.1	kV/mm	ASTM D 149
Dissipation Factor, 1 MHz	0.06	-	ASTM D 150
Dielectric Constant, 1 MHz	4.6	-	ASTM D 150

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Other properties	Value	Unit	Test Standard
^[C] Water absorption	0.7	%	Sim. to ISO 62
^[C] Humidity absorption	0.2	%	Sim. to ISO 62
^[C] Density	1160	kg/m ³	ISO 1183
Water Absorption, 24hr	0.6	%	ASTM D 570
Density	1170	kg/m ³	ASTM D 792

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Film Properties	Value	Unit	Test Standard
ISO Data			
^[C] WVTR, 23°C/85%r.h.	450	g/(m ² *d)	ISO 15106-1/-2

[C] Oxygen transmission rate, 23°C/85%r.h.	14000	cm ³ /(m ² *d*bar)	ISO 15105-1/-2
[C] Thickness of specimen	0.025	mm	-

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Characteristics

Processing

Injection Molding, Film Extrusion, Pipe/Tube Extrusion, Profile Extrusion, Sheet Extrusion, Wire/Cable Extrusion, Other Extrusion, Coating, Calandring, Casting, Thermoforming

Delivery form

Pellets

Additives

Release agent

Special Characteristics

Platable, High impact or impact modified, Light stabilized or stable to light, Heat stabilized or stable to heat

Features

Barrier Properties, Color Stability, Creep Resistance, Good Adhesion

Chemical Resistance

Oxidation Resistance

Regional Availability

North America, Europe, Asia Pacific, South and Central America, Near East/Africa

Other text information

Injection molding

Snake Flow Test , mm

Inject press 62MPa, 1mm	80
Inject press 62MPa, 2.5mm	330
Inject press 83MPa(12,000psi), 1mm	95
Inject press 83MPa(12,000psi), 2.5mm	430