

Hytrel® 4056

THERMOPLASTIC POLYESTER ELASTOMER

DuPont Performance Polymers

PROSPECTOR®

www.ulprospector.com

Technical Data

Product Description

40 Shore D High Performance Polyester Elastomer

General

Material Status	• Commercial: Active
Literature ¹	• Processing - Extrusion (English) • Processing - Injection Molding (English) • Typical Processing for DuPont Engineering Polymers (English)
UL Yellow Card ²	• E41938-234577
Search for UL Yellow Card	• DuPont Performance Polymers • Hytrel®
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Additive	• UV Stabilizer
RoHS Compliance	• Contact Manufacturer
Forms	• Pellets
Processing Method	• Calendering • Casting • Coating • Extrusion • Film Extrusion • Injection Molding • Profile Extrusion • Sheet Extrusion • Thermoforming
Multi-Point Data	• Creep Modulus vs. Time (ISO 11403-1) • Isochronous Stress vs. Strain (ISO 11403-1) • Isothermal Stress vs. Strain (ISO 11403-1) • Isothermal Stress vs. Strain (TPE) (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Tensile Modulus vs. Temperature, Dynamic (ISO 11403-1) • Viscosity vs. Shear Rate (ISO 11403-2)
Part Marking Code (ISO 11469)	• >TPC-ET<
Resin ID (ISO 1043)	• TPC-ET

Physical	Nominal Value Unit	Test Method
Density	1.16 g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	5.6 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	5.00 cm ³ /10min	ISO 1133
Molding Shrinkage		ISO 294-4
Across Flow	0.40 %	
Flow	0.20 %	
Water Absorption		ISO 62
23°C, 24 hr	0.60 %	
Saturation, 23°C, 2.00 mm	0.70 %	
Equilibrium, 23°C, 2.00 mm, 50% RH	0.20 %	

Mechanical	Nominal Value Unit	Test Method
Tensile Modulus	60.0 MPa	ISO 527-2
Tensile Stress		ISO 527-2
Break	26.0 MPa	
5.0% Strain	2.40 MPa	
10% Strain	4.60 MPa	
50% Strain	8.40 MPa	
Tensile Strain (Break)	> 300 %	ISO 527-2
Nominal Tensile Strain at Break	500 %	ISO 527-2



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Mechanical	Nominal Value Unit	Test Method
Tensile Creep Modulus		ISO 899-1
1 hr	54.0 MPa	
1000 hr	40.0 MPa	
Flexural Modulus	64.0 MPa	ISO 178
Abrasion Resistance	200 mm ³	ISO 4649
Elastomers	Nominal Value Unit	Test Method
Tear Strength		ISO 34-1
Across Flow	96 kN/m	
Flow	100 kN/m	
Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength		ISO 179/1eA
-40°C	No Break	
-30°C	No Break	
23°C	No Break	
Charpy Unnotched Impact Strength		ISO 179/1eU
-30°C	No Break	
23°C	No Break	
Notched Izod Impact Strength		ISO 180/1A
-40°C	No Break	
23°C	No Break	
Tensile Impact Strength (23°C)	230 kJ/m ²	ISO 8256/1
Hardness	Nominal Value Unit	Test Method
Shore Hardness		ISO 868
Shore D	43	
Shore D, 15 sec	37	
Thermal	Nominal Value Unit	Test Method
Brittleness Temperature	-97.0 °C	ISO 974
Glass Transition Temperature ⁴	-50.0 °C	ISO 11357-2
Melting Temperature ⁴	152 °C	ISO 11357-3
CLTE		ISO 11359-2
Flow	1.3E-4 cm/cm/°C	
Transverse	1.6E-4 cm/cm/°C	
Effective Thermal Diffusivity	8.50E-8 m ² /s	
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	2.0E+14 ohms	IEC 60093
Volume Resistivity	7.0E+12 ohms·cm	IEC 60093
Electric Strength	18 kV/mm	IEC 60243-1
Relative Permittivity		IEC 60250
100 Hz	5.20	
1 MHz	4.70	
Dissipation Factor		IEC 60250
100 Hz	0.011	
1 MHz	0.053	
Comparative Tracking Index	600 V	IEC 60112
Flammability	Nominal Value Unit	Test Method
Flame Rating (1.50 mm)	HB	UL 94 IEC 60695-11-10, -20
Oxygen Index	20 %	ISO 4589-2
Burning Rate ⁵ (1.00 mm)	SE	ISO 3795
Fill Analysis	Nominal Value Unit	
Melt Density	1.02 g/cm ³	



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Injection	Nominal Value Unit
Drying Temperature	80.0 °C
Drying Time	2.0 to 3.0 hr
Suggested Max Moisture	0.080 %
Processing (Melt) Temp	170 to 190 °C
Melt Temperature, Optimum	180 °C
Mold Temperature	30.0 to 40.0 °C
Mold Temperature, Optimum	40 °C
Drying Recommended	yes

Extrusion	Nominal Value Unit
Drying Temperature	70.0 to 90.0 °C
Drying Time	2.0 to 3.0 hr
Suggested Max Moisture	0.060 %
Melt Temperature	165 to 180 °C
Extrusion Melt Temperature, Optimum	170 °C

Notes

¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

² A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

³ Typical properties: these are not to be construed as specifications.

⁴ 10°C/min

⁵ FMVSS 302



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Where to Buy

Supplier

DuPont Performance Polymers

Wilmington, DE USA

Telephone: 302-999-4592

Web: <http://plastics.dupont.com/>

Distributor

Biesterfeld Plastic GmbH

Biesterfeld Plastic GmbH is a Pan European distribution company. Contact Biesterfeld Plastic GmbH for availability of individual products by country.

Telephone: +49-40-32008-0

Web: <http://www.biesterfeld-plastic.com/>

Availability: Algeria, Austria, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Croatia, Cyprus, Czech Republic, Egypt, France, Germany, Greece, Hungary, Italy, Libyan Arab Jamahiriya, Luxembourg, Mauritania, Morocco, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Tunisia, Turkey

CCC Plastics

Telephone: 800-465-6917

Web: <http://www.cccplastics.com/>

Availability: Canada

Distrupol Ltd

Distrupol Ltd is a Pan European distribution company. Contact Distrupol Ltd for availability of individual products by country.

Telephone: 08452003040

Web: <http://www.distrupol.com/>

Availability: Denmark, Finland, Ireland, Norway, Sweden, United Kingdom

PolyOne Distribution

PolyOne Distribution is a global distribution company. Contact PolyOne Distribution for availability of individual products by country.

Telephone: 800-894-4266

Web: <http://polyonedistribution.com/>

Availability: Global

