### **PRODUCT INFORMATION**

### DuPont<sup>™</sup> Hytrel<sup>®</sup> 3078FG THERMOPLASTIC POLYESTER ELASTOMER

#### Product Information

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, DuPont recommends, 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® 3078FG is a high performance thermoplastic elastomer developed for consideration into applications in contact with food. It can be processed by many conventional thermoplastic processing techniques like injection molding and extrusion.

#### FOOD CONTACT

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. For details, individual compliance statements are available from your DuPont representative.

General information	Value	Unit	Test Standard
Resin Identification		-	ISO 1043
Part Marking Code	TPC-ET	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	5.3	cm <sup>3</sup> /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	5	g/10min	ISO 1133
Melt mass-flow rate, Temperature	190	°C	ISO 1133
Melt mass-flow rate, Load	2.16	kg	ISO 1133
Molding shrinkage, parallel	0.6	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6	%	ISO 294-4, 2577
Mechanical properties (TPE)	Value	Unit	Test Standard
Tensile Modulus	24	MPa	ISO 527-1/-2
Stress at 10% strain	1.1	MPa	ISO 527-1/-2
Stress at 50% strain	4.1	MPa	ISO 527-1/-2
Stress at break	23	MPa	ISO 527-1/-2
Strain at break	>300	%	ISO 527-1/-2
Nominal strain at break	860	%	ISO 527-1/-2
Tear strength, parallel	76	kN/m	ISO 34-1
Tear strength, normal	77	kN/m	ISO 34-1
Shore D hardness, max	30	-	ISO 7619-1
Shore D hardness, 15s	26	-	ISO 7619-1
Mechanical properties	Value	Unit	Test Standard
Flexural Modulus	21	MPa	ISO 178
Charpy notched impact strength, -40°F	Ν	kJ/m²	ISO 179/1eA
Brittleness temperature	-98	°C	ISO 974
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	167	°C	ISO 11357-1/-3
Glass transition temperature, 18°F/min	-60	°C	ISO 11357-1/-2
Vicat softening temperature, 90°F, 2 lbf	76	°C	ISO 306

#### Revised: 2017-02-20

#### To find out more, visit DuPont Performance Polymers or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

Tel: +1 302 999-4592 Toll-Free (USA): 800 441-0575 Tel: +81 3 5521 8600

Tel: +41 22 717 51 11



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RTI, electrical			UL 746B
60mil	50	°C	
120mil	50	°C	
RTI, impact			UL 746B
60mil	50	°C	
120mil	50	°C	
RTI, strength			UL 746B
60mil	50	°C	
120mil	50	°C	
lammability	Value	Unit	Test Standard
Burning Behav. at 60mil nom. thickn.	HB		IEC 60695-11-10
Thickness tested	1.5		IEC 60695-11-10
UL recognition	ves	-	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
FMVSS Class	ycs	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
ther properties	Value		Test Standard
Humidity absorption, 80mil	0.2		Sim. to ISO 62
Water absorption, 80mil	0.8		Sim. to ISO 62
Density		kg/m <sup>3</sup>	ISO 1183
njection	Value	<u> </u>	Test Standard
Drying Recommended	yes		
Drying Temperature	80	°C	-
Drying Time, Dehumidified Dryer	2 - 3	-	-
Processing Moisture Content	<u> </u>	<u>%</u>	-
Melt Temperature Optimum	205	°C	-
	<u> </u>	°C	-
Min. melt temperature		<u>ر</u> د	-
Max. melt temperature	210		-
Mold Temperature Optimum	30	°C	-
Min. mold temperature	30	°C	-
Max. mold temperature	40	°C	-
xtrusion	Value		Test Standard
Drying Temperature	70 - 90	°C	-
Drying Time, Dehumidified Dryer	2 - 3		-
Processing Moisture Content	≤0.06	%	-
Melt Temperature Optimum	200	°C	-
Melt Temperature Range	190 - 205	°C	-
haracteristics			
Injectio	n Molding • Ot	her Extrusion	Casting
• Film Ex		ating	Casting     Thermoforming
Processing • Profile		ow Molding	
• Sheet E		landering	
		landering	
	morico - A-	ia Pacific	Near East/Africa
	illerica • As		
Regional Availability • North A • Europe		uth and Central A	America • Global

Profile extrusion PREPROCESSING

Drying temperature =  $80^{\circ}$ C Drying time, dehumidified dryer = 2-3 h Processing moisture content = <0.06 %

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**Asia Pacific** Tel: +81 3 5521 8600

**Europe/M** 00 Tel: +41 2

Europe/Middle East/Africa Tel: +41 22 717 51 11



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#### PROCESSING

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

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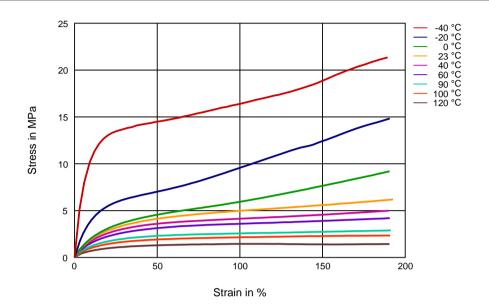


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Diagrams

Stress-Strain (TPE)



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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 Nitric Acid (40% by mass) (23°C)		
Sulfuric Acid (38% by mass) (23°C)		
Sulfuric Acid (5% by mass) (23°C)		
<ul> <li>Hydrochloric Acid (36% by mass) (23°C)</li> <li>Nitric Acid (40% by mass) (23°C)</li> <li>Sulfuric Acid (38% by mass) (23°C)</li> <li>Sulfuric Acid (5% by mass) (23°C)</li> <li>Chromic Acid solution (40% by mass) (23°C)</li> </ul>		
Bases		
Sodium Hydroxide solution (35% by mass) (2		
Sodium Hydroxide solution (1% by mass) (23		
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		
Acetone (23°C)		
Ethers		
Diethyl ether (23°C)		
Aineral 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)		
<ul> <li>ISO 1817 Liquid 2 - M15E4 (60°C)</li> <li>ISO 1817 Liquid 3 - M3E7 (60°C)</li> <li>ISO 1817 Liquid 4 - M15 (60°C)</li> <li>Standard fuel without alcohol (pref. ISO 181</li> </ul>		
ISO 1817 Liquid 4 - M15 (60°C)	$7 \downarrow i = i = (22 \circ C)$	
Standard fuel with alcohol (pref. ISO 1817 L	iquiu 4) (23 C)	
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al· ±1 302 000-7502 Tal· ±81 3 5521 86	$100$ Tol. $\pm 41.22$ 717 51 11	

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**QIPOND** 

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- 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)
- XXX 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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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