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Santoprene™ 101-80

Thermoplastic Vulcanizate

Product Description

A soft, black, versatile thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. This material combines good physical properties and chemical resistance for use in a wide range of applications. This grade of Santoprene TPV is shear-dependent and can be processed on conventional thermoplastics equipment for injection molding, extrusion, blow molding, thermoforming or vacuum forming. It is polyolefin based and recyclable within the manufacturing stream.

Key Features

- UL listed: file #QMFZ2.E80017, Plastics - Component; file #QMFZ8.E80017, Plastics Certified For Canada - Component; file #QMTT2.E86313, Polymeric Materials for Use in Wire, Cable and Flexible Lighting Products - Component.
- Recommended for applications requiring excellent flex fatigue resistance.
- Excellent ozone resistance.

General

Availability [1]	▪ Africa & Middle East ▪ Asia Pacific	▪ Europe ▪ Latin America	▪ North America
Applications	▪ Automotive - Air Induction System Ducts ▪ Automotive - Boots and Bellows for Steering and Suspension ▪ Automotive - Plugs, Bumpers, Grommets, Clips ▪ Automotive - Seals and Gaskets ▪ Consumer - Electronics ▪ Consumer - Floor Care ▪ Industrial - Seals and Gaskets ▪ Tubing		
Uses	▪ Appliance Components ▪ Automotive Applications ▪ Automotive Under the Hood ▪ Consumer Applications	▪ Diaphragms ▪ Electrical Parts ▪ Gaskets ▪ Outdoor Applications	▪ Seals ▪ Tubing
Agency Ratings	▪ UL QMFZ2	▪ UL QMFZ8	▪ UL QMTT2
RoHS Compliance	▪ RoHS Compliant		
Automotive Specifications	▪ CHRYSLER MS-AR-100 DGN	▪ FORD WSD-M2D381-A1	▪ GM GMW15813 Type 7
UL File Number	▪ E86313	▪ E80017	
Color	▪ Black		
Form(s)	▪ Pellets		
Processing Method	▪ Blow Molding ▪ Coextrusion ▪ Extrusion ▪ Extrusion Blow Molding	▪ Injection Blow Molding ▪ Injection Molding ▪ Multi Injection Molding ▪ Profile Extrusion	▪ Sheet Extrusion ▪ Thermoforming ▪ Vacuum Forming
Revision Date	▪ 04/01/2017		

Physical	Typical Value (English)	Typical Value (SI)	Test Based On
Density / Specific Gravity	0.960	0.960	ASTM D792
Density	0.960 g/cm³	0.960 g/cm³	ISO 1183
Outdoor Suitability	f1	f1	UL 746C
Detergent Resistance	f3	f3	UL 749
Detergent Resistance	f4	f4	UL 2157

Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness			ISO 868
Shore A, 15 sec, 73°F (23°C)	87	87	

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Elastomers	Typical Value (English)		Typical Value (SI)		Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	669	psi	4.61	MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	669	psi	4.61	MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	1510	psi	10.4	MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	1510	psi	10.4	MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	530	%	530	%	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	530	%	530	%	ISO 37
Tear Strength - Across Flow					ISO 34-1
73°F (23°C), Method Ba, Angle (Unnicked)	188	lbf/in	33.0	kN/m	
Compression Set					ASTM D395B
158°F (70°C), 22 hr, Type 1	36	%	36	%	
257°F (125°C), 70 hr, Type 1	52	%	52	%	
Compression Set					ISO 815
158°F (70°C), 22 hr, Type A	36	%	36	%	
257°F (125°C), 70 hr, Type A	52	%	52	%	

Thermal	Typical Value (English)		Typical Value (SI)		Test Based On
Brittleness Temperature	-76	°F	-60	°C	ASTM D746
Brittleness Temperature	-76	°F	-60	°C	ISO 812
RTI Elec	194	°F	90.0	°C	UL 746B
RTI Str					UL 746B
0.04 in (1.0 mm)	194	°F	90.0	°C	
0.06 in (1.5 mm)	194	°F	90.0	°C	
0.12 in (3.0 mm)	203	°F	95.0	°C	

Electrical	Typical Value (English)		Typical Value (SI)		Test Based On
Dielectric Strength					ASTM D149
73°F (23°C), 0.0787 in (2.00 mm)	750	V/mil	30	kV/mm	
Dielectric Constant					ASTM D150
73°F (23°C), 0.0780 in (1.98 mm)	2.60		2.60		
Dielectric Constant					IEC 60250
73°F (23°C), 0.0780 in (1.98 mm)	2.60		2.60		
Comparative Tracking Index (CTI)	PLC 0		PLC 0		UL 746A
High Amp Arc Ignition (HAI)	PLC 0		PLC 0		UL 746A
High Voltage Arc Resistance to Ignition (HVAR)	PLC 6		PLC 6		UL 746A
High Voltage Arc Tracking Rate (HVTR)	PLC 1		PLC 1		UL 746A
Hot-wire Ignition (HWI)					UL 746A
0.04 in (1.0 mm)	PLC 4		PLC 4		
0.06 in (1.5 mm)	PLC 3		PLC 3		
0.12 in (3.0 mm)	PLC 2		PLC 2		

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Injection	Typical Value (English)		Typical Value (SI)	
Drying Temperature	180	°F	82	°C
Drying Time	3.0	hr	3.0	hr
Suggested Max Moisture	0.080	%	0.080	%
Suggested Max Regrind	20	%	20	%
Rear Temperature	350	°F	177	°C
Middle Temperature	360	°F	182	°C
Front Temperature	370	°F	188	°C
Nozzle Temperature	380 to 450	°F	193 to 232	°C
Processing (Melt) Temp	390 to 450	°F	199 to 232	°C
Mold Temperature	50 to 125	°F	10 to 52	°C
Injection Rate	Fast		Fast	
Back Pressure	50.0 to 100	psi	0.345 to 0.689	MPa
Screw Speed	100 to 200	rpm	100 to 200	rpm
Clamp Tonnage	3.0 to 5.0	tons/in^2	41 to 69	MPa
Cushion	0.125 to 0.250	in	3.18 to 6.35	mm
Screw L/D Ratio	16.0:1.0 to 20.0:1.0		16.0:1.0 to 20.0:1.0	
Screw Compression Ratio	2.0:1.0 to 2.5:1.0		2.0:1.0 to 2.5:1.0	
Vent Depth	1.0E-3	in	0.025	mm

Injection Notes

Santoprene™ TPV is incompatible with acetal and PVC. For more information regarding processing and mold design, please consult our Injection Molding Guide.

Extrusion	Typical Value (English)		Typical Value (SI)	
Drying Temperature	180	°F	82	°C
Drying Time	3.0	hr	3.0	hr
Melt Temperature	395	°F	202	°C
Die Temperature	400	°F	204	°C
Back Pressure	725 to 2900	psi	5.00 to 20.0	MPa

Extrusion Notes

Santoprene™ TPV is incompatible with acetal and PVC. For more information regarding processing and die design, please consult our Extrusion Molding Guide.

Aging	Typical Value (English)		Typical Value (SI)		Test Based On
Change in Tensile Strength in Air					ASTM D573
302°F (150°C), 168 hr	-5.8	%	-5.8	%	
Change in Tensile Strength in Air					ISO 188
302°F (150°C), 168 hr	-5.8	%	-5.8	%	
Change in Ultimate Elongation in Air					ASTM D573
302°F (150°C), 168 hr	-12	%	-12	%	
Change in Tensile Strain at Break in Air					ISO 188
302°F (150°C), 168 hr	-12	%	-12	%	
Change in Durometer Hardness in Air					ASTM D573
Shore A, 302°F (150°C), 168 hr	1.7		1.7		
Change in Shore Hardness in Air					ISO 188
Shore A, 302°F (150°C), 168 hr	1.7		1.7		
Continuous Upper Temperature Resistance					SAE J2236
1008 hr	275	°F	135	°C	

Flammability	Typical Value (English)	Typical Value (SI)	Test Based On
Flame Rating			UL 94
0.04 in (1.0 mm)	HB	HB	
0.06 in (1.5 mm)	HB	HB	
0.12 in (3.0 mm)	HB	HB	

Additional Information

Where applicable, test results based on fan gated, 2.0 mm injection molded plaques. Tensile strength, elongation and tensile stress are measured across the flow direction. Test results are generated by ExxonMobil test methods that may not fully conform to the ASTM and/or ISO methods. Test methods are available upon request. Compression set at 25% deflection. All products purchased directly from an ExxonMobil affiliate in Europe are REACH compliant. For products not imported into Europe by ExxonMobil, customers should assess their legal responsibilities under REACH.

Legal Statement

This product, including the product name, shall not be used or tested in any medical application without the prior written acknowledgement of ExxonMobil Chemical as to the intended use. For detailed Product Stewardship information, please contact Customer Service.

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Processing Statement

Desiccant drying for 3 hours at 80°C (180°F) is recommended. Santoprene™ TPV has a wide temperature processing window from 175 to 230°C (350 to 450°F) and is incompatible with acetal and PVC. For more information, please consult our Safety Data Sheet, Injection Molding Guide and Extrusion Guide.

Notes

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

[1] Product may not be available in one or more countries in the identified Availability regions. Please contact your Sales Representative for complete Country Availability.

For additional technical, sales and order assistance: www.exxonmobilchemical.com/ContactUs

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