

Santoprene™ 103-40

Thermoplastic Vulcanizate

Product Description	Key Features
A hard, 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 completely recyclable.	<ul style="list-style-type: none"> UL listed: file #QMFZ2.E80017, Plastics - Component; file #QMFZ8.E80017, Plastics Certified For Canada - Component. Excellent ozone resistance. EU and China RoHS compliant.

General			
Availability ¹	<ul style="list-style-type: none"> Africa & Middle East Asia Pacific 	<ul style="list-style-type: none"> Europe Latin America 	<ul style="list-style-type: none"> North America South America
Applications	<ul style="list-style-type: none"> Automotive - Air Induction System Ducts Automotive - Boots and Bellows for Steering and Suspension Automotive - Plugs, Bumpers, Grommets, Clips 		
Uses	<ul style="list-style-type: none"> Appliance Components Automotive Applications Automotive Under the Hood 	<ul style="list-style-type: none"> Consumer Applications Diaphragms Electrical Parts 	<ul style="list-style-type: none"> Living Hinges Tubing
Agency Ratings	<ul style="list-style-type: none"> EU Annex XVII of Regulation (EC) No 1907/2006 	<ul style="list-style-type: none"> UL QMFZ2 	<ul style="list-style-type: none"> UL QMFZ8
RoHS Compliance	<ul style="list-style-type: none"> RoHS Compliant 		
Automotive Specifications	<ul style="list-style-type: none"> CHRYSLER MS-AR100 FGN FORD WSD-M2D441-A 	<ul style="list-style-type: none"> GM GMP.E/P.006 GM GMW15813, Type 9 	
UL File Number	<ul style="list-style-type: none"> E80017 		
Color	<ul style="list-style-type: none"> Black 		
Form(s)	<ul style="list-style-type: none"> Pellets 		
Processing Method	<ul style="list-style-type: none"> Blow Molding Coextrusion Extrusion Extrusion Blow Molding 	<ul style="list-style-type: none"> Injection Blow Molding Injection Molding Multi Injection Molding Profile Extrusion 	<ul style="list-style-type: none"> Sheet Extrusion Thermoforming Vacuum Forming
Revision Date	<ul style="list-style-type: none"> 08/30/2012 		

Physical	Typical Value (English)	Typical Value (SI)	Test Based On
Specific Gravity	0.950	0.950	ASTM D792
Density	0.950 g/cm ³	0.950 g/cm ³	ISO 1183
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 D, 15 sec, 73°F (23°C), 0.0787 in (2.00 mm)	41	41	

Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	1310 psi	9.00 MPa	ASTM D412

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

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Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	1310 psi	9.00 MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	3000 psi	20.7 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	3000 psi	20.7 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	610 %	610 %	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	610 %	610 %	ISO 37
Tear Strength - Across Flow (73°F (23°C), Die C)	383 lbf/in	67.0 kN/m	ASTM D624
Tear Strength - Across Flow 73°F (23°C), Method Bb, Angle (Nicked)	380 lbf/in	67 kN/m	ISO 34-1
Compression Set			ASTM D395B
158°F (70°C), 22.0 hr, Type 1	54 %	54 %	
257°F (125°C), 70.0 hr, Type 1	61 %	61 %	
Compression Set			ISO 815
158°F (70°C), 22.0 hr, Type A	54 %	54 %	
257°F (125°C), 70.0 hr, Type A	61 %	61 %	

Thermal	Typical Value (English)	Typical Value (SI)	Test Based On
Brittleness Temperature	-62 °F	-52 °C	ASTM D746
Brittleness Temperature	-62 °F	-52 °C	ISO 812
RTI Elec	185 °F	85.0 °C	UL 746
RTI Str	185 °F	85.0 °C	UL 746

Electrical	Typical Value (English)	Typical Value (SI)	Test Based On
Dielectric Strength 73°F (23°C), 0.0800 in (2.03 mm)	800 V/mil	32 kV/mm	ASTM D149
Dielectric Constant 73°F (23°C), 0.0780 in (1.98 mm)	2.60	2.60	ASTM D150
Dielectric Constant 73°F (23°C), 0.0780 in (1.98 mm)	2.60	2.60	IEC 60250
Comparative Tracking Index (CTI)	PLC 0	PLC 0	UL 746
High Amp Arc Ignition (HAI)	PLC 0	PLC 0	UL 746
High Voltage Arc Resistance to Ignition (HVAR)	PLC 5	PLC 5	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 1	PLC 1	UL 746
Hot-wire Ignition (HWI)			UL 746
0.0394 in (1.00 mm)	PLC 4	PLC 4	
0.0591 in (1.50 mm)	PLC 3	PLC 3	
0.118 in (3.00 mm)	PLC 2	PLC 2	

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	180 °F	82.2 °C
Drying Time	3.0 hr	3.0 hr
Suggested Max Moisture	0.080 %	0.080 %
Suggested Max Re grind	20 %	20 %

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Injection	Typical Value (English)	Typical Value (SI)
Rear Temperature	380 °F	193 °C
Middle Temperature	390 °F	199 °C
Front Temperature	400 °F	204 °C
Nozzle Temperature	410 to 460 °F	210 to 238 °C
Processing (Melt) Temp	420 to 450 °F	216 to 232 °C
Mold Temperature	50.0 to 125 °F	10.0 to 51.7 °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	0.0010 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	82.2 °C
Drying Time	3.0 hr	3.0 hr
Melt Temperature	410 °F	210 °C
Die Temperature	420 °F	216 °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 mold design, please consult our Extrusion Guide.

Aging	Typical Value (English)	Typical Value (SI)	Test Based On
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-11 %	-11 %	ASTM D573
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-11 %	-11 %	ISO 188
Change in Ultimate Elongation in Air 302°F (150°C), 168 hr	-15 %	-15 %	ASTM D573
Change in Tensile Strain at Break in Air 302°F (150°C), 168 hr	-15 %	-15 %	ISO 188
Change in Durometer Hardness in Air Shore D, 302°F (150°C), 168 hr	4.0	4.0	ASTM D573
Change in Shore Hardness in Air Shore D, 302°F (150°C), 168 hr	4.0	4.0	ISO 188

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Flammability	Typical Value (English)	Typical Value (SI)	Test Based On
Flame Rating			UL 94
0.0394 in (1.00 mm)	HB	HB	
0.0591 in (1.50 mm)	HB	HB	
0.118 in (3.00 mm)	HB	HB	

Additional Information

Values are for injection molded plaques, fan-gated, 102.0 mm x 152.0 mm x 2.0 mm (4.000" x 6.000" x 0.080").
Tensile strength, elongation and tensile stress are measured across the flow direction - ISO type 1, ASTM die C.
Compression set at 25% deflection.

Legal Statement

For detailed Product Stewardship information, please contact Customer Service.

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.

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 Material Safety Data Sheet, Injection Molding Guide and Extrusion Guide.

Notes

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.

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