

# Santoprene™ 101-87

## 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"> <li>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.</li> <li>Recommended for applications requiring excellent flex fatigue resistance.</li> <li>Excellent ozone resistance.</li> <li>EU Directive 2002/95/EC (RoHS) compliant.</li> </ul>

### General

Availability <sup>1</sup>	<ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> </ul>	<ul style="list-style-type: none"> <li>Europe</li> <li>Latin America</li> </ul>	<ul style="list-style-type: none"> <li>North America</li> <li>South America</li> </ul>
Applications	<ul style="list-style-type: none"> <li>Automotive - Air Induction System Ducts</li> <li>Automotive - Boots and Bellows for Steering and Suspension</li> <li>Automotive - Plugs, Bumpers, Grommets, Clips</li> <li>Automotive - Seals and Gaskets</li> <li>Consumer - Electronics</li> </ul>		
Uses	<ul style="list-style-type: none"> <li>Appliance Components</li> <li>Automotive Applications</li> <li>Automotive Under the Hood</li> </ul>	<ul style="list-style-type: none"> <li>Consumer Applications</li> <li>Diaphragms</li> <li>Electrical Parts</li> </ul>	<ul style="list-style-type: none"> <li>Living Hinges</li> <li>Tubing</li> </ul>
Agency Ratings	<ul style="list-style-type: none"> <li>EU 2003/11/EC</li> <li>UL QMFZ2</li> </ul>	<ul style="list-style-type: none"> <li>UL QMFZ8</li> <li>UL QMTT2</li> </ul>	
RoHS Compliance	<ul style="list-style-type: none"> <li>RoHS Compliant</li> </ul>		
Automotive Specifications	<ul style="list-style-type: none"> <li>CHRYSLER MS-AR100 EGN</li> <li>DELPHI 8519</li> <li>DELPHI DX300020</li> </ul>	<ul style="list-style-type: none"> <li>DELPHI M-6069</li> <li>FORD WSD-M2D382-A1</li> <li>GM GMPE/P.005</li> </ul>	<ul style="list-style-type: none"> <li>TRW TMS-P-10,342</li> <li>VALEO VMS-7023</li> </ul>
Color	<ul style="list-style-type: none"> <li>Black</li> </ul>		
Form(s)	<ul style="list-style-type: none"> <li>Pellets</li> </ul>		
Processing Method	<ul style="list-style-type: none"> <li>Blow Molding</li> <li>Coextrusion</li> <li>Extrusion</li> <li>Extrusion Blow Molding</li> </ul>	<ul style="list-style-type: none"> <li>Injection Blow Molding</li> <li>Injection Molding</li> <li>Multi Injection Molding</li> <li>Profile Extrusion</li> </ul>	<ul style="list-style-type: none"> <li>Sheet Extrusion</li> <li>Thermoforming</li> <li>Vacuum Forming</li> </ul>
Revision Date	<ul style="list-style-type: none"> <li>11/27/2007</li> </ul>		

Physical	Typical Value (English)	Typical Value (SI)	Test Based On
Specific Gravity	0.960	0.960	ASTM D792
Density	0.960 g/cm <sup>3</sup>	0.960 g/cm <sup>3</sup>	ISO 1183

Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness			ISO 868
Shore A, 15 sec, 73°F (23°C), 0.0787 in (2.00 mm)	93	93	

Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	1030 psi	7.10 MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	1030 psi	7.10 MPa	ISO 37

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

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<b>Elastomers</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	<b>Test Based On</b>
Tensile Strength at Break - Across Flow (73°F (23°C))	2550 psi	17.6 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	2550 psi	17.6 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	580 %	580 %	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	580 %	580 %	ISO 37
Tear Strength - Across Flow (73°F (23°C), Die C)	297 lbf/in	52.0 kN/m	ASTM D624
Tear Strength - Across Flow 73°F (23°C), Method Bb, Angle (Nicked)	300 lbf/in	52 kN/m	ISO 34-1
Compression Set 158°F (70°C), 22.0 hr, Type 1	36 %	36 %	ASTM D395B
257°F (125°C), 70.0 hr, Type 1	44 %	44 %	
Compression Set 158°F (70°C), 22.0 hr, Type A	36 %	36 %	ISO 815
257°F (125°C), 70.0 hr, Type A	44 %	44 %	
<b>Thermal</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	<b>Test Based On</b>
Brittleness Temperature	-65 °F	-54 °C	ASTM D746
Brittleness Temperature	-65 °F	-54 °C	ISO 812
<b>Electrical</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	<b>Test Based On</b>
Dielectric Strength (0.0800 in (2.03 mm))	860 V/mil	34 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
<b>Injection</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	
Drying Temperature	180 °F	82.2 °C	
Drying Time	3.0 hr	3.0 hr	
Suggested Max Moisture	0.080 %	0.080 %	
Suggested Max Regrind	20 %	20 %	
Rear Temperature	360 °F	182 °C	
Middle Temperature	370 °F	188 °C	
Front Temperature	380 °F	193 °C	
Nozzle Temperature	390 to 455 °F	199 to 235 °C	
Processing (Melt) Temp	400 to 450 °F	204 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 <sup>2</sup>	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	

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<b>Injection</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>
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.

<b>Extrusion</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>
Drying Temperature	180 °F	82.2 °C
Drying Time	3.0 hr	3.0 hr
Melt Temperature	400 °F	204 °C
Die Temperature	410 °F	210 °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.

<b>Aging</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	<b>Test Based On</b>
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-15 %	-15 %	ASTM D573
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-15 %	-15 %	ISO 188
Change in Ultimate Elongation in Air 302°F (150°C), 168 hr	-16 %	-16 %	ASTM D573
Change in Tensile Strain at Break in Air 302°F (150°C), 168 hr	-16 %	-16 %	ISO 188
Change in Durometer Hardness in Air Shore A, 302°F (150°C), 168 hr	2.0	2.0	ASTM D573
Change in Shore Hardness in Air Shore A, 302°F (150°C), 168 hr	2.0	2.0	ISO 188
Continuous Upper Temperature Resistance	275 °F	135 °C	SAE J2236

**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, Extrusion Guide and Blow Molding Guide.

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## Notes

<sup>1</sup> 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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