

# Santoprene™ 123-40

## Thermoplastic Vulcanizate

Product Description		Key Features		
<p>A hard, black, UV resistant 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.</p>		<ul style="list-style-type: none"> <li>Recommended for applications requiring excellent flex fatigue resistance.</li> <li>Excellent ozone resistance.</li> <li>Designed for improved UV resistance.</li> <li>Although not NSF certified, this product has a Material Supplier Form on file with NSF to facilitate its evaluation for use in applications requiring NSF certification.</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> </ul>	
Applications	<ul style="list-style-type: none"> <li>Automotive - Weather Seals</li> </ul>			
Uses	<ul style="list-style-type: none"> <li>Automotive Applications</li> </ul>	<ul style="list-style-type: none"> <li>Automotive Exterior Trim</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor Applications</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-AR-100 GGV</li> </ul>	<ul style="list-style-type: none"> <li>GM GMW15812 Type 9</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>06/20/2014</li> </ul>			
Physical		Typical Value (English)	Typical Value (SI)	Test Based On
Density / 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 D, 15 sec, 73°F (23°C)		41	41	
Elastomers		Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))		1320 psi	9.10 MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))		1320 psi	9.10 MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))		2770 psi	19.1 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))		2770 psi	19.1 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))		620 %	620 %	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))		620 %	620 %	ISO 37
Thermal		Typical Value (English)	Typical Value (SI)	Test Based On
Brittleness Temperature		-72 °F	-58 °C	ASTM D746
Brittleness Temperature		-72 °F	-58 °C	ISO 812

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Electrical	Typical Value (English)	Typical Value (SI)	Test Based On
Dielectric Strength 73°F (23°C), 0.0787 in (2.00 mm)	790 V/mil	31 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

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	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 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 <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
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	410 °F	210 °C
Die Temperature	420 °F	216 °C
Back Pressure	725 to 2900 psi	5.00 to 20.0 MPa

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Aging	Typical Value (English)	Typical Value (SI)	Test Based On
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-17 %	-17 %	ASTM D573
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-17 %	-17 %	ISO 188
Change in Ultimate Elongation in Air 302°F (150°C), 168 hr	-22 %	-22 %	ASTM D573
Change in Tensile Strain at Break in Air 302°F (150°C), 168 hr	-22 %	-22 %	ISO 188
Change in Durometer Hardness in Air Shore D, 302°F (150°C), 168 hr	2.0	2.0	ASTM D573
Change in Shore Hardness in Air Shore D, 302°F (150°C), 168 hr	2.0	2.0	ISO 188

#### Additional Information

Where applicable, test results based on fan gated, injection molded plaques.

Tensile strength, elongation and tensile stress are measured across the flow direction - ISO type 1, ASTM die C.

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.

<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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For additional technical, sales and order assistance: [www.exxonmobilchemical.com/ContactUs](http://www.exxonmobilchemical.com/ContactUs)

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