

Santoprene™ 111-45

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 injection molding applications. This grade of Santoprene TPV is shear-dependent and can be processed on conventional thermoplastics equipment for injection molding. It is polyolefin based and recyclable within the manufacturing stream.

Key Features

- Recommended for applications requiring excellent flex fatigue resistance.
- Excellent ozone resistance.
- UL listed: file #QMFZ2.E80017, Plastics - Component; file #QMFZ8.E80017, Plastics Certified For Canada - Component.
- 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.
- Used in sealing applications.

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
Applications	<ul style="list-style-type: none"> ▪ Automotive - Air Filter Gaskets ▪ Automotive - HVAC Flapper Door Seals ▪ Automotive - Motor Brush Holders ▪ Automotive - Plugs, Bumpers, Grommets, Clips 	<ul style="list-style-type: none"> ▪ Automotive - Seals and Gaskets ▪ Consumer - Electronics ▪ Consumer - Floor Care ▪ General Purpose 	<ul style="list-style-type: none"> ▪ Home & Garden ▪ Industrial - Seals and Gaskets ▪ Printers
Uses	<ul style="list-style-type: none"> ▪ Automotive Applications ▪ Cell Phones ▪ Consumer Applications 	<ul style="list-style-type: none"> ▪ Gaskets ▪ Industrial Applications ▪ Printer Parts 	<ul style="list-style-type: none"> ▪ Seals
Agency Ratings	<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-AR-100 BMN 	<ul style="list-style-type: none"> ▪ FORD WSD-M2D378-A4 	
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"> ▪ Injection Molding 	<ul style="list-style-type: none"> ▪ Multi Injection Molding 	
Revision Date	<ul style="list-style-type: none"> ▪ 06/20/2014 		

Physical

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

Hardness

	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness			ISO 868
Shore A, 15 sec, 73°F (23°C)	49	49	

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Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	203 psi	1.40 MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	203 psi	1.40 MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	508 psi	3.50 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	508 psi	3.50 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	340 %	340 %	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	340 %	340 %	ISO 37
Compression Set			ASTM D395B
73°F (23°C), 22 hr, Type 1	11 %	11 %	
257°F (125°C), 70 hr, Type 1	35 %	35 %	
Compression Set			ISO 815
73°F (23°C), 22 hr, Type A	11 %	11 %	
257°F (125°C), 70 hr, Type A	35 %	35 %	
Thermal	Typical Value (English)	Typical Value (SI)	Test Based On
Brittleness Temperature	-80 °F	-62 °C	ASTM D746
Brittleness Temperature	-80 °F	-62 °C	ISO 812
Electrical	Typical Value (English)	Typical Value (SI)	Test Based On
Dielectric Strength			ASTM D149
73°F (23°C), 0.0787 in (2.00 mm)	690 V/mil	27 kV/mm	
Dielectric Constant			ASTM D150
73°F (23°C), 0.0780 in (1.98 mm)	2.40	2.40	
Dielectric Constant			IEC 60250
73°F (23°C), 0.0780 in (1.98 mm)	2.40	2.40	
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 Re grind	20 %	20 %	
Rear Temperature	350 to 380 °F	177 to 193 °C	
Middle Temperature	355 to 390 °F	179 to 199 °C	
Front Temperature	355 to 400 °F	179 to 204 °C	
Nozzle Temperature	375 to 445 °F	191 to 229 °C	
Processing (Melt) Temp	380 to 465 °F	193 to 241 °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. An SPI/SPE #3 finish is recommended (do not polish). For more information regarding processing and mold design, please consult our Injection Molding Guide.

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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	-23 %	-23 %	ASTM D573
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-23 %	-23 %	ISO 188
Change in Ultimate Elongation in Air 302°F (150°C), 168 hr	26 %	26 %	ASTM D573
Change in Tensile Strain at Break in Air 302°F (150°C), 168 hr	26 %	26 %	ISO 188
Change in Durometer Hardness in Air Shore A, 302°F (150°C), 168 hr	1.0	1.0	ASTM D573
Change in Shore Hardness in Air Shore A, 302°F (150°C), 168 hr	1.0	1.0	ISO 188

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

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.

Compression set at 25% deflection.

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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 and Injection Molding 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.

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