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]	▪ Africa & Middle East ▪ Asia Pacific	▪ Europe ▪ Latin America	▪ North America
Applications	▪ Automotive - Air Filter Gaskets ▪ Automotive - HVAC Flapper Door Seals ▪ Automotive - Motor Brush Holders ▪ Automotive - Plugs, Bumpers, Grommets, Clips	▪ Automotive - Seals and Gaskets ▪ Consumer - Electronics ▪ Consumer - Floor Care ▪ General Purpose	▪ Home & Garden ▪ Industrial - Seals and Gaskets ▪ Printers
Uses	▪ Automotive Applications ▪ Cell Phones ▪ Consumer Applications	▪ Gaskets ▪ Industrial Applications ▪ Printer Parts	▪ Seals
Agency Ratings	▪ UL QMFZ2	▪ UL QMFZ8	
RoHS Compliance	▪ RoHS Compliant		
Automotive Specifications	▪ CHRYSLER MS-AR-100 BMN	▪ FORD WSD-M2D378-A4	
UL File Number	▪ E80017		
Color	▪ Black		
Form(s)	▪ Pellets		
Processing Method	▪ Injection Molding	▪ Multi Injection Molding	
Revision Date	▪ 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/cm³	0.960	g/cm³	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		

ExxonMobil

Santoprene™ 111-45
Thermoplastic Vulcanizate

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
Tear Strength - Across Flow (73°F (23°C), Die C)	62.8	lbf/in	11.0	kN/m	ASTM D624
Tear Strength - Across Flow					ISO 34-1
73°F (23°C), Method Bb, Angle (Nicked)	63	lbf/in	11	kN/m	
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		

ExxonMobil

Santoprene™ 111-45
Thermoplastic Vulcanizate

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 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.

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

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.

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

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. For detailed Product Stewardship information, please contact Customer Service.

ExxonMobil

Santoprene™ 111-45
Thermoplastic Vulcanizate

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.

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

exxonmobilchemical.com