

## SANTOPRENE™ 111-45 - TPV

### 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.

### Characteristics

<b>Applications</b>	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
<b>Uses</b>	Automotive applications, Cell phones, Consumer applications, Gaskets, Industrial applications, Printer parts, Seals
<b>Agency Ratings</b>	UL QMFZ2, UL QMFZ8
<b>UL File Number</b>	E80017
<b>Color</b>	Black
<b>Delivery Form</b>	Pellets
<b>Processing</b>	Injection molding, Multi injection molding

Physical properties	Value	Unit	Test Standard
Density	0.96	g/cm <sup>3</sup>	ASTM D792
Density	960	kg/m <sup>3</sup>	ISO 1183

Hardness	Value	Unit
Shore A hardness-TPE, 15s	49	ISO 868

Mechanical properties	Value	Unit	Test Standard
Tensile stress at 100%, perpendicular	1.4	MPa	ASTM D412
Tensile stress at 100%, perpendicular	1.4	MPa	ISO 37
Tensile strength at break elast, perpendicular	3.5	MPa	ASTM D412
Tensile stress at break, perpendicular	3.5	MPa	ISO 37
Elongation at break elast, perpendicular	340	%	ASTM D412
Tensile strain at break, perpendicular	340	%	ISO 37
Compression set, 23°C, 22h, Type 1, Method B	11	%	ASTM D395
Compression set, 23°C, 22h, Type A	11	%	ISO 815
Compression set, 125°C, 70h, Type 1, Method B	35	%	ASTM D395
Compression set, 125°C, 70h, Type A	35	%	ISO 815

Thermal properties	Value	Unit	Test Standard
Brittleness temperature	-62	°C	ASTM D746

Electrical properties	Value	Unit	Test Standard
Dielectric Strength, 2.0 mm	27	kV/mm	ASTM D149
Dielectric Constant 60Hz, 1.98 mm	2.4	-	ASTM D150
Dielectric Constant 60Hz, 1.98 mm	2.4	-	IEC 60250

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Injection	Value	Unit
Drying temperature	82	°C
Drying time	3	h
Necessary low maximum residual moisture content	0.08	%
Suggested maximum regrind	20	%
Rear temperature	177 - 193	°C
Middle temperature	179 - 199	°C
Front temperature	179 - 204	°C
Nozzle temperature	191 - 229	°C
Melt temperature	193 - 241	°C
Mold temperature	10 - 52	°C
Injection speed	fast	-
Back pressure	0.345 - 0.689	MPa
Screw Speed	100 - 200	RPM
Clamp tonnage	41 - 69	MPa
Cushion	3.18 - 6.35	mm
Screw L/D	20:1/*	-
Screw compression ratio	2.5:1/*	-
Vent depth	0.025	mm

Aging	Value	Unit	Test Standard
Change in Tensile Strength in Air @ 150 C, 168 h	-23	%	ASTM D573
Change in Tensile Strength in Air @ 150 C, 168 h	-23	%	ISO 188
Change in Ultimate Elongation in Air @ 150 C, 168 h	26	%	ASTM D573
Change in Tensile Strain at Break in Air @ 150 C, 168 h	26	%	ISO 188
Change in Durometer Hardness in Air @ 150 C, 168 h, Shore A	1	-	ASTM D573
Change in Shore Hardness in Air @ 150 C, 168 h, Shore A	1	-	ISO 188

Flammability	Value	Unit
Flame rating, 1.0 mm	HB	UL 94

### Other text information

### Processing Notes

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. An SPI/SPE #3 finish is recommended (do not polish).

### Other Approvals

OEM	Specification
Chrysler (FCA)	MS-AR-100 BMN
FORD	WSD-M2D378-A4

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