

SANTOPRENE™ 103-40 - TPV

Product Description

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 recyclable within the manufacturing stream.

Characteristics

Applications	Automotive - Air Induction System Ducts, Automotive - Boots and Bellows for Steering and Suspension, Automotive - Plugs, Bumpers, Grommets, Clips
Uses	Appliance components, Automotive applications, Automotive under the hood, Consumer applications, Diaphragms, Electrical parts, Living hinges, Tubing
Agency Ratings	UL QMFZ2, UL QMFZ8
UL File Number	E80017
Color	Black
Delivery Form	Pellets
Processing	Blow molding, Coextrusion, Extrusion, Extrusion blow molding, Injection blow molding, Injection molding, Multi injection molding, Profile extrusion, Sheet extrusion, Thermoforming, Vacuum forming

Physical properties	Value	Unit	Test Standard
Density	0.95	g/cm ³	ASTM D792
Density	950	kg/m ³	ISO 1183
Detergent resistance	f3	-	UL 749
Detergent resistance	f4	-	UL 2157

Hardness	Value	Unit
Shore D hardness-TPE, 15s	41	
		ISO 868

Mechanical properties	Value	Unit	Test Standard
Tensile stress at 100%, perpendicular	9	MPa	ASTM D412
Tensile stress at 100%, perpendicular	9	MPa	ISO 37
Tensile strength at break elast, perpendicular	20.7	MPa	ASTM D412
Tensile stress at break, perpendicular	20.7	MPa	ISO 37
Elongation at break elast, perpendicular	610	%	ASTM D412
Tensile strain at break, perpendicular	610	%	ISO 37
Tear strength, Method Ba, perpendicular	64	kN/m	ISO 34-1
Compression set, 70°C, 22h, Type 1, Method B	54	%	ASTM D395
Compression set, 70°C, 22h, Type A	54	%	ISO 815
Compression set, 125°C, 70h, Type 1, Method B	61	%	ASTM D395
Compression set, 125°C, 70h, Type A	61	%	ISO 815

Thermal properties	Value	Unit	Test Standard
Brittleness temperature	-52	°C	ASTM D746
RTI Elec	85	°C	UL 746
RTI Str	85	°C	UL 746

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Electrical properties	Value	Unit	Test Standard
Dielectric Strength, 2.0 mm	32	kV/mm	ASTM D149
Dielectric Constant 60Hz, 1.98 mm	2.6	-	ASTM D150
Dielectric Constant 60Hz, 1.98 mm	2.6	-	IEC 60250
Comparative tracking index	PLC 0	-	UL 746
High amp arc ignition (HAI)	PLC 0	-	UL 746
High voltage arc resistance to ignition (HVAR)	PLC 5	-	UL 746
High voltage arc tracking rate (HVTR)	PLC 1	-	UL 746
Hot-wire Ignition (1.0 mm)	PLC 4	-	UL 746A
Hot-wire Ignition (1.5 mm)	PLC 3	-	UL 746A
Hot-wire Ignition (3.0 mm)	PLC 2	-	UL 746A

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	193	°C
Middle temperature	199	°C
Front temperature	204	°C
Nozzle temperature	210 - 238	°C
Melt temperature	216 - 232	°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

Extrusion	Value	Unit
Drying temperature	82	°C
Drying time	3	h
Melt temperature	210	°C
Die head temperature	216	°C
Back pressure	5 - 20	MPa

Aging	Value	Unit	Test Standard
Change in Tensile Strength in Air @ 150 C, 168 h	-11	%	ASTM D573
Change in Tensile Strength in Air @ 150 C, 168 h	-11	%	ISO 188
Change in Ultimate Elongation in Air @ 150 C, 168 h	-15	%	ASTM D573
Change in Tensile Strain at Break in Air @ 150 C, 168 h	-15	%	ISO 188
Change in Durometer Hardness in Air @ 150 C, 168 h, Shore D	4	-	ASTM D573
Change in Shore Hardness in Air @ 150 C, 168 h, Shore D	4	-	ISO 188

Flammability	Value	Unit
Flame rating, 1.0 mm	HB	UL 94
Flame rating, 1.5 mm	HB	UL 94
Flame rating, 3.0 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.

Other Approvals

OEM	Specification
Chrysler (FCA)	MS-AR-100 FGN
FORD	WSD-M2D441-A
GM	GMW15813, Type 9

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