SANTOPRENE™ 103-50 - 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 - 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/cm³	ASTM D792
Density		**950**	kg/m³	ISO 1183
Detergent resistance	**f3**		-	UL 749
Detergent resistance	**f4**		-	UL 2157

Hardness	Value	Unit	
Shore D hardness-TPE, 15s	**51**		ISO 868

Mechanical properties	Value	Unit	Test Standard
Tensile strength at yield, perpendicular	**12**	MPa	ASTM D638
Tensile stress at yield, perpendicular	**12**	MPa	ISO 527-2
Tensile elongation at yield, perpendicular	**31**	%	ASTM D638
Tensile strain at yield, perpendicular	**31**	%	ISO 527-2
Tear strength, Method Ba, perpendicular	**93**	kN/m	ISO 34-1
Compression set, 70 °C, 22h, Type 1, Method B	**59**	%	ASTM D395
Compression set, 70 °C, 22h, Type A	**59**	%	ISO 815
Compression set, 125 °C, 70h, Type 1, Method B	**74**	%	ASTM D395
Compression set, 125 °C, 70h, Type A	**74**	%	ISO 815

Thermal properties	Value	Unit	Test Standard
Brittleness temperature	**-28**	°C	ASTM D746
RTI Elec	**85**	°C	UL 746
RTI Str	**85**	°C	UL 746

Electrical properties	Value	Unit	Test Standard
Dielectric Strength, 2.0 mm	**31**	kV/mm	ASTM D149
Dielectric Constant 60Hz, 1.98 mm	**2.4**	-	ASTM D150
Dielectric Constant 60Hz, 1.98 mm	**2.4**	-	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	**PLC 3**	-	UL 746

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 - 241**	°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	**-32**	%	ASTM D573
Change in Tensile Strength in Air @ 150 C, 168 h	**-32**	%	ISO 188
Change in Ultimate Elongation in Air @ 150 C, 168 h	**-27**	%	ASTM D573
Change in Tensile Strain at Break in Air @ 150 C, 168 h	**-27**	%	ISO 188
Change in Durometer Hardness in Air @ 150 C, 168 h, Shore D	**5**	-	ASTM D573
Change in Shore Hardness in Air @ 150 C, 168 h, Shore D	**5**	-	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
GM	GMW15813, Type 10
Chrysler (FCA)	MS-AR-100 GGN

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