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SANTOPRENE® 101-80

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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 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.

Key Features

- UL listed: file #QMFZ2.E80017, Plastics - Component; file #QMFZ8.E80017, Plastics Certified For Canada - Component; file #QMTT2.E86313, Polymeric Materials for Use in Wire, Cable and Flexible Lighting Products - Component
- Recommended for applications requiring excellent flex fatigue resistance
- Excellent ozone resistance

Product information

Resin Identification	TPV	ISO 1043
Part Marking Code	>TPV<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	1.8[1]	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8[1]	%	ISO 294-4, 2577

[1]: 2.0 mm thickness, min. 24 hours after molding, per test method TPE-X0080

Typical mechanical properties

Tensile stress at 100% elongation, perpendicular	4.61	MPa	ISO 37
Tensile stress at break, perpendicular	10.4	MPa	ISO 527-1/-2 or ISO 37
Elongation at break, perpendicular	526	%	ISO 527-1/-2 or ISO 37
Brittleness Temperature	-60	°C	ASTM D 746
Low temperature brittleness	-60	°C	ISO 812
Shore A hardness, 15s	87		ISO 48-4 / ISO 868
Compression set, 70°C, 24h	36	%	ISO 815
Compression set, 125°C, 70h	52	%	ISO 815
Tear strength, normal	33	kN/m	ISO 34-1

Thermal properties

RTI, electrical, 1.5mm	90	°C	UL 746B
RTI, electrical, 3.0mm	90	°C	UL 746B
RTI, strength, 1.5mm	90	°C	UL 746B
RTI, strength, 3.0mm	95	°C	UL 746B

Specific Application Suitability

Continuous Upper Temperature Resistance, 1000h	135	°C	SAE J2236
Detergent resistance	f3		UL 749
Detergent resistance	f4		UL 2157
Outdoor suitability	f1		UL 746C

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Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	1	mm	IEC 60695-11-10
UL recognition	yes		UL 94
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 2 mm	19.6	mm/min	ISO 3795 (FMVSS 302)
Hot Wire Ignition, 1.5mm	PLC 3	s	UL 746A
Hot Wire Ignition, 3mm	PLC 2	s	UL 746A

Electrical properties

Relative permittivity, 60Hz	2.6		IEC 62631-2-1
Comparative tracking index, 23 °C	0	PLC	UL 746A
Arc Resistance Performance Level Category	PLC 6	class	UL 746B
High Amperage Arc Ignition Category, 1.5 mm	PLC 0	class	UL 746A

Physical/Other properties

Density	960	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	≥3	h
Processing Moisture Content	≤0.08	%
Max. regrind level	20	%
Melt Temperature Optimum	205	°C
Min. melt temperature	190	°C
Max. melt temperature	220	°C
Mold Temperature Optimum	30	°C
Min. mould temperature	10	°C
Max. mould temperature	50	°C

Extrusion

Drying Temperature	82	°C
Drying Time, Dehumidified Dryer	3	h
Melt Temperature Range	202	°C

Characteristics

Processing	Injection Moulding, Multi Injection Moulding, Extrusion, Sheet Extrusion, Coextrusion, Blow Moulding, Thermoforming
Delivery form	Pellets

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Additional information

Non Standard Data

Property Name	Condition	Value	Unit	Standard
Change in Tensile Strength	150°C, 168h	-5.8	%	ISO 188
Change in Tensile Strain at Break	150°C, 168h	-12	%	ISO 188
Change in Shore A Hardness	150°C, 168h	1.7	-	ISO 188

Injection molding

Holding pressure should be about 50 to 75% of the actual injection pressure.
A high screw RPM (100 to 200) is recommended.
Back pressure is not always needed, however, a back pressure of 0.3 to 0.7 MPa may be used to ensure a homogeneous melt and maintain a consistent shot size.
A higher back pressure is normally employed when using masterbatches.

Processing Notes

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.

Santoprene® TPV has a relatively high melt viscosity at low shear rates. Viscosity decreases as the shear rate increases.
Increasing temperature has little effect on TPV melt viscosity. Smaller gates and higher shear rates keep melt viscosity low and improve melt flow. Please also refer to the injection molding guide.

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
BMW	GS93042	
Chery	Q/SQR.04.1195-2011	
Ford	WSD-M2D381-A1	
General Motors	GMW15813P-TPV-(EPDM+PP)-Type 7	N/A
Hyundai	MS220-05 Type D	
Mercedes-Benz	DBL5562	
Renault	FRM 18-27--703 /---, No Spec, Special Part Approval, See Your CE Account Manager.	

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Renault	FRM 18-27-056 /---, No Spec, Special Part Approval, See Your CE Account Manager.	
Renault	UB16b, No Spec, Special Part Approval, See Your CE Account Manager.	
Stellantis	55248_02 EMP90	MS-AR-100 DGN;B63 0300 / 01378_23_00030;Coolant hose celanese TPV1hose-125
Stellantis	B63 0300 / TPV1hose-125	MS-AR-100 DGN;B63 0300 / 01378_23_00030;Coolant hose celanese TPV1hose-125
VW Group	VW 50123	

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