Santoprene™ 201-64

ExxonMobil Chemical - Thermoplastic Vulcanizate

Tuesday, February 10, 2009

General Information

Product Description

A soft, colorable, 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 or blow molding. It is polyolefin based and completely recyclable.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America • South America
Features	• Electrically Insulating • Fatigue Resistant • Good Chemical Resistance • Good Colorability	• Good Creep Resistance • Good Dimensional Stability • Good Electrical Properties • Good Heat Aging Resistance	• Low Compression Set • Ozone Resistant • Recyclable Material
Uses	• Appliance Components • Automotive Applications • Automotive Interior Trim • Automotive Under the Hood	• Consumer Applications • Diaphrams • Electrical Parts • Gaskets	• Seals • Tubing
Agency Ratings	• EU 2003/11/EC	• UL QMFZ2	• UL QMFZ8
RoHS Compliance	• RoHS Compliant		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Blow Molding • Coextrusion • Extrusion	• Extrusion Blow Molding • Injection Blow Molding • Injection Molding	• Multi Injection Molding • Profile Extrusion • Sheet Extrusion

ASTM and ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	0.968	g/cm³	ASTM D792
--	0.970	g/cm³	ISO 1183

Santoprene™ 201-64

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Elastomers	Nominal Value	Unit	Test Method
Tensile Stress - Across Flow			
100% Strain, 22.8°C	2.62	MPa	ASTM D412
100% Strain, 23°C	2.60	MPa	ISO 37
Tensile Strength - Across Flow			
Break, 23°C	6.96	MPa	ASTM D412
Break, 23°C	7.00	MPa	ISO 37
Tensile Elongation - Across Flow			
Break, 22.8°C	450	%	ASTM D412
Break, 23°C	450	%	ISO 37
Tear Strength - Across Flow			
23°C [2]	23	kN/m	ASTM D624
23°C [3]	23	kN/m	ISO 34-1
Compression Set			
70°C, 22.0 hr [4]	18	%	ASTM D395B
125°C, 70.0 hr [4]	44	%	ASTM D395B
70°C, 22.0 hr [5]	18	%	ISO 815
125°C, 70.0 hr [5]	44	%	ISO 815

Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore A, 15 sec, 23.0°C, 2.00 mm)	69		ISO 868

Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	-60.0	°C	ASTM D746 ISO 812

Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air (150°C, 168 hr)	-12	%	ASTM D573 ISO 188
Change in Ultimate Elongation in Air (150°C, 168 hr)	6.0	%	ASTM D573 ISO 188

Aging	Nominal Value	Unit	Test Method
Change in Durometer Hardness in Air			ASTM D573 ISO 188
Shore A, 150°C, 168 hr	2.0		
Change in Tensile Strength			ASTM D471 ISO 1817
125°C, 70 hr, in IRM 903 Oil	-30	%	
125°C, 168 hr, in ASTM #1 Oil	-21	%	
125°C, 1000 hr, in Antifreeze, 50/50 V/V/Water	-7.0	%	
Change in Ultimate Elongation			ASTM D471 ISO 1817
125°C, 70 hr, in IRM 903 Oil	-49	%	
125°C, 168 hr, in ASTM #1 Oil	-35	%	
125°C, 1000 hr, in Antifreeze, 50/50 V/V/Water	-21	%	
Change in Durometer Hardness			ASTM D471 ISO 1817
Shore A, 125°C, 70 hr, in IRM 903 Oil	-20		
Shore A, 125°C, 168 hr, in ASTM #1 Oil	-14		
Shore A, 125°C, 1000 hr, in Antifreeze, 50/50 V/V/Water	-4.0		
Change in Mass			ASTM D471
121°C, 168 hr, in Automatic Transmission Fluid	72	%	
125°C, 168 hr, in ASTM #1 Oil	39	%	
125°C, 1000 hr, in Antifreeze, 50/50 V/V/Water	13	%	
Change in Mass			ISO 1817
125°C, 1000 hr, in Antifreeze, 50/50 V/V/Water	13	%	
125°C, 168 hr, in ASTM #1 Oil	39	%	
121°C, 168 hr, in Automatic Transmission Fluid	72	%	
Change in Volume (125°C, 70 hr, in IRM 903 Oil)	87	%	ASTM D471 ISO 1817
Continuous Upper Temperature Resistance	135	°C	SAE J2236

Electrical	Nominal Value	Unit	Test Method
Dielectric Strength (2.03 mm)	33.1	kV/mm	ASTM D149
Dielectric Constant (23°C, 1.98 mm)	2.300		ASTM D150 IEC 60250

Additional Information

Values are for injection molded plaques, fan-gated, 102.0 mm x 152.0 mm x 2.0 mm (4.000" x 6.000" x 0.080").
Tensile strength, elongation and tensile stress are measured across the flow direction - ISO type 1, ASTM die C.
Compression set at 25% deflection.

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	82.2	°C
Drying Time	3.0	hr
Suggested Max Moisture	0.080	%
Suggested Max Regrind	20	%
Rear Temperature	177	°C
Middle Temperature	182	°C
Front Temperature	182	°C
Nozzle Temperature	188 to 221	°C
Processing (Melt) Temp	193 to 232	°C
Mold Temperature	10.0 to 51.7	°C

Santoprene™ 201-64

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Injection	Nominal Value	Unit
Injection Rate	Fast	
Back Pressure	0.345 to 0.689	MPa
Screw Speed	100 to 200	rpm
Clamp Tonnage	4.1 to 6.9	kN/cm²
Cushion	3.18 to 6.35	mm
Screw L/D Ratio	16.0:1.0 to 20.0:1.0	
Screw Compression Ratio	2.0:1.0 to 2.5:1.0	
Vent Depth	0.025	mm

Injection Notes

Santoprene TPV is incompatible with acetal and PVC. For more information regarding processing and mold design, please consult our Injection Molding Guide.

Extrusion	Nominal Value	Unit
Drying Temperature	82.2	°C
Drying Time	3.0	hr
Melt Temperature	196	°C
Die Temperature	199	°C
Back Pressure	5.00 to 20.0	MPa

Extrusion Notes

Santoprene TPV is incompatible with acetal and PVC. For more information regarding processing and mold design, please consult our Extrusion Guide.

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Die C

[3] Method Bb, Angle (Nicked)

[4] Type 1

[5] Type A