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Santoprene™ 271-55

Thermoplastic Vulcanizate

Product Description

A soft, colorable, specialty thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. It is designed for use in non fatty food contact applications. This grade of Santoprene TPV is shear-dependent and can be processed on conventional thermoplastics equipment for injection molding or extrusion. It is polyolefin based and recyclable within the manufacturing stream.

Key Features

- This product, in principle, can be used in food contact applications in the USA (FDA). Migration or use limitations may apply.
- Certified by NSF to NSF/ANSI Standard 51: Food Equipment Materials - Plastics, materials and components used in food equipment.
- UL listed: file #QMFZ2.E80017, Plastics - Component; file #QMFZ8.E80017, Plastics Certified For Canada - Component.
- Recommended for applications requiring excellent flex fatigue resistance.

General

Applications	• Consumer - FDA Seals and Closures • Consumer - Packaging	• Consumer - Small Appliance • Consumer - Soft Touch Grips	• Seals and Gaskets
Uses	• Filters • Flexible Grips • Food Containers • Gaskets	• Kitchenware • Living Hinges • Non-specific Food Applications • Seals	• Tubing • White Goods & Small Appliances
Agency Ratings	• FDA Food Contact, Unspecified Rating • NSF STD-51	• UL QMFZ2 • UL QMFZ8	
RoHS Compliance	• RoHS Compliant		
UL File Number	• E80017		
Color	• Natural Color		
Form(s)	• Pellets		
Processing Method	• Coextrusion • Extrusion	• Injection Molding • Multi Injection Molding	• Profile Extrusion • Sheet Extrusion

Physical	Typical Value (English)		Typical Value (SI)		Test Based On
Density / Specific Gravity	0.970		0.970		ASTM D792
Density	0.970	g/cm³	0.970	g/cm³	ISO 1183

Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness			ISO 868
Shore A, 15 sec, 73°F (23°C)	59	59	

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Elastomers	Typical Value (English)		Typical Value (SI)		Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	276	psi	1.90	MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	276	psi	1.90	MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	653	psi	4.50	MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	653	psi	4.50	MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	390	%	390	%	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	390	%	390	%	ISO 37
Compression Set					ASTM D395B
158°F (70°C), 22 hr, Type 1	22	%	22	%	
257°F (125°C), 70 hr, Type 1	38	%	38	%	
Compression Set					ISO 815
158°F (70°C), 22 hr, Type A	22	%	22	%	
257°F (125°C), 70 hr, Type A	38	%	38	%	

Thermal	Typical Value (English)		Typical Value (SI)		Test Based On
Brittleness Temperature	-76	°F	-60	°C	ASTM D746
Brittleness Temperature	-76	°F	-60	°C	ISO 812

Injection	Typical Value (English)		Typical Value (SI)	
Drying Temperature	180	°F	82	°C
Drying Time	3.0	hr	3.0	hr
Suggested Max Moisture	0.080	%	0.080	%
Suggested Max Regrind	20	%	20	%
Rear Temperature	350	°F	177	°C
Middle Temperature	360	°F	182	°C
Front Temperature	360	°F	182	°C
Nozzle Temperature	370 to 430	°F	188 to 221	°C
Processing (Melt) Temp	380 to 450	°F	193 to 232	°C
Mold Temperature	50 to 125	°F	10 to 52	°C
Injection Rate	Fast		Fast	
Back Pressure	50.0 to 100	psi	0.345 to 0.689	MPa
Screw Speed	100 to 200	rpm	100 to 200	rpm
Clamp Tonnage	3.0 to 5.0	tons/in^2	41 to 69	MPa
Cushion	0.125 to 0.250	in	3.18 to 6.35	mm
Screw L/D Ratio	16.0:1.0 to 20.0:1.0		16.0:1.0 to 20.0:1.0	
Screw Compression Ratio	2.0:1.0 to 2.5:1.0		2.0:1.0 to 2.5:1.0	
Vent Depth	1.0E-3	in	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	Typical Value (English)		Typical Value (SI)	
Drying Temperature	180	°F	82	°C
Drying Time	3.0	hr	3.0	hr
Melt Temperature	385	°F	196	°C
Die Temperature	390	°F	199	°C
Back Pressure	725 to 2900	psi	5.00 to 20.0	MPa

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Extrusion Notes

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Aging	Typical Value (English)	Typical Value (SI)	Test Based On
Change in Tensile Strength in Air			ASTM D573
302°F (150°C), 168 hr	-7.0 %	-7.0 %	
Change in Tensile Strength in Air			ISO 188
302°F (150°C), 168 hr	-7.0 %	-7.0 %	
Change in Ultimate Elongation in Air			ASTM D573
302°F (150°C), 168 hr	13 %	13 %	
Change in Tensile Strain at Break in Air			ISO 188
302°F (150°C), 168 hr	13 %	13 %	
Change in Durometer Hardness in Air			ASTM D573
Shore A, 302°F (150°C), 168 hr	3.0	3.0	
Change in Shore Hardness in Air			ISO 188
Shore A, 302°F (150°C), 168 hr	3.0	3.0	