

Santoprene™ 273-40

Thermoplastic Vulcanizate

Product Description

A hard, 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, extrusion, blow molding, thermoforming or vacuum forming. 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	
Uses	▪ Food Containers ▪ Gaskets ▪ Hose	▪ Kitchenware ▪ Living Hinges ▪ Non-specific Food Applications	▪ Seals ▪ 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	▪ Blow Molding ▪ Coextrusion ▪ Extrusion ▪ Extrusion Blow Molding	▪ Injection Blow Molding ▪ Injection Molding ▪ Multi Injection Molding ▪ Profile Extrusion	▪ Sheet Extrusion ▪ Thermoforming ▪ Vacuum Forming
Physical			
Density / Specific Gravity	Typical Value (English)	Typical Value (SI)	Test Based On
Density	0.940	0.940	ASTM D792
Density	0.940 g/cm³	0.940 g/cm³	ISO 1183
Hardness			
Shore Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore D, 15 sec, 73°F (23°C)	41	41	ISO 868



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Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	1310 psi	9.00 MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	1310 psi	9.00 MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	2610 psi	18.0 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	2610 psi	18.0 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	610 %	610 %	ASTM D412
Tensile Strain at Break - Across Flow (73°F (23°C))	610 %	610 %	ISO 37
Compression Set			ASTM D395B
158°F (70°C), 22 hr, Type 1	54 %	54 %	
257°F (125°C), 70 hr, Type 1	61 %	61 %	
Compression Set			ISO 815
158°F (70°C), 22 hr, Type A	54 %	54 %	
257°F (125°C), 70 hr, Type A	61 %	61 %	

Thermal	Typical Value (English)	Typical Value (SI)	Test Based On
Brittleness Temperature	-58 °F	-50 °C	ASTM D746
Brittleness Temperature	-58 °F	-50 °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	380 °F	193 °C
Middle Temperature	390 °F	199 °C
Front Temperature	400 °F	204 °C
Nozzle Temperature	410 to 460 °F	210 to 238 °C
Processing (Melt) Temp	420 to 450 °F	216 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	410 °F	210 °C
Die Temperature	420 °F	216 °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 302°F (150°C), 168 hr	-11 %	-11 %	ASTM D573
Change in Tensile Strength in Air 302°F (150°C), 168 hr	-11 %	-11 %	ISO 188
Change in Ultimate Elongation in Air 302°F (150°C), 168 hr	-15 %	-15 %	ASTM D573
Change in Tensile Strain at Break in Air 302°F (150°C), 168 hr	-15 %	-15 %	ISO 188
Change in Durometer Hardness in Air Shore D, 302°F (150°C), 168 hr	4.0	4.0	ASTM D573
Change in Shore Hardness in Air Shore D, 302°F (150°C), 168 hr	4.0	4.0	ISO 188

