

Santoprene™ 8181-55B1MED

Thermoplastic Vulcanizate

Product Description

A soft, black, specialty, non-hygroscopic thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. It is especially formulated to bond to ABS, PS, PC, COPE, ASA, PET, PPO/PS and metal for blends applications where hard/soft combinations are required. 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

- Based on a series of biocompatibility tests conducted on representative grades, this grade should meet the USP (U.S. Pharmacopeia) Class VI requirements for plastics.
- Meets ISO 10993-5. - Each medical grade undergoes annual testing for cytotoxicity and heavy metals. - Drug master file maintained with the FDA.
- Designed for excellent adhesion onto ABS, PS, PC, PMMA, ASA, and COPE (cold insert or 2K [two-shot] molding.) - Recommended for applications requiring excellent flex fatigue resistance. - Recommended for applications requiring excellent flex fatigue resistance.
- Designed for soft touch applications.
- Adhesion values can vary according to type of ABS, PS, PC, PMMA, ASA, COPE, metal, or blends thereof, tool design and processing conditions.

General

Availability ¹	<ul style="list-style-type: none"> ▪ Africa & Middle East ▪ Asia Pacific 	<ul style="list-style-type: none"> ▪ Europe ▪ Latin America 	<ul style="list-style-type: none"> ▪ North America
Applications	<ul style="list-style-type: none"> ▪ Medical - Soft Touch Grips, USP Class VI or ISO 10993 seals and gasket 		
Uses	<ul style="list-style-type: none"> ▪ Seals 	<ul style="list-style-type: none"> ▪ Soft Touch Grips 	<ul style="list-style-type: none"> ▪ Strain Reliefs
Agency Ratings	<ul style="list-style-type: none"> ▪ ISO 10993 Part 5 	<ul style="list-style-type: none"> ▪ USP Class VI 	
RoHS Compliance	<ul style="list-style-type: none"> ▪ RoHS Compliant 		
Color	<ul style="list-style-type: none"> ▪ Black 		
Form(s)	<ul style="list-style-type: none"> ▪ Pellets 		
Processing Method	<ul style="list-style-type: none"> ▪ Injection Molding 	<ul style="list-style-type: none"> ▪ Multi Injection Molding 	
Revision Date	<ul style="list-style-type: none"> ▪ 03/27/2020 		

Physical	Typical Value (English)	Typical Value (SI)	Test Based On
Density	1.03 g/cm ³	1.03 g/cm ³	ISO 1183
Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness Shore A, 15 sec, 73°F (23°C)	57	57	ISO 868
Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Strain at Break - Across Flow (73°F (23°C))	600 %	600 %	ISO 37
Compression Set 257°F (125°C), 70 hr, Type A	55 %	55 %	ISO 815

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Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	158 °F	70 °C
Drying Time	3.0 hr	3.0 hr
Suggested Max Moisture	0.080 %	0.080 %
Suggested Max Regrind	20 %	20 %
Rear Temperature	350 to 375 °F	177 to 191 °C
Middle Temperature	355 to 380 °F	179 to 193 °C
Front Temperature	365 to 390 °F	185 to 199 °C
Nozzle Temperature	365 to 410 °F	185 to 210 °C
Mold Temperature	75 to 125 °F	24 to 52 °C
Insert Molding (Melt) Temperature	445 to 485 °F	229 to 252 °C
Insert Mold Temperature	75 to 125 °F	24 to 52 °C
Two-Shot Molding (Melt) Temperature	410 to 445 °F	210 to 229 °C
Two-Shot Injection Mold Temperature	90 to 125 °F	32 to 52 °C
Injection Rate	Fast	Fast
Back Pressure	50.0 to 100 psi	0.345 to 0.689 MPa
Screw Speed	75 to 175 rpm	75 to 175 rpm
Clamp Tonnage	3.0 to 5.0 tons/in ²	41 to 69 MPa
Cushion	0.120 to 0.240 in	3.05 to 6.10 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.

Additional Information

Where applicable, test results based on fan gated, 2.0 mm injection molded plaques. Tensile strength, elongation and tensile stress are measured across the flow direction. Test results are generated by ExxonMobil test methods that may not fully conform to the ASTM and/or ISO methods. Test methods are available upon request. Compression set at 25% deflection. This product may be manufactured by a third party under contract with Exxon Mobil Corporation or one of its affiliates, pursuant to a quality management system which complies with the requirements of ISO 9001:2015. All products purchased directly from an ExxonMobil affiliate in Europe are REACH compliant. For products not imported into Europe by ExxonMobil, customers should assess their legal responsibilities under REACH.

Legal Statement

This product, including the product name, shall not be used or tested in any medical application without the prior written acknowledgement of ExxonMobil Chemical as to the intended use. For detailed Product Stewardship information, please contact Customer Service.

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Processing Statement

Desiccant drying for 3 hours at 70°C (160°F) can be performed if desired. For two-shot injection molding, recommended melt temperature is 210 to 230°C (410 to 445°F) with mold temperatures of 30 to 50°C (90 to 125°F). For insert injection molding, recommended melt temperature is 230 to 250°C (445 to 485°F) with mold temperatures of 25 to 50°C (75 to 125°F). Because of its inherent nature to bond, this material may, on occasion, agglomerate from shipping and storage. Santoprene TPV is incompatible with acetal and PVC. For more information, please consult our Safety Data Sheet or contact your sales representative.

24 hours are required before measuring bonding levels. Design Note: Degree of bonding can vary depending on gate size and thickness of grade layer. The recommended gate size is 75-85% of material wall thickness. To achieve optimal bonding to ABS substrates, Santoprene™ TPV and substrate thickness need to be at least 2mm (0.080"). For other substances (PC, PS, etc), Santoprene™ TPV and substrate thickness must be at least 1.5mm (0.060").

Notes

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

¹ Product may not be available in one or more countries in the identified Availability regions. Please contact your Sales Representative for complete Country Availability.

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For additional technical, sales and order assistance: www.exxonmobilchemical.com/ContactUs

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