

Santoprene™ 251-92W232

Thermoplastic Vulcanizate

Product Description

A hard, colorable, flame retardant thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. This material has good fluid resistance and contains non-ether brominated flame retardants. It does not contain metal deactivators. 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 a flame retardant material - UL 94 Vertical Flame rated.
- Recommended for applications requiring excellent flex fatigue resistance.
- Recommended for applications requiring excellent ozone resistance.

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"> Automotive - Flame Retardant Connectors and Seals | <ul style="list-style-type: none"> Electrical - Flame Retardant Connectors and Seals | <ul style="list-style-type: none"> Electrical - Flame Retardant Wire and Cable Jacket |
| Uses | <ul style="list-style-type: none"> Automotive Applications Cable Jacketing | <ul style="list-style-type: none"> Flexible Cord Jacketing Wire & Cable Applications | |
| Agency Ratings | <ul style="list-style-type: none"> UL QMFZ2 | <ul style="list-style-type: none"> UL QMFZ8 | <ul style="list-style-type: none"> UL QMTT2 |
| RoHS Compliance | <ul style="list-style-type: none"> RoHS Compliant | | |
| UL File Number | <ul style="list-style-type: none"> E86313 | <ul style="list-style-type: none"> E80017 | |
| Color | <ul style="list-style-type: none"> Natural Color | | |
| Form(s) | <ul style="list-style-type: none"> Pellets | | |
| Processing Method | <ul style="list-style-type: none"> Blow Molding Coextrusion Extrusion Extrusion Blow Molding | <ul style="list-style-type: none"> Injection Blow Molding Injection Molding Multi Injection Molding Profile Extrusion | <ul style="list-style-type: none"> Sheet Extrusion Thermoforming Vacuum Forming |
| Revision Date | <ul style="list-style-type: none"> 06/20/2014 | | |

| Physical | Typical Value (English) | Typical Value (SI) | Test Based On |
|----------------------------|-------------------------|------------------------|---------------|
| Density / Specific Gravity | 1.24 | 1.24 | ASTM D792 |
| Density | 1.24 g/cm ³ | 1.24 g/cm ³ | ISO 1183 |

| Hardness | Typical Value (English) | Typical Value (SI) | Test Based On |
|------------------------------|-------------------------|--------------------|---------------|
| Shore Hardness | | | ISO 868 |
| Shore A, 15 sec, 73°F (23°C) | 98 | 98 | |

| Elastomers | Typical Value (English) | Typical Value (SI) | Test Based On |
|---|-------------------------|--------------------|---------------|
| Tensile Stress at 100% - Across Flow (73°F (23°C)) | 1040 psi | 7.20 MPa | ASTM D412 |
| Tensile Stress at 100% - Across Flow (73°F (23°C)) | 1040 psi | 7.20 MPa | ISO 37 |
| Tensile Strength at Break - Across Flow (73°F (23°C)) | 2020 psi | 13.9 MPa | ASTM D412 |
| Tensile Stress at Break - Across Flow (73°F (23°C)) | 2020 psi | 13.9 MPa | ISO 37 |
| Elongation at Break - Across Flow (73°F (23°C)) | 630 % | 630 % | ASTM D412 |
| Tensile Strain at Break - Across Flow (73°F (23°C)) | 630 % | 630 % | ISO 37 |

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| Thermal | Typical Value (English) | Typical Value (SI) | Test Based On |
|------------------|-------------------------|--------------------|---------------|
| RTI Elec | 194 °F | 90.0 °C | UL 746 |
| RTI Str | | | UL 746 |
| 0.06 in (1.5 mm) | 185 °F | 85.0 °C | |
| 0.12 in (3.0 mm) | 194 °F | 90.0 °C | |

| Electrical | Typical Value (English) | Typical Value (SI) | Test Based On |
|--|-------------------------|--------------------|---------------|
| Dielectric Strength | | | ASTM D149 |
| 73°F (23°C), 0.0787 in (2.00 mm) | 790 V/mil | 31 kV/mm | |
| Comparative Tracking Index (CTI) | PLC 0 | PLC 0 | UL 746 |
| High Amp Arc Ignition (HAI) | PLC 0 | PLC 0 | UL 746 |
| High Voltage Arc Resistance to Ignition (HVAR) | PLC 6 | PLC 6 | UL 746 |
| High Voltage Arc Tracking Rate (HVTR) | PLC 2 | PLC 2 | UL 746 |
| Hot-wire Ignition (HWI) | PLC 3 | PLC 3 | UL 746 |

| 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 % |
| 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 |

Extrusion Notes

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

| Flammability | Typical Value (English) | Typical Value (SI) | Test Based On |
|------------------|-------------------------|--------------------|---------------|
| Flame Rating | | | UL 94 |
| 0.06 in (1.5 mm) | V-0 | V-0 | |
| 0.12 in (3.0 mm) | V-0 | V-0 | |
| Oxygen Index | 26 % | 26 % | ASTM D2863 |
| Oxygen Index | 26 % | 26 % | ISO 4589-2 |

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Additional Information

Where applicable, test results based on fan gated, injection molded plaques.

Tensile strength, elongation and tensile stress are measured across the flow direction - ISO type 1, ASTM die C.

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 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. For more information, please consult our Safety Data Sheet, Injection Molding Guide and Extrusion Guide.

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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