

Santoprene(TM) TPV 101-55

Advanced Elastomer Systems - Thermoplastic Elastomer

General Information

Product Description

A soft, black, 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. Santoprene rubber is a shear-dependent material that can be processed on conventional thermoplastics equipment for injection molding or extrusion. It is polyolefin based and completely recyclable.

General

| | |
|---------------------------|---|
| Material Status | ● Commercial: Active |
| Availability | <ul style="list-style-type: none"> ● Africa ● Asia ● Australia ● Europe ● Latin America ● Middle East ● North America ● Pacific Rim ● South America |
| Test Standards Available | <ul style="list-style-type: none"> ● ASTM ● ISO |
| Features | <ul style="list-style-type: none"> ● Chemical Resistance, Good ● Compression Set, Low ● Creep Resistance, Good ● Dimensional Stability, Good ● Fatigue Resistant ● Ozone Resistant ● Recyclable Material |
| Uses | <ul style="list-style-type: none"> ● Appliance Components ● Automotive Applications ● Diaphragms ● Gaskets ● General Purpose ● Industrial Applications ● Seals ● Tubing |
| Agency Ratings | ● UL 94 |
| Automotive Specifications | <ul style="list-style-type: none"> ● DAIMLERCHRYSLER MSAR 20 Type A ● DELPHI SD-2-346 Sec. 4.1 ● FORD WSD-M2D378-A1 ● GM GMP.E/P.001 ● VALEO VMS-7055 |
| Color | ● Black |
| Forms | ● Pellets |
| Processing Method | <ul style="list-style-type: none"> ● Coextrusion ● Extrusion ● Extrusion, Profile ● Extrusion, Sheet ● Injection Molding ● Injection Molding, Multi |

Properties ¹

| Hardness | Nominal Value | Unit | Test Method |
|---------------------------------------|--------------------|---------------|-------------|
| Durometer Hardness (A Scale, 3.05 mm) | 55 | | ASTM D2240 |
| Physical | Nominal Value | Unit | Test Method |
| Density -Specific Gravity | 0.97 | sp gr 23/23°C | ASTM D792 |
| Elastomers | Nominal Value | Unit | Test Method |
| Tensile Set | 6 | % | ASTM D412 |
| Tensile Stress @ 100% | Across Flow: 2.1 | MPa | ASTM D412 |
| Tensile Str @ Break Elast (23 °C) | Across Flow: 5.2 | MPa | ASTM D412 |
| Elongation @ Break Elast | Across Flow: 390.0 | % | ASTM D412 |
| Tear Strength | | | ASTM D624 |
| (23 °C) | Across Flow: 18.9 | kN/m | |
| (100 °C) | Across Flow: 7.4 | kN/m | |
| Compression Set | | | ASTM D395 |
| (23 °C, 168 hr) | 20 | % | |
| (100 °C, 168 hr) | 27 | % | |
| Thermal | Nominal Value | Unit | Test Method |
| Max. Continuous Use Tmp | 135 | °C | ASTM D794 |
| Brittle Temperature | -60 | °C | ASTM D746 |
| Electrical | Nominal Value | Unit | Test Method |
| Dielectric Strength (3.18 mm) | 19.7 | kV/mm | ASTM D149 |

| | | |
|---|---------------------------|--------------------|
| Dielectric Constant | 2.30 | ASTM D150 |
| Flammability | Nominal Value Unit | Test Method |
| Flame Rating - UL | HB | UL 94 |
| Aging | Nominal Value Unit | Test Method |
| Change in Tensile Strength in Air (150 °C, 168 hr) | -3 % | ASTM D573 |
| Change in Ultimate Elongation in Air (150 °C, 168 hr) | 0 % | ASTM D573 |

Key Features

- Dielectric constant 2.3, dielectric strength at 3.17 mm (125 mil), 19.6 kV/mm (500 V/mil). - UL Yellow Card listed, UL 94 HB flame rating. - Continuous temperature rating 1000 hrs. @ 135°C (275°F). - Excellent flex fatigue resistance. - Excellent ozone resistance.

Processing Statement

Desiccant drying for 3 hours at 82°C (180°F) is recommended. Santoprene rubber has a wide temperature processing window from 177 to 232°C (350 to 450°F) and is incompatible with acetal and PVC. For more information, please consult our Material Safety Data Sheet, Injection Molding Guide and Extrusion Guide.

Revision Date

07/30/2003

Additional Properties

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. Max Continuous Use Temperature per SAE J2236 - Continuous Upper Temperature Resistance (CUTR). Compression set at 25% deflection.

Processing Information

| Injection | Nominal Value Unit |
|-------------------------|---------------------------|
| Drying Temperature | 82 °C |
| Drying Time | 3 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 to 52 °C |
| Injection Rate | Fast |
| Back Pressure | 0.3 to 0.7 MPa |
| Screw Speed | 100 to 200 rpm |
| Clamp Tonnage | 41 to 69 MPa |
| Cushion | 3.1750 to 6.3500 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 | 0.0254 mm |

Injection Notes

Santoprene rubber 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 °C |
| Drying Time | 3 hr |
| Melt Temperature | 196 °C |
| Die Temperature | 199 °C |
| Back Pressure | 5.0 to 20.0 MPa |

Extrusion Notes

Santoprene rubber 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.

For additional technical, sales and order assistance:

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