Celanese
The chemistry inside innovation™

# SANTOPRENE™ 101-73 - TPV

## 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. 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.

## Characteristics

| | |
|---|---|
| **Applications** | Appliance - Feet, Automotive - Air Induction System Ducts, Automotive - Boots and Bellows for Steering and Suspension, Automotive - Plugs, Bumpers, Grommets, Clips, Automotive - Seals and Gaskets, Automotive - Washer Tubes, Consumer - Electronics, Consumer - Feet, Consumer - Speaker Surrounds, Industrial - Seals and Gaskets, Tubing |
| **Uses** | Appliance components, Automotive applications, Automotive under the hood, Consumer applications, Diaphragms, Electrical parts, Gaskets, Outdoor applications, Seals, Tubing |
| **Agency Ratings** | UL QMFZ2, UL QMFZ8 |
| **UL File Number** | E80017 |
| **Color** | Black |
| **Delivery Form** | Pellets |
| **Processing** | Blow molding, Coextrusion, Extrusion, Extrusion blow molding, Injection blow molding, Injection molding, Multi injection molding, Profile extrusion, Sheet extrusion, Thermoforming, Vacuum forming |

| Physical properties | | Value | Unit | Test Standard |
|---|---|---|---|---|
| Density | | **0.97** | g/cm³ | ASTM D792 |
| Density | | **970** | kg/m³ | ISO 1183 |
| Outdoor suitability | **f1** | | - | UL 746C |
| Detergent resistance | **f3** | | - | UL 749 |
| Detergent resistance | **f4** | | - | UL 2157 |

| Hardness | Value | Unit | |
|---|---|---|---|
| Shore A hardness-TPE, 15s | **78** | | ISO 868 |

| Mechanical properties | Value | Unit | Test Standard |
|---|---|---|---|
| Tensile stress at 100%, perpendicular | **3.44** | MPa | ASTM D412 |
| Tensile stress at 100%, perpendicular | **3.44** | MPa | ISO 37 |
| Tensile strength at break elast, perpendicular | **7.98** | MPa | ASTM D412 |
| Tensile stress at break, perpendicular | **7.98** | MPa | ISO 37 |
| Elongation at break elast, perpendicular | **478** | % | ASTM D412 |
| Tensile strain at break, perpendicular | **478** | % | ISO 37 |
| Tear strength, Method Ba, perpendicular | **25** | kN/m | ISO 34-1 |
| Compression set, 70°C, 22h, Type 1, Method B | **27** | % | ASTM D395 |
| Compression set, 70°C, 22h, Type A | **27** | % | ISO 815 |
| Compression set, 125°C, 70h, Type 1, Method B | **41** | % | ASTM D395 |
| Compression set, 125°C, 70h, Type A | **41** | % | ISO 815 |

| Thermal properties | Value | Unit | Test Standard |
|---|---|---|---|
| Brittleness temperature | **-60** | °C | ASTM D746 |
| RTI Elec | **90** | °C | UL 746 |
| RTI Str, 1.0 mm | **90** | °C | UL 746 |
| RTI Str, 1.5 mm | **90** | °C | UL 746 |
| RTI Str, 3.0 mm | **95** | °C | UL 746 |

## SANTOPRENE™ 101-73 - TPV

| Electrical properties | Value | Unit | Test Standard |
|---|---|---|---|
| Dielectric Strength, 2.0 mm | **27** | kV/mm | ASTM D149 |
| Dielectric Constant 60Hz, 1.98 mm | **2.5** | - | ASTM D150 |
| Dielectric Constant 60Hz, 1.98 mm | **2.5** | - | IEC 60250 |
| Comparative tracking index | **PLC 0** | - | UL 746 |
| High amp arc ignition (HAI) | **PLC 0** | - | UL 746 |
| High voltage arc resistance to ignition (HVAR) | **PLC 6** | - | UL 746 |
| High voltage arc tracking rate (HVTR) | **PLC 1** | - | UL 746 |
| Hot-wire Ignition (1.0 mm) | **PLC 4** | - | UL 746A |
| Hot-wire Ignition (1.5 mm) | **PLC 3** | - | UL 746A |
| Hot-wire Ignition (3.0 mm) | **PLC 3** | - | UL 746A |

| Injection | Value | Unit |
|---|---|---|
| Drying temperature | **82** | °C |
| Drying time | **3** | h |
| Necessary low maximum residual moisture content | **0.08** | % |
| Suggested maximum regrind | **20** | % |
| Rear temperature | **177** | °C |
| Middle temperature | **182** | °C |
| Front temperature | **188** | °C |
| Nozzle temperature | **193 - 227** | °C |
| Melt temperature | **199 - 232** | °C |
| Mold temperature | **10 - 52** | °C |
| Injection speed | **fast** | - |
| Back pressure | **0.345 - 0.689** | MPa |
| Screw Speed | **100 - 200** | RPM |
| Clamp tonnage | **41 - 69** | MPa |
| Cushion | **3.18 - 6.35** | mm |
| Screw L/D | **20:1/*** | - |
| Screw compression ratio | **2.5:1/*** | - |
| Vent depth | **0.025** | mm |

| Extrusion | Value | Unit |
|---|---|---|
| Drying temperature | **82** | °C |
| Drying time | **3** | h |
| Melt temperature | **202** | °C |
| Die head temperature | **204** | °C |
| Back pressure | **5 - 20** | MPa |

| Aging | Value | Unit | Test Standard |
|---|---|---|---|
| Change in Tensile Strength in Air @ 150 C, 168 h | **-8** | % | ASTM D573 |
| Change in Tensile Strength in Air @ 150 C, 168 h | **-8** | % | ISO 188 |
| Change in Ultimate Elongation in Air @ 150 C, 168 h | **-9.4** | % | ASTM D573 |
| Change in Tensile Strain at Break in Air @ 150 C, 168 h | **-9.4** | % | ISO 188 |
| Change in Durometer Hardness in Air @ 150 C, 168 h, Shore A | **1.7** | - | ASTM D573 |
| Change in Shore Hardness in Air @ 150 C, 168 h, Shore A | **1.7** | - | ISO 188 |
| Continuous Upper Temperature Resistance (CUTR) @ 1008 h | **135** | °C | SAE J2236 |

| Flammability | Value | Unit | |
|---|---|---|---|
| Flame rating, 1.0 mm | **HB** | | UL 94 |
| Flame rating, 1.5 mm | **HB** | | UL 94 |
| Flame rating, 3.0 mm | **HB** | | UL 94 |

### Other text information

### Processing Notes

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.

## Other Approvals

| OEM | Specification |
|---|---|
| Chrysler (FCA) | MS-AR-100 CGN |
| FORD | WSD-M2D380-A1 |
| GM | GMW15813, Type 6 |

## Contact

**Americas**
8040 Dixie Highway
Florence, KY 41042 USA
Product Information Service
t: +1-800-833-4882
t: +1-859-372-3244
Customer Service
t: +1-800-526-4960
t: +1-859-372-3214
e: info-engineeredmaterials-am@celanese.com

**Asia**
4560 Jinke Road
Zhang Jiang Hi Tech Park
Shanghai 201210 PRC
Customer Service
t: +86 21 3861 9288
e: info-engineeredmaterials-asia@celanese.com

**Europe**
Am Unisys-Park 1
65843 Sulzbach, Germany
Product Information Service
t: +49-800-86427-531
t: +49-(0)-69-45009-1011
e: info-engineeredmaterials-eu@celanese.com

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