Celanese
The chemistry inside innovation™

Residential glazing seals use Santoprene® TPV for more comfortable living

Key advantages

- Long-term durable sealing performance
- Excellent weathering resistance
- High design flexibility
- Easy manufacture for small production runs
- High operational efficiency during manufacture and installation
- Recycling opportunities

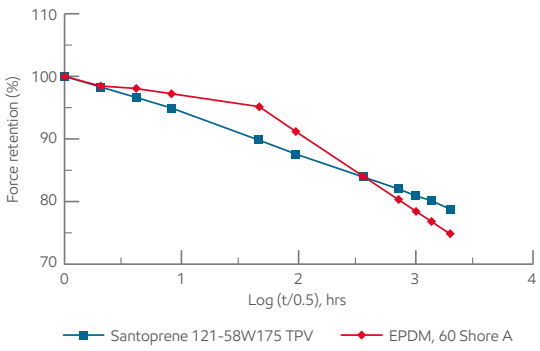
Santoprene® thermoplastic vulcanizate (TPV) has been used worldwide for decades to deliver residential window and door sealing systems that offer enhanced weather resistance and noise reduction for increased interior comfort and energy savings.

Durable sealing and excellent weathering

Santoprene TPV delivers better weathering resistance, improved durability and long-term sealing compared to thermoset rubbers for enhanced residential window and door sealing system performance. As a result, Santoprene TPV is meeting a growing demand for high-quality seals that deliver energy savings during the service life of the system.

Figure 1: Santoprene TPV seals outperform EPDM in the longer-term as the higher the force retention, the better the seal.

Stress relaxation of Santoprene TPV versus EPDM rubber at 80°C (176°F), ISO 3384(A)



Source: Company data

Design flexibility

By offering high-design flexibility, Santoprene® TPV can meet a diverse range of application requirements. It can be co-extruded with a slip coating for a low coefficient friction (COF) surface or with a harder polypropylene (PP) to make installation easier. It can also be foamed for a lower density, closed-cell foam seal. Santoprene TPV is easy to color so the seal can match the window or door system.

Optimum working efficiency

Santoprene TPV offers high operational efficiency during manufacture and installation on-site.

Unlike thermoset rubbers, Santoprene TPV is processed like a thermoplastic making it easy for seal manufacturers to adjust production runs for small quantities. It can also be co-extruded with rigid materials like PP for minimal stretch, that makes it easier to install, and minimal shrinkage over time, for sustained performance.

Santoprene TPV is very easy to heat weld, eliminating the need for adhesives, solvents and molded corners, while delivering leak-free joints.

Offering tighter profile tolerances compared to thermoset rubbers, Santoprene TPV seals are easier to install and less likely to need retrofitting, while delivering better performance.

Sustainability opportunities

Santoprene TPV offers several opportunities to meet evolving sustainability challenges and health concerns. Waste produced during processing can be reduced, as scrap can be recycled. It contains low volatile organic compounds (VOC) and is compatible to water-based paint.

Offering a lower density than thermoset rubber and other thermoplastic materials, Santoprene TPV can contribute to lower weight parts. Energy consumption during manufacturing can be lowered, as heat curing is not required, unlike EPDM thermoset rubber.

Consistent quality products

Customers can rely on the global supply of consistent high-quality Santoprene TPV grades which can help eliminate the risk of variable glazing seal profile performance. Because the same material properties are delivered batch after batch, customers can expect profile attributes to remain the same for every project worldwide.

Figure 2: Santoprene TPV exhibits good retention of elongation, tensile strength, hardness, and appearance, compared to EPDM and chloroprene.

Xenon Arc weathering test

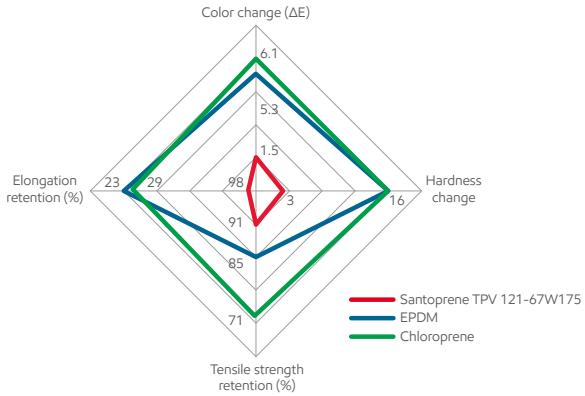
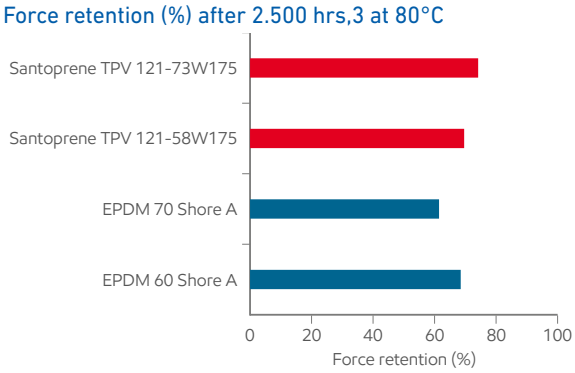


Figure 3: Santoprene® TPV shows higher force retention and, therefore, sealing than EPDM after 2500h exposure in a Xenon Arc apparatus (lamp).



Force retention (%) after 2.500 hrs. at 80°C

Recommended Santoprene TPV grades

Color	Process	Grade series	Hardness	UV stabilized	Features
Black	Extrusion	Santoprene TPV 121-xxW175	58A – 50D	Yes	High-hardness grade for coextrusion purposes
		Santoprene TPV 123-52W242	52D	Yes	Slip-coat grade for low COF surface
	Molding	Santoprene TPV 121-xxM100	50A – 85A	Yes	Improved processability and aesthetics, UL listed
		Santoprene TPV 121-xxM200	60A – 75A	Yes	Superior processability and aesthetics
Colorable	Extrusion	Santoprene TPV 691-xxW175	65A, 73A	No	Excellent extrudability
		Santoprene TPV 8221-xx	60A, 70A	Yes	Excellent colorability, UL (f1) rated grades
		Santoprene TPV 251-xxW232	70A – 92A	No	Flame retardant, UL 94 V-0 rated except 85A is V-2 rated

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