Celanese
The chemistry inside innovation™

5G compatible TPV designed to accommodate optimal connectivity

Uses

- **5G smart device case covers**
- **5G overmold antenna and antenna components - seals and gaskets**

Reasons to specify Santoprene TPV

- **Dielectric constant < 3**
  Optimum use of 5G power
- **Design flexibility with excellent aesthetics**
  Personalization with vibrant colors, create shapes and touch
- **Good chemical resistance and weatherability**
  High quality user experience
- **In-process recycling-capability**
  Can contribute to circular economy

Next generation 5G communications will increase the demand for mobility and connectivity and early adopters, both consumer and industry, will seek this new technology for mobile devices, home networking and outdoor station components. With this new technology comes the demand for exciting new products such as cases designed to express unique personalities and affiliations, and interior networking devices with pleasing aesthetics.

The challenge with incorporating 5G technology is ensuring the materials used in devices and products are signal compatible. The most revolutionary aspect of a 5G network relies on the high frequency of its technologies — mmWave 5G.

Santoprene® thermoplastic vulcanizate (TPV) is a 5G compatible material with superior dielectric properties, especially at high frequencies (37GHz) — enabling excellent 5G signal connection with low transmission loss. With its unique ability to mold like plastic, while maintaining its rubber-like flexibility, Santoprene TPV provides the freedom to unleash creativity. Soft touch and colorability combined with sealing performance and weather resistance expand product design possibilities. Plus, Santoprene TPV scrap that is generated during the manufacturing phase can be recycled in-process.

Get ready for the new wave in demand with creative designs that can breakthrough the barriers presented by 5G technology. Santoprene® TPV can realize new design possibilities - big or small, indoor and outdoor. Through collaboration, design dreams can become a reality because with Santoprene TPV, the possibilities are endless.

Superior dielectric properties at 37GHz

Dielectric constant < 3

Santoprene TPV gradeslate

Properties	Santoprene TPV 121-60M200	Santoprene TPV 8211-75	Santoprene TPV 151-70W256	Santoprene TPV 251-70W232	Santoprene TPV 8211-55B100	Santoprene TPV 291-75B150	Test method based on
Physical and mechanical properties (Typical values)							
Density (g/cc)	0.95	0.93	1.26	1.24	1.04	1.09	ISO 1183 - A
Hardness (Shore A, 15 sec, 23°C)	61	80	75	75	53	78	ISO 1183
100% modulus (MPa, 23°C)	2.06	3.80	2.30	2.70	-	4.04	ISO 37 -1
Tensile strength at break (MPa, 23°C)	4.10	7.00	4.80	6.30	-	12.10	ISO 37 -1
Elongation at break (23°C)	380%	520%	480%	550%	600%	634%	ISO 37 -1
Compression set	28%	36%	-	-	-	68%	ASTM D395B
	44%	-	-	-	55%	-	ASTM D395B
Brittleness temperature/°C	-59	-60	-	-	-	-	ISO 812
Electrical properties							
Dielectric constant at 37GHz	2.23	2.11	2.33	2.29	2.33	2.36	ASTM D2520
Dielectric loss at 37GHz	0.0028	0.0014	0.0027	0.0014	0.0017	0.0252	ASTM D2520
Other information							
Color	Black	Colorable	Black	Colorable	Colorable	Colorable	
UV resistance	O	X	O	X	X	X	
UL flammability rating	-	HB	5VA	V0	HB	-	UL 94
UL outdoor suitability	-	-	f1	-	-	-	UL 746C
Bondable with other polymer substrates	PP	PP	PP	PP	PP, ETP*	ETP*	

*ETP (Engineering thermoplastics): PC, ABS, PC/ ABS, ASA, PMMA
Santoprene TPV grades are available in hardness 55 Shore A to 50 Shore D.
These grades also provide excellent environmental stress crack resistance (ESCR), heat resistance and have a high melting point.

Contact us for more information:

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