Santoprene® TPV in Consumer Electronics

- audio/video
- telecommunications
- grips, buttons, bumpers, seals & feet
- printers/copiers/scanners
- computers & accessories

www.santoprene.com
AES – Put the Power of a World Leader to Work for You

For more than 20 years, designers, engineers and manufacturers in the consumer electronics industry have looked to Advanced Elastomer Systems (AES) for innovative materials, design support and global service. AES has developed the world’s most diverse line of TPVs (thermoplastic vulcanizates), led by our flagship Santoprene® TPV brand.

Santoprene TPV is a vulcanized thermoplastic/rubber polymer matrix that combines the soft touch and performance of rubber with the processing ease of plastic. Available in black and/or colorable pellets, Santoprene TPV is offered in durometers from 35 Shore A to 50 Shore D. AES TPVs are widely incorporated into a variety of consumer electronics applications, adding value, appeal and performance.

Because of our global scope and comprehensive understanding of the manufacturing process, we work with part suppliers, contract manufacturers and OEMs worldwide. AES can provide computer-assisted design, mold-filling analysis, finite-element analysis and prototype development.

When specifying materials from AES, customers can expect the same product quality and performance from order-to-order, anywhere in the world. AES backs up its product quality with support through technical centers and sales offices worldwide.

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Computers & Accessories

Santoprene TPV brings a broad range of physical attributes to computer devices and accessories, both hand-held and desktop. Applications include computer components (side panels and feet), I/O devices (internal hard drives, computer mice and storage devices), calculators, hand-held PCs and PDAs, and accessories such as scroll wheels, wrist pads, keyboards and gaming devices.

Key benefits of Santoprene TPV:
- silky, soft-touch feel
- thermally bonds to a variety of substrates
- feet application benefits: non-marring, long-term compression stress relaxation, non-tacky
- chemical, heat and oil resistance
- sealing properties
- weather and shock protection

Navitrak Digital Navigation Assistant™
A watertight seal and a sure grip were attained on this handheld GPS by overmolding Santoprene B100 bondable TPV to a PC/PET shell. This GPS meets military specifications for water immersion and impact-resistance drop tests.

Logitech MOMO® Racing Force Gaming Wheel
This gaming device uses Santoprene TPV to offer a flexible, comfortable handle with maximum gripping action, as well as a textured look.

Logitech Cordless Mouseman™ Optical
The Santoprene TPV scroll wheel on this mouse offers soft-touch comfort and will not swell on contact with skin oils, providing accurate performance.

Microsoft Xbox™
TPV feet on the base of this popular gaming device are made from Santoprene TPV.

CD3 Sport Discus™
Along with its shock- and weather-resistance properties, Santoprene TPV is colorable, which helps make these portable disc storage devices appealing to young consumers.
Printers, Copiers, Scanners & Fax Machines

When performance is critical, Santoprene TPV is used on the internal components of printers, copiers, scanners, fax machines, cash registers and film developing machines. Santoprene TPV offers heat and chemical resistance, sealing and long-term compression stress relaxation characteristics, giving improved product performance and reliability. It’s also ideal for use on these products as grip and feet material. Applications include printer rollers, ink storage and delivery system components, and printer lids.

Key benefits of Santoprene TPV:
- long-term compression stress relaxation
- coefficient of friction for paper handling
- non-marring to paper
- excellent dimensional tolerance
- ink, chemical and heat resistance
- cost reduction over EPDM or TPU
- sealing properties
- abrasion resistance

Rollers
Santoprene TPV is used in a variety of roller applications because of its resistance to inks, chemicals and heat.

HP Scanner
In grip applications like this all-in-one scanner lid, Santoprene TPV offers attributes that are valued by users, such as a soft touch, tactile surface.
Telecommunications

Soft touch, impact resistance and water resistance are requirements on sensitive handheld, cordless and portable devices. Santoprene TPV is widely used in the telecommunications industry on antenna overmolds, bumpers, feet, buttons, gaskets/seals and grips. Applications include phones of all types (cellular/mobile/wireless, and corded and cordless); earpieces and mouthpieces on headsets; and pagers/beepers.

Motorola Coaches Headset
Santoprene TPV was chosen for the microphone boom on this award-winning NFL headset because of its flexibility, colorability, weatherability and UV resistance.

Motorola mobile phone
Santoprene TPV was selected for this mobile phone for its watertight and weather-resistant properties, and the comfortable feel of its grips and buttons. Mobile phones utilizing antenna overmolds made from TPV offer clear signal reception, flexibility and shock/abrasion resistance if dropped.

Cellular Phone Gasket
When used as a gasket material on phones and other wireless devices, TPVs offer resistance to water, dust and harsh environments.

GN Netcom Flex-loop
The earhook on this headset is made of Santoprene TPV, offering enhanced comfort and the ability to be contoured to a user’s ear while still maintaining its shape.

Key benefits of Santoprene TPV:
- silky, soft-touch feel
- thermally bonds to a variety of substrates
- colorability
- weather and shock protection
- chemical, heat and oil resistance
- sealing properties
- tensile set
- tear resistance

TPV antenna overmolds:
- low dielectric constant properties compared to TPU
- clearer signal reception properties
- durability and flex fatigue

INFORMATIONAL LINKS:
- Antenna Properties Information
- Electrical Properties Chart
Audio & Video

Santoprene TPVs are highly respected among designers and engineers of audio and video products searching for a rugged material that can withstand the test of time, extensive wear, and the effects of chemicals, oils or moisture. Applications include DVDs/VCRs/TVs; remote control units; digital and conventional cameras; webcams; camcorders/video recorders; MP3 and CD players and recorders; car and home stereo systems; and speaker surrounds and spiders.

 Speakers
Santoprene TPV offers enhanced sound performance, moisture resistance and design flexibility for speaker surrounds and holders.

 Logitech Clicksmart® 510 Webcam
Logitech used Santoprene TPV on numerous parts of this webcam, including the grip (soft touch), access panel doors (moisture resistance), and base (non-slip and non-mar properties).

 Hasselblad H1 autofocus 645
Santoprene B100 bondable TPV was overmolded onto PC/ABS to create the soft-touch grip on this high-performance camera.

 Key benefits of Santoprene TPV:

 Audio/video
- silky, soft-touch feel
- thermally bonds to a variety of substrates
- weather and shock protection
- chemical, heat, oil and moisture resistance
- sealing properties
- multiple processing options

 Speaker surrounds
- frequency response performance over PU foam, NBR and SBR
- excellent moisture resistance compared to PU foam or butyl rubber
- design flexibility
- bonds to paper, metal, and PP cones
- excellent surface appearance

 Feet
- non-marring, long-term compression stress relaxation, non-tacky, non-slip
- smooth surface

 INFORMATION LINKS:
- Sound Performance Design Guide

Philips/Helvoet TV wedges
Extruded Santoprene TPV wedges provide a secure, soft component to keep delicate picture projection coils in place.
Grips, Buttons, Bumpers, Seals & Feet

Santoprene TPV is widely used in the consumer electronics industry, where soft touch, shock protection, non-slip properties, and resistance to moisture, chemicals, heat and vibration are not just desired, but required.

Feet
TPV feet are used on a wide range of feet applications due to their non-marring, non-slip properties.

Fellowes PDA Bumper®
Made from TPV, this bumper can be used on a variety of personal digital assistants, offering a shockproof, water-resistant shield.

Stereo knobs
Knobs and buttons made from Santoprene TPV offer a soft and tactile feel along with non-slip properties.

Key benefits of Santoprene TPV:

Grips, knobs, buttons
- oil resistance
- silky, soft-touch feel
- thermally bonds to a variety of substrates
- excellent flex fatigue

Gaskets and grommets
- resistance to water and dust
- weather and shock protection

Seals and integrated seals
- excellent compression stress relaxation
- watertight sealability
- cost effective via 2-shot molding

Feet
- vibration isolation
- non-marring
- non-tacky
- coefficient of friction
- long-term compression stress relaxation
- good balance of hardness and compression set

INFORMATIONAL LINKS:
- Feet Case Study
Process/Material Selection & Ergonomics

Santoprene TPV and other materials manufactured by AES can be processed through standard techniques, including injection molding, insert molding, extrusion and blow molding (click here for more information). Special Santoprene TPV grades have been developed that thermally bond with substrates like PP, PA (nylon), EPDM, PC/ABS, PS, PBT and PET and their blends, as well as textiles and metals (click here for more information). Santoprene TPV material is available in many product families and durometers to suit all needs, including ergonomic requirements. AES has professional resources to add value at each critical stage of the product development process and throughout the remainder of the product lifecycle. Find out what AES has to offer by clicking here.

TECHNICAL AND INFORMATIONAL LINKS:
- Santoprene Brochure
- Ergonomic Benefits Study
- Grips Brochure
- Grips Design Made Easy
- Abrasion Resistance TCD
- Bonding & Decorating TCD
- Coefficient of Friction TCD
- Compression Set TCD
- Injection Molding of B100 TCD
- Injection Molding of Nylon (PA) Bondable TCD
- Painting Santoprene TCD
- Sealing with Santoprene Rubber TCD
- Vacuum Thermoforming TCD
- Weathering of Santoprene TCD

Special Effects and Decorating Techniques:
Numerous techniques can be employed using Santoprene TPV to create a product with a unique look, texture, fragrance or printing effect.

Tactile and sensory effects
- design
- thickness
- texturing
- durometer
- fragrance

Decorative effects
- metallic/speckled
- glow in the dark/fluorescent
- flip flop
- stone
- pearl luster
- translucency
- painting

Printing capabilities
- screen printing
- tampoo/pad printing
- laser marking
- hot stamping
- heat transfer
- labeling
Contact Us

Specify Santoprene TPV for unsurpassed design flexibility and unmatched physical properties. Please call for a free review and part analysis. Click here for the regional contact information, or consult the AES website at www.santoprene.com.

For instant technical support, the AES AnswerPerson™ can be contacted during working hours at the following locations:

- **Advanced Elastomer Systems, L.P. (North America):** E-mail AES AnswerPerson or phone 1-800-305-8070, prompt 1, 8:00 a.m. to 6:00 p.m. (EST)
- **Advanced Elastomer Systems, NV/SA (Europe):** E-mail AES AnswerPerson or phone +32-2-706-3511 from 8:30 to 17:00 (CET)
- **Advanced Elastomer Systems Singapore, Pte., Ltd. (Asia Pacific):** E-mail AES AnswerPerson or phone +65-9677-6704 from 9:00 to 17:00 (Singapore time)
- **All other world areas:** E-mail AES AnswerPerson at: answerperson@santoprene.com or phone +1-330-849-5272

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