



WHERE CREATIVE MINDS TURN
FOR EXCITING SOLUTIONS



TSRC DEXCO

VECTOR
STYRENIC BLOCK COPOLYMERS

YOUR LOCAL EXPERTS AROUND THE WORLD



Since our founding in Taiwan in 1973, we've built our reputation as leaders in the synthetic rubber industry. Today, we continue to expand our network in Asia, Europe and Americas to bring you consistently reliable solutions, along with responsive service from experts in your market. We're always ready to help you produce world-class products with confidence.

A HISTORY OF PROGRESS AND COLLABORATIVE SUCCESS



1973

TSRC(Taiwan Synthetic Rubber Corporation) is established in Taipei, Taiwan



1984

20,000 tons styrenic block copolymer plant constructed in Kaohsiung, Taiwan

1988

Dexco partnership created as 50/50 joint venture of Dow Chemical and Exxon

1990

32,000 tons SIS plant in Plaquemine, LA, to produce pure-block VECTOR® products

1991

30,000 tons SBS plant in Plaquemine, LA, to produce pure-block VECTOR® products



1994

34,000 tons SBC capacity added to plant in Kaohsiung, Taiwan

1995

Successfully hydrogenated TPEs in Taiwan



1996

Achieved first VECTOR sales for photopolymer plat applications; introduced four-arm VECTOR® SI products

YOU NEVER STOP INNOVATING. SO, NEITHER DO WE.

In this highly competitive arena, our clients are on a never ending quest to outdo the latest invention. TSRC / Dexco is right there with you. We're proud to be your trusted partner, offering exceptionally high-quality polymers, advanced technology and critical expertise to make your most exciting ideas reality. Every step of the way, we remain mindful of our ultimate mutual and monumental goal: to enhance the quality of human life.



THE TSRC / DEXCO SBC PORTFOLIO STRONG, RESILIENT, FLEXIBLE. AND BEST IN CLASS.

TSRC / Dexco presents an expansive portfolio of styrenic block copolymers (SBCs), including our proven VECTOR and TAIPOL SBS and SIS products, as well as SEBS, the hydrogenated SBS, delivering enhanced durability and functionality. Their hard styrene end-blocks and soft elastomeric mid-blocks allow them to phase separate over a wide temperature range, making them ideal for many high-performance applications.

TSRC SBC STRUCTURE

Non-hydrogenated(unsaturated) elastomers

SBS (Styrene-Butadiene-Styrene copolymers) offers high strength and is easily processed.

SIS (Styrene-Isoprene-Styrene copolymers) offers good thermal stability, high cohesion strength, spray ability and superior adhesion.

Hydrogenated(saturated) elastomers

SEBS (Styrene-Ethylene/Butylene-Styrene copolymers) offers high strength; oxygen, ozone and UV resistance; heat stability, high service temperature and is easily processed.



2005

New SEBS catalyst technology developed



2005

VECTOR® SI radials introduced for die-cuttable adhesives

2006

Commercialized VECTOR® film grade resins



2008

20,000 tons SEBS plant started up in Nantong, China

2011

TSRC acquired Dexco to become one of the world's top SBC producers



2011

TSRC announced joint venture with CPC in Taiwan to produce SIS products

2011

TSRC Luxembourg established to serve customers throughout Europe/Middle/East/Africa region

2014

25,000 tons SIS plant in Nantong, China, starts to produce VECTOR® SIS

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VECTOR[®]

When your end-product demands best-in-class polymers

VECTOR styrenic block copolymers offer unique, high-performance properties, along with unmatched purity and consistency. We offer VECTOR in a wide range of formulations and welcome the opportunity to develop custom grades.

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TAIPOL[®]

A trusted brand for many applications

TSRC / Dexco continues to manufacture the well-known TAIPOL line of synthetic polymers, proven performers, particularly in the automotive industry, and also for use in shoes, toys, building materials, household goods and industrial supplies.

IF YOU CAN IMAGINE IT, WE'LL HELP YOU MAKE IT

The market for synthetic polymers changes constantly. To earn our reputation as leaders in the industry, TSRC / Dexco adheres to a clear R&D strategy, consistently introducing new products in response to the market needs.

We continue to expand our technology by investing in the industry's brightest professional minds and the finest research facilities. Additionally, we have formed successful long term

relationships with academic and research institutes worldwide and collaborated with many well-respected international players, including our valued clients.

As a result, we are well positioned to offer our innovative clients limitless opportunities to find new and better ways to achieve their goals.



BEADS OF PURE INSPIRATION



MAJOR APPLICATIONS

The elasticity and softness of rubber, combined with the strength and rigidity of plastics; that's the beauty of thermoplastics elastomers, including our styrenic block copolymers (SBC). Composed of styrene and other monomers, they're excellent for use in a wide range of applications, from paving and roofing materials to diapers, films and adhesives.

ELASTIC FILMS

TSRC / Dexco's proprietary polymer synthesis technology allows for unprecedented control of block copolymer composition and properties. VECTOR styrenic block copolymer(SBCs) are stable, narrow molecular-weight styrenic block copolymers produced sequentially in an anionic polymerization process. These virtually 100% pure triblock copolymers contain no

residual diblock and have the highest level of elasticity compared with SBCs of similar composition.

VECTOR SIS- and SBS-based films are used in laminate structures found in personal-care and hygiene applications including baby diapers and adult incontinence products, more specifically in diaper side panels, ears and waistband applications, where comfort and fit are important considerations.

PACKAGING

The unique structure of VECTOR SBCs makes them useful for a variety of packaging applications. For example, wherever dissimilar materials are blended or otherwise combined, high-styrene VECTOR 4411 and VECTOR 6241 are especially well suited to enhance compati-

bility between styrenic and olefinic polymers. The polymers allow processors to combine these materials effectively to create distinctive films with a wide range of desired properties.

TSRC / Dexco's SBCs have the added advantage of improving impact and draw properties for thermoforming applications. Because VECTOR SBCs are stable, narrow molecular-weight styrenic block copolymers, they improve melt strength during processing and impact performance, and toughness and crack resistance in the final product. They blend readily with polyolefins such as low-density polyethylene and ethylene vinyl acetate resins, and styrenic polymers such as crystal and high-impact polystyrene. They can accept common oils, fillers, process aids, antiblock agents and colorants.



FLEXOGRAPHY

VECTOR SBCs are produced using a proprietary polymer synthesis technology that allows for unprecedented control of block copolymer composition and properties. They are stable, narrow molecular-weight styrenic block copolymers produced using a sequential anionic polymerization process. This process results in a precise polymer that delivers the performance required for the demanding printing plat market. VECTOR SBCs are consistent lot to lot and can accept a variety of additives such as oils, process aids, antiblock agents and colorants.

HYGIENE ADHESIVES

VECTOR and TAIPOLE polymers may be formulated with suitable hydrocarbon resins, plasticizers and additives to

produce a wide range of hot-melt adhesives for manufacturing baby and adult diapers, feminine-care products and other nonwoven articles.

VECTOR and TAIPOLE SBS polymers are used in construction adhesives to laminate nonwoven backsheets to polyolefin topsheets. Their SBS and SIS polymers are used in core stabilization to produce ultrathin absorbent cores with high SAP loading. Select VECTOR SIS polymers make elastic attachment adhesives suitable for adhering elastic component to polyolefin and nonwoven films for stretchable waist and leg bands.

VECTOR SIS and TAIPOLE SEBS polymers are used in feminine-care products for construction, positioning and core-stabilization adhesives.

TAPE ADHESIVES

VECTOR polymers lend themselves to a wide range of hot-melt adhesive tapes with bi-axially oriented polypropylene (BOPP), paper, cloth and aluminum backings.

For hot-melt tapes, SIS polymers offer excellent PSA properties and work well with a range of coating lines.

Pure triblock SIS VECTOR 4111 can be formulated with appropriate tackifiers for high-shear packaging and masking tapes. Diblock-containing SIS grades such as VECTOR 4113 and 4114 cover a wide range of tack/shear balances in tape applications.

Radial SIS VECTOR 4230 and several development grades increase the formulation latitude for extreme low-viscosity, high performance or low-cost formulas.



LABEL ADHESIVES

VECTOR polymers lend themselves to a wide range of hot-melt, pressure-sensitive adhesive labels based on paper, film and aluminum substrates.

For hot-melt labels, SIS polymers offer excellent pressure-sensitive adhesive properties and work well with a range of coating lines.

SIS grades with low/medium diblock content such as VECTOR 4113 and 4114 cover a wide range of tack/shear balances in label applications.

Radial, high-diblock SIS VECTOR 4186 and 4187 simplify the formulation and compounding of hot-melt, pressure-sensitive adhesives for high die-cutting speed and low oozing or bleeding.

OTHER ADHESIVES, SEALANTS AND COATINGS

VECTOR and TAIPOLE formulations contribute to a diverse range of products used for manufacturing applications.

SIS and SBS polymers are used to formulate hot-melt adhesives suited for the assembly of goods such as paper and other graphic arts products. They are also suitable for solvent-based adhesives for polyurethane foam assembly, such as upholstery. These SIS and SBS polymers are ideal for the formulation of

high-solid-content adhesives, offering fast-drying, low-shrinkage properties, along with reduced emissions.

In construction sealants, SEBS block polymers provides outstanding thermal, ozone and UV stability. These fully saturated block copolymers can be formulated as hot melts or with solvent. They are also suitable as modifiers and enhancers of butyl sealants. Formulations can be transparent, but they can be colored and overpainted as needed.

Thermoplastic compounds formulated with VECTOR 4113 can improve road-making durability, adhesion to asphalt and reflective retention at dosage rates as low as <2% wt.

COMPOUNDING

VECTOR and TAIPOLE SBCs provide strong performance features and benefits for manufacturing and production. Easily processed and reasonably priced, they can be mixed and compounded to meet your requirements, whether through single- or twin-screw extrusion, injection or blow molding. Applications are diverse and include such things as ordinary household goods; sports equipment; auto parts; parts used in manufacturing industrial products, such as tool handles, grips and gaskets; and low-voltage wire and cables.

Our SBCs offer a broad hardness range

from 0 - 90 Shore A and good elastic performance. They have excellent low temperature properties and good hydrolysis resistance, with an available transparent grade. They are also compatible with polyolefinic- and styrenic-based plastics.

PLASTIC MODIFICATION

VECTOR and TAIPOLE SBCs are used as compatibilizers and impact modifiers for thermoplastic polymers such as polystyrene, polypropylene and polyethylene. In these applications SBCs offer distinct benefits, including good impact strength, enhanced elasticity, elongation and flexibility. They also offer excellent low-temperature properties.

In some applications, particularly automotive, SEBS tends to be more popular than SBS and SIS polymers because SEBS provided good heat resistance and UV resistance properties.



TECHNOLOGY LEADERS

Innovative ideas need effective resources to get off the ground. Our strength lies in our ability to evaluate your goals, determine your requirements and provide you with solutions that support your success. Our research and development is led by our customers' challenges.



BIGGER, GREENER, STRONGER THAN EVER

TSRC / Dexco is expanding our global supply chain by leaps and bounds. We are one of the largest SBC producers in the world, with production bases and service teams strategically located throughout Asia, EMEA and Americas.

At the same time, we remain steadfastly committed to our responsibilities as good

corporate citizens of the world. We place great emphasis on developing greener technology and processes in our efforts to minimize our impact on the environment and provide safer, more reliable products every day.

NANTONG, CHINA, FACILITY NOW PRODUCING VECTOR

As we expand internationally, we do so strategically, not simply adding facilities but adding new, differentiating technologies and making them available globally. To that end, our state-of-the-art plant in Nantong, China, is now also producing VECTOR SIS, our high-performance SBC.



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TAIPOL®

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