

kuraray

SEPTON™ BIO-series

**Bio-based block copolymer
for differentiated solutions**



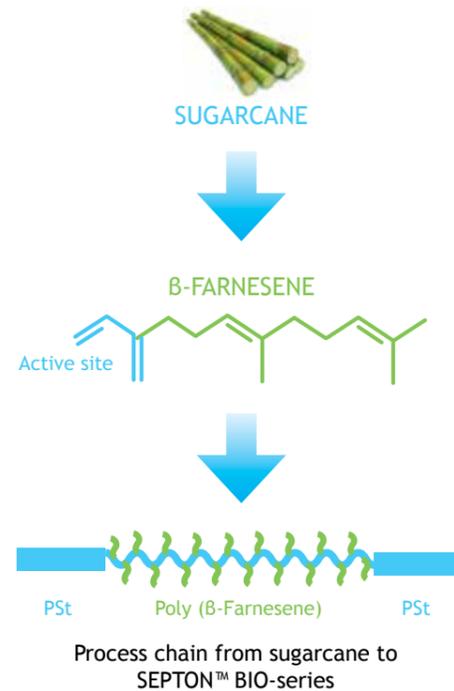
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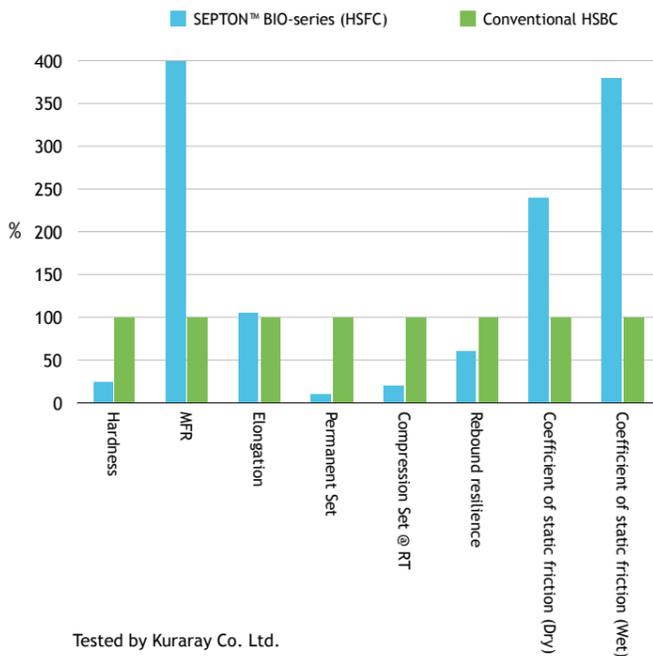
Key Advantages

- Excellent wet and dry grip performance
- Strong and stable adhesion force across a wide temperature range
- Good processability
- Bio-based Polymer
- Good damping properties over a wide temperature range
- Low compression-set, low permanent set
- Low oil bleed
- Excellent removability with no residue

In collaboration with the bioscience company Amyris, Kuraray has developed a new family of hydrogenated styrene farnesene block copolymers (HSFC) called SEPTON™ BIO-series. It is synthesized from β-farnesene, a renewable monomer produced by Amyris. Through established fermentation processes, proprietary yeast strains developed by Amyris convert sugar sources such as sugarcane, into β-farnesene.



In comparison to HSBC, SEPTON™ BIO-series exhibits higher flow ability, lower hardness without plasticizer, higher wet and dry grip, good permanent and compression set, and improved damping properties over a wide temperature range. With this property set, SEPTON™ BIO-series lends itself to a broad range of applications, including but not limited to: wet/dry grip, adhesives & sealants, gels, soft compounds, modifiers, nonwovens, films and foams.



HIGH GRIP PERFORMANCE



High coefficient of friction in wet and dry conditions. Ideal for sporting goods, mats, household, footwear, and industrial applications.

SOFT TOUCH BIO-BASED COMPOUNDS



Low hardness, low plasticizer, soft touch compounds with high bio-content. Excellent adhesion to olefins and higher adhesion to polar substrates compared to traditional HSBCs.

DAMPING



High tan delta and excellent damping over a broad temperature range. Ideal for applications requiring noise and vibration dampening.

FOAM / GELS



Super soft, low density, highly resilient foams and gels with good compression and permanent set are possible with HSFC. Due to HSFC's inherently lower hardness than traditional HSBC, less plasticizer is needed which results in less potential oil bleed.

ADHESIVES / SEALANTS / COATINGS



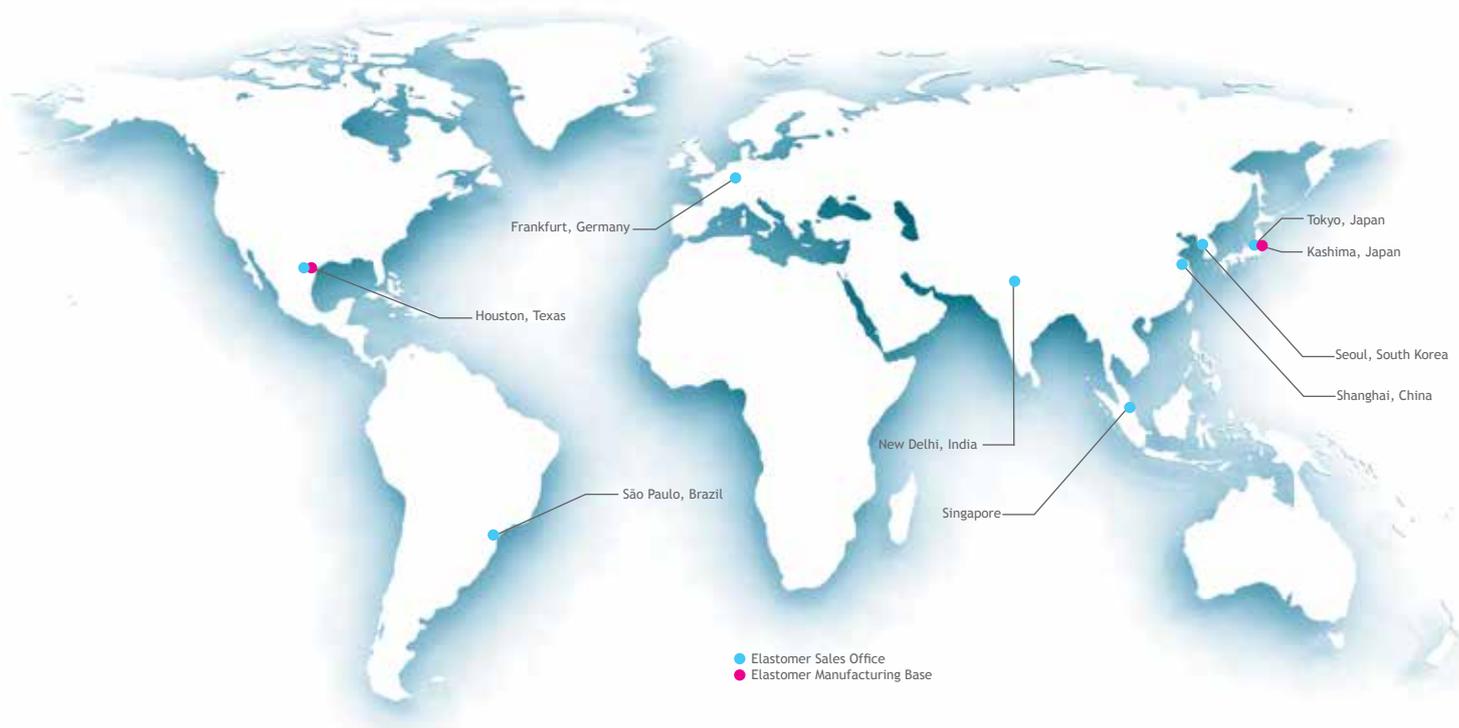
Low viscosity for easy processing, high damping, strong and stable adhesion force at high and low temperatures for general adhesives and sealants. Excellent removability with no residue for protective films.

NONWOVENS / FILMS



Soft and elastic with low hysteresis and permanent set. Melt blown processable for nonwovens and excellent extrudability for elastic film.

Adding value to your products - worldwide



SEPTON™, HYBRAR™ and KURARITY™ are Kuraray's trademarks for thermoplastic elastomers (TPEs). They are a special type of synthetic rubber that combine the elastic properties of rubber with the benefits of thermoplastics. They can be processed into almost any shape. TPEs have a pleasantly soft touch and good wear comfort. They also increase shock absorption. What's more, they are recyclable. Kuraray's TPEs are environmentally sound, free of PVC and do not need additional plasticizers. They are used for an extremely wide range of applications including many plastic compounds for every-

day products. Examples include toys, toothbrushes, medical tubes, sports equipment, sealants and car tires. The flexible types are used as lubricant additives and base components in adhesives. Kuraray is a leading supplier of TPEs and offers customers more than 30 different grades with individual properties.

For further information, please contact your local Kuraray office or visit our website.

 www.elastomer.kuraray.com

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Disclaimer: Precautions should be taken in handling and storage. Please refer to the appropriate Safety Data Sheet for further safety information. In using SEPTON™ and HYBRAR™, please confirm related laws and regulations, and examine its safety and suitability for the application. For medical, health care and food contact applications, please contact your Kuraray representative for specific recommendations. SEPTON™ and HYBRAR™ should not be used in any devices or materials intended for implantation in the human body. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement.