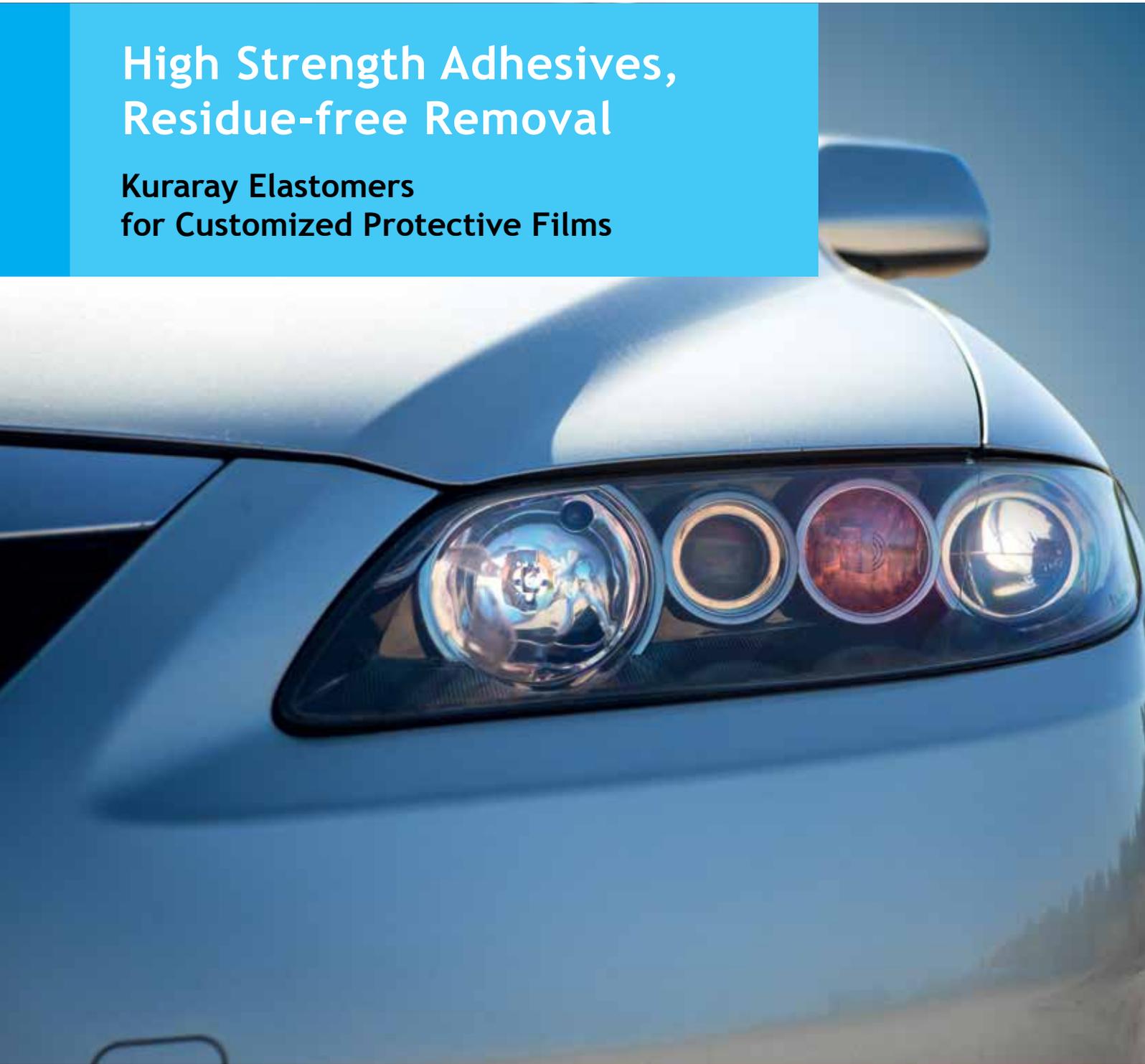


kuraray

High Strength Adhesives, Residue-free Removal

**Kuraray Elastomers
for Customized Protective Films**



Temporary Surface Protection Films



Kuraray has developed material technology that is applicable for surface protection films. The core chemistry is based on styrenic-block copolymers and is known under the tradenames of SEPTON™ & HYBRAR™. When using these products in protective films, they allow design flexibility in customizing tack adhesion, strengthening ultimate tack, and residue-free removal.

Key Advantages

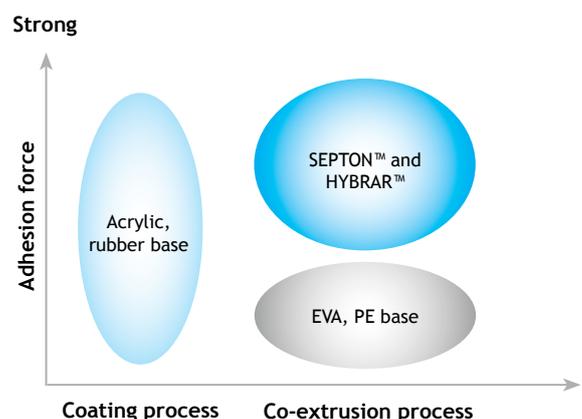
- Customizable tack adhesion for different surface appearances (e.g. embossed or non-embossed)
- Strengthening excellent tack adhesion
- Residue-free removal
- Direct processing without previous compounding
- High clarity films
- Lower overall structure costs



Styrenic Block Copolymer SEPTON™ & HYBRAR™

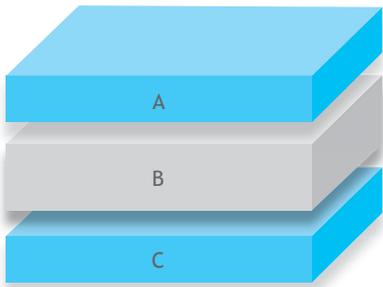
SEPTON™ & HYBRAR™ have historically been used in the adhesive industry for conventional hot-melts. Taking this experience, Kuraray has further developed and applied this into the area of adhesive films. The primary benefits are the high strength of the styrenic block copolymers and favorable economics of the co-extrusion process. For the processor, the key advantages are design flexibility and potential to customize. Based on the various levels of adhesion needed for different applications and substrates, e.g. lower adhesion on glossy and higher adhesion on embossed surfaces, adhesion can be tailored and optimized by blending SEPTON™ or HYBRAR™ with polypropylene or tackifier.

SEPTON™ & HYBRAR™ Based Protective Film





Example formulation for customized Films



A: Adhesion Layer

B: Core Layer

C: Release Layer

Layer	Excellent Adhesion	High Adhesion
A	100% SEPTON™ 2063	100% HYBRAR™ 7311F
Adhesive Layer	36 Shore A	41 Shore A
10 µm	MFR 7.0 (230/2.16)	MFR 2.0 (230/2.16)
B	100% Random PP	100% Random PP
Substrate Layer		
30 µm	MFR 4.5 (230/2.16)	MFR 4.5 (230/2.16)
Peel Adhesion (N/25mm)	10.0 (PMMA)	7.0 (PMMA)

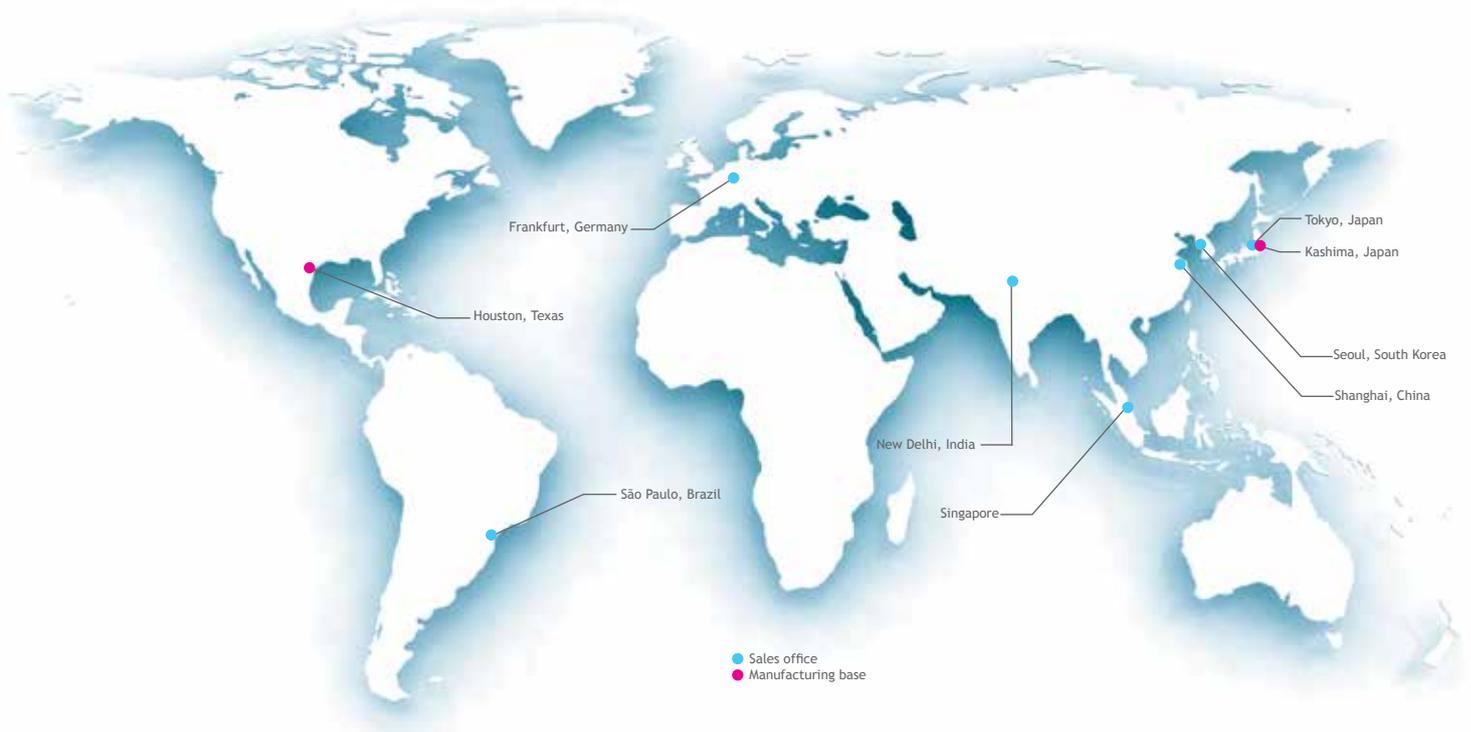
Excellent Adhesion	Medium Adhesion & Heat Resistance	Medium Adhesion & Heat Resistance	Improved Heat Resistance
100% 'Blend B1'	100% 'Blend B2'	100% 'Blend B3'	100% 'Blend B4'
27 Shore A	42 Shore A	47 Shore A	52 Shore A
MFR 8.4 (200/2.16)	MFR 7.3 (200/2.16)	MFR 6.3 (200/2.16)	MFR 6.9 (200/2.16)
100% Random PP	100% Random PP	100% Random PP	100% Random PP
MFR 4.5 (230/2.16)	MFR 4.5 (230/2.16)	MFR 4.5 (230/2.16)	MFR 4.5 (230/2.16)
8.9 (PMMA)	8.0 (PMMA)	7.0 (PMMA)	5.9 (PMMA)

Measured by Kuraray
Test method: JIS Z0273

Pure Polymer Recommendations

Customized Alloy Recommendations

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.

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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.