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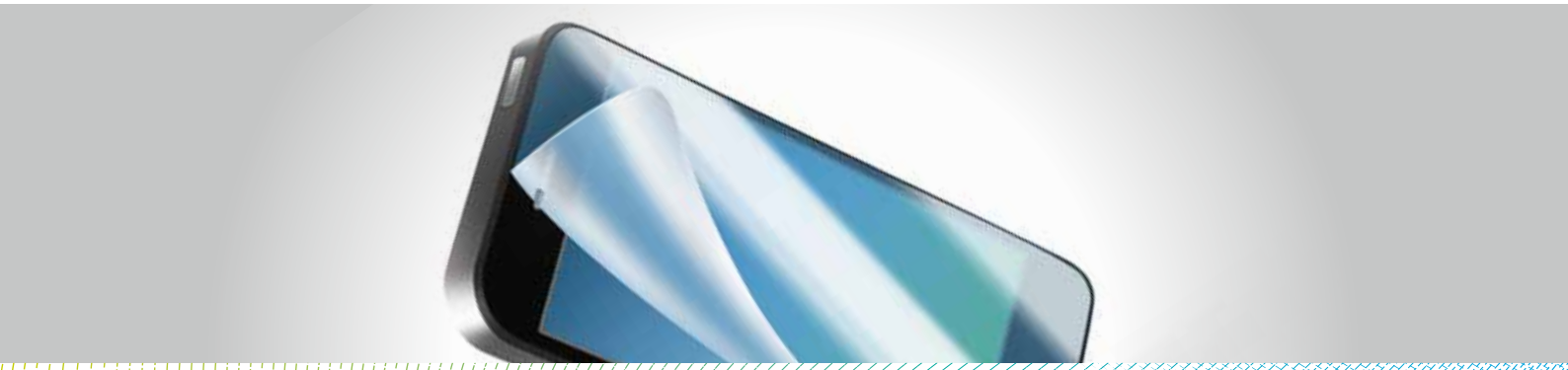

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Cost effective, enhanced peeling strength solution for surface protective films

Co-extruded surface protective films (SPF) are widely used to protect surfaces of electronic screens, appliances, construction materials and other valuable products.

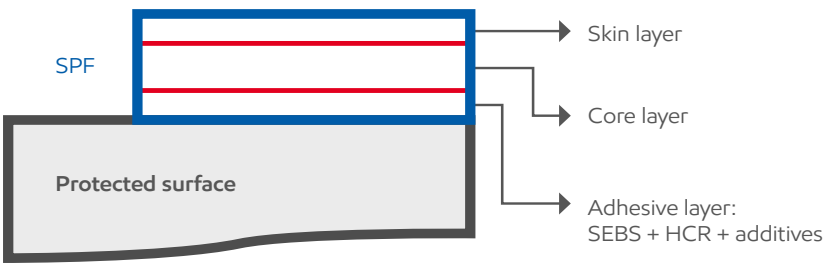
A typical co-extruded SPF has multi-layer structure consisting of skin layer, core layer and adhesive layer. The adhesive layer enables SPF to adhere to the protected surface and is typically formulated using styrene-ethylene-butylene-styrene copolymer (SEBS), hydrocarbon resin (HCR) and additives.

Oppera™ modifiers can be used as HCR in the adhesive layer, bringing potential of peeling strength improvement and lower material cost.

Key benefits

- **Cost savings**
- **Better peeling strength**

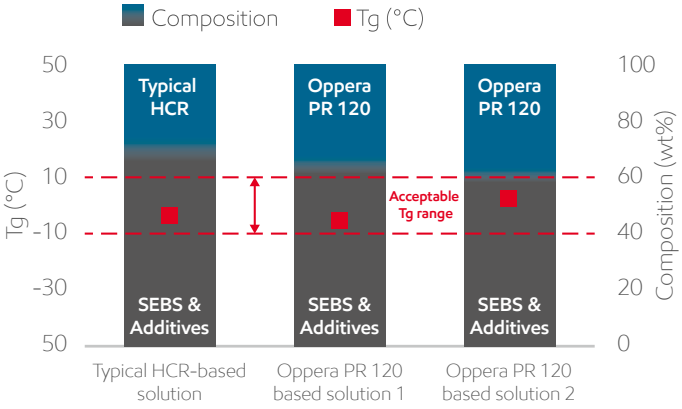
Typical structure of SPF



Oppera™ modifiers can be used as HCR in the adhesive layer, bringing potential of peeling strength improvement and lower material cost.

Potential of cost-effective SPF solutions with Oppera™ modifiers

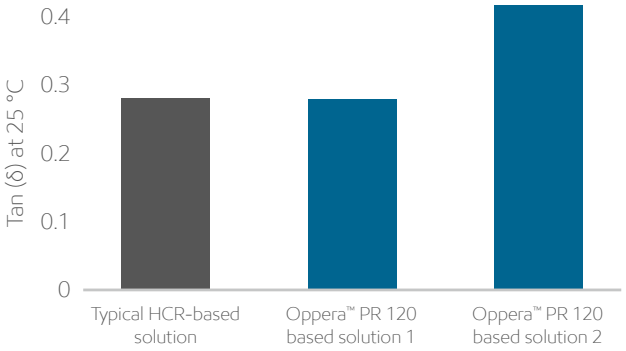
Keeping glass transition temperature (Tg) within certain range is important for the formulation of adhesive layer in SPF [1]. Comparing with typical HCR-based adhesive layer solution, Oppera PR 120 based solutions with higher loading of HCR have potential to lower material cost while maintaining acceptable Tg.



Composition and Tg of typical HCR-based and Oppera PR 120 based solutions for adhesive layer of SPF.

Opportunities to enhance peeling strength using Oppera modifiers

For a formulation of SPF adhesive layer, the rheology behavior (tan (δ) at 25°C) is commonly used to assess the peeling strength[1]. By varying the dosage of Oppera PR 120, adjustable tan (δ) can be achieved for different peeling strength level. Compared with typical HCR based solution, Oppera PR 120 based solution 1 maintains same level of tan (δ) at 25°C; Oppera PR 120 based solution 2 has higher tan (δ) at 25°C, indicating improved peeling strength.



Tan (δ) at 25°C of typical HCR-based and Oppera PR 120 based solutions for the adhesive layer of SPF

Reference

[1] Cao Tong Yuan. Hot melt pressure sensitive adhesive technology and application [M]. Beijing, China: Chemical Industry Press, 2017: page 83-100

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