

# Outline

- 1 Introduction of Sealants in Construction
- 2 Eversorb<sup>®</sup> for Hybrid Polymer Sealants
- 3 Successful case

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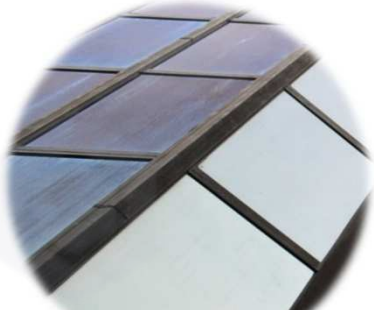
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# Introduction of Sealants in Construction

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# Building sealants provide sealing and gap-filling between components



between glass and window frame



between window frame and stone



between stone and stone

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## Hybrid polymer resins meet the requirements of "high-performance building sealants"

Category	Fatigue resistance	Weather resistance	Heat resistance	Stain resistance	Paintability
Polysulfide	★	★★	★	★★	✗
Polyurethane	★★	★★	★★	★★	✓
Silicone	★★	★★★★	★★★★	★	✗
Hybrid polymer	★★	★★	★★	★★★★	✓

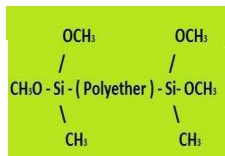
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# Hybrid Polymer (HP) is Silane Modified Polymer

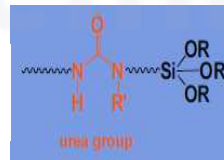
- Modified silanes are one component adhesives which react and cure under the action of moisture, during its curing process
- Depending on the chemical backbone or resin composition of the adhesive, on the market exist 3 types of modified silanes:
  1. *Polyether modified silanes (STPE)*
  2. *Polyurethane modified silanes (SPU)*
  3. *Silylpropylcarbamate-terminated polyether STP-E (SPU)*

**Kaneka**



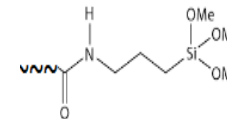
**STPE (MS polymer)**

**MOMENTIVE**



**SPUR**

**WACKER**



**STP-E**

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# HP resins are damaged by ultraviolet light

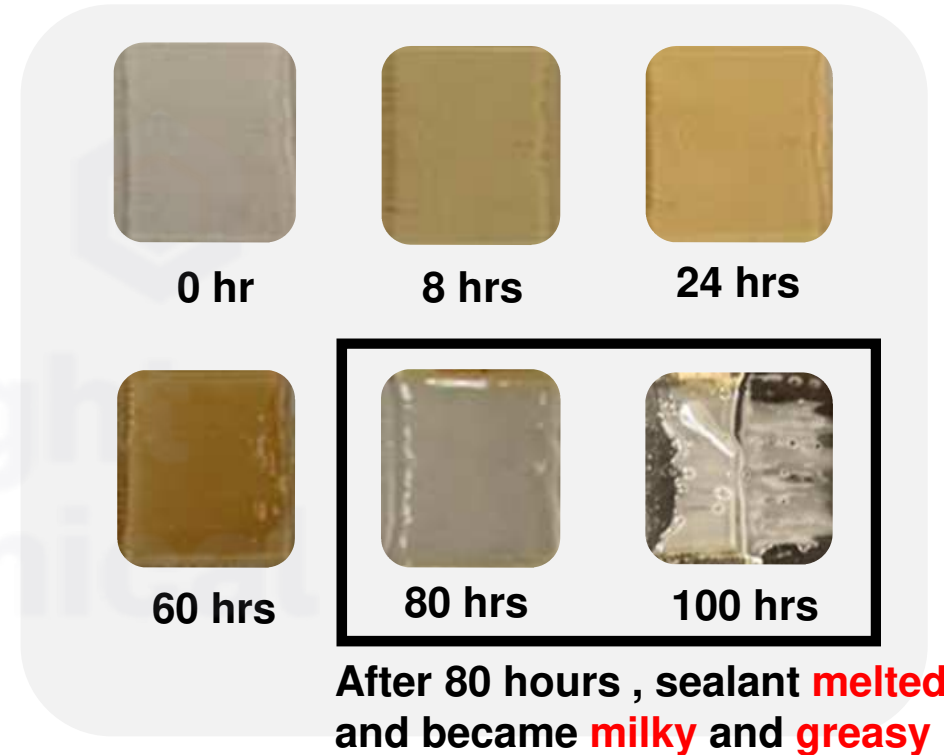
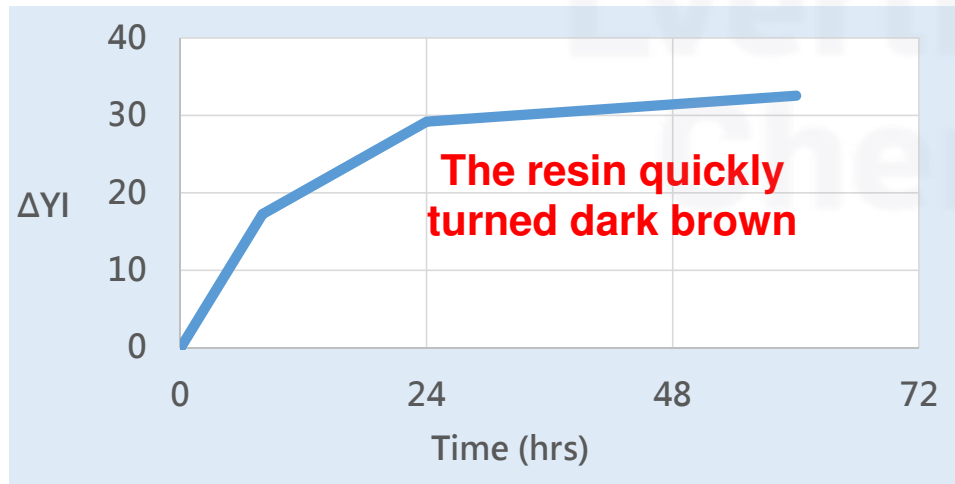
## Weather-resistant test

Test Specimen: : Hybrid polymer resin without fillers

Test Machine : Q-Lab QUV

Test Standard: : ASTM G154-1 (340nm UVA lamp)

Exposure Time: : 100 hrs



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# Light stabilizers improve the weather resistance of HP resins

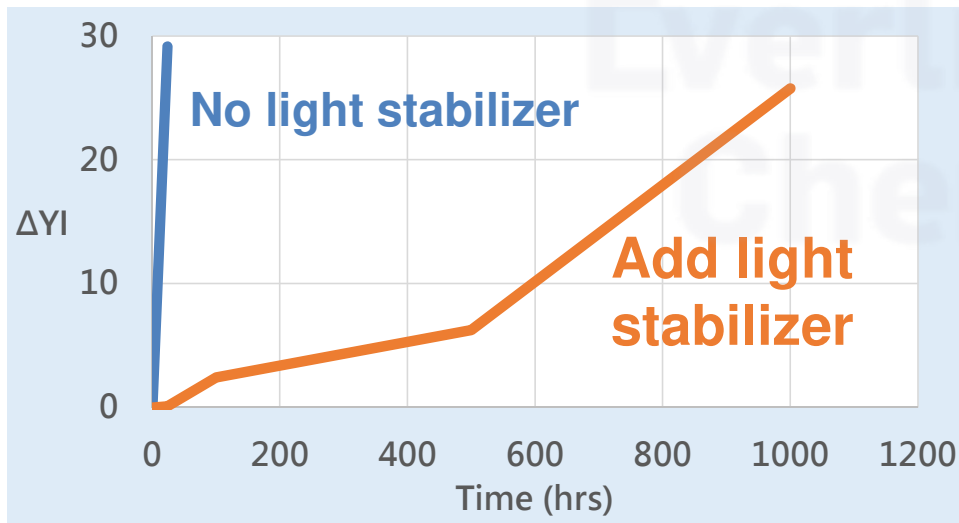
## Weather-resistant test

Test Specimen: : Hybrid polymer resin without fillers

Test Machine : Q-Lab QUV

Test Standard: : ASTM G154-1 (340nm UVA lamp)

Exposure Time: : 1000 hrs



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# Eversorb<sup>®</sup> for Hybrid Polymer Sealants

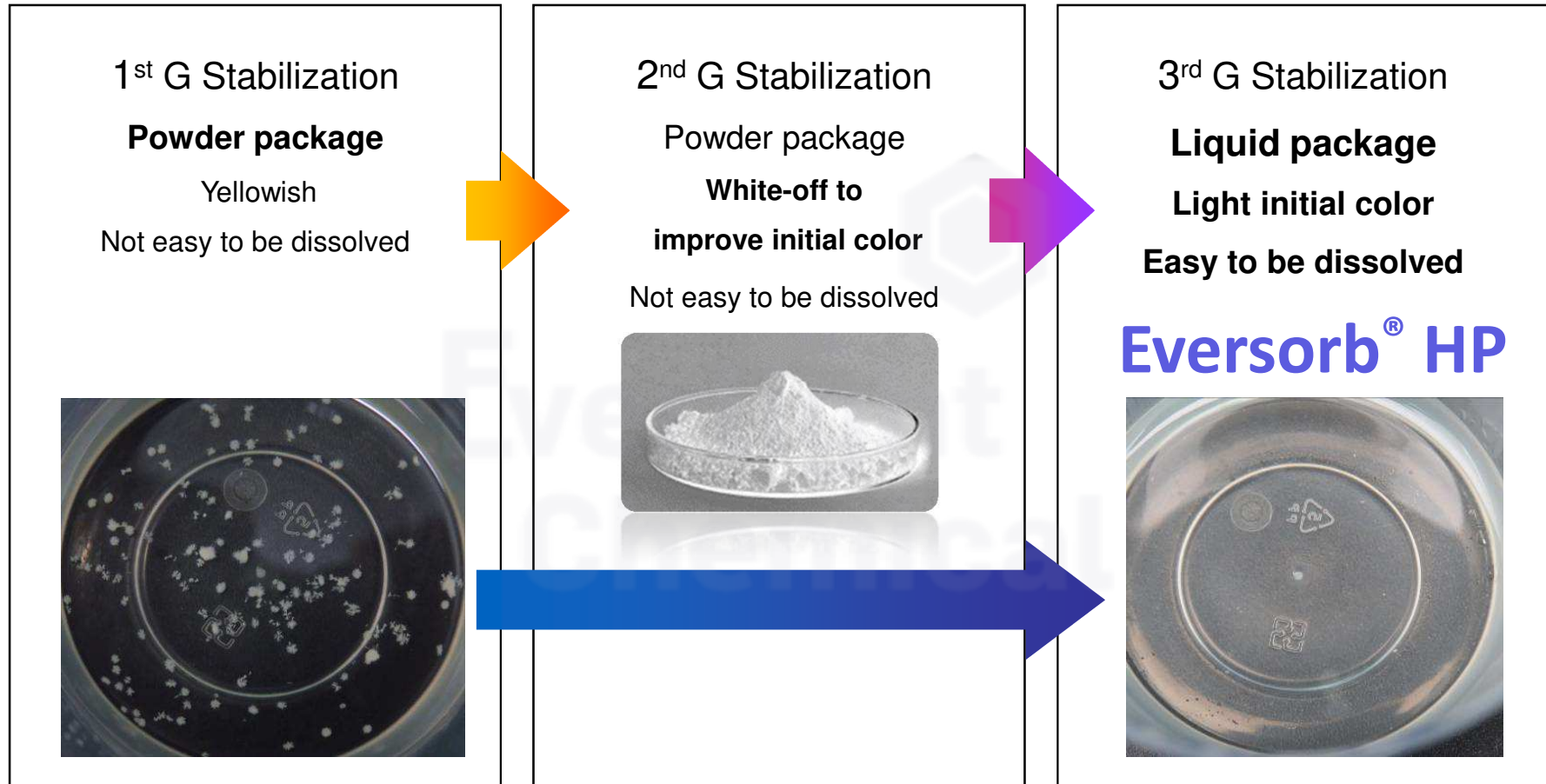
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# Stabilization for HP resins

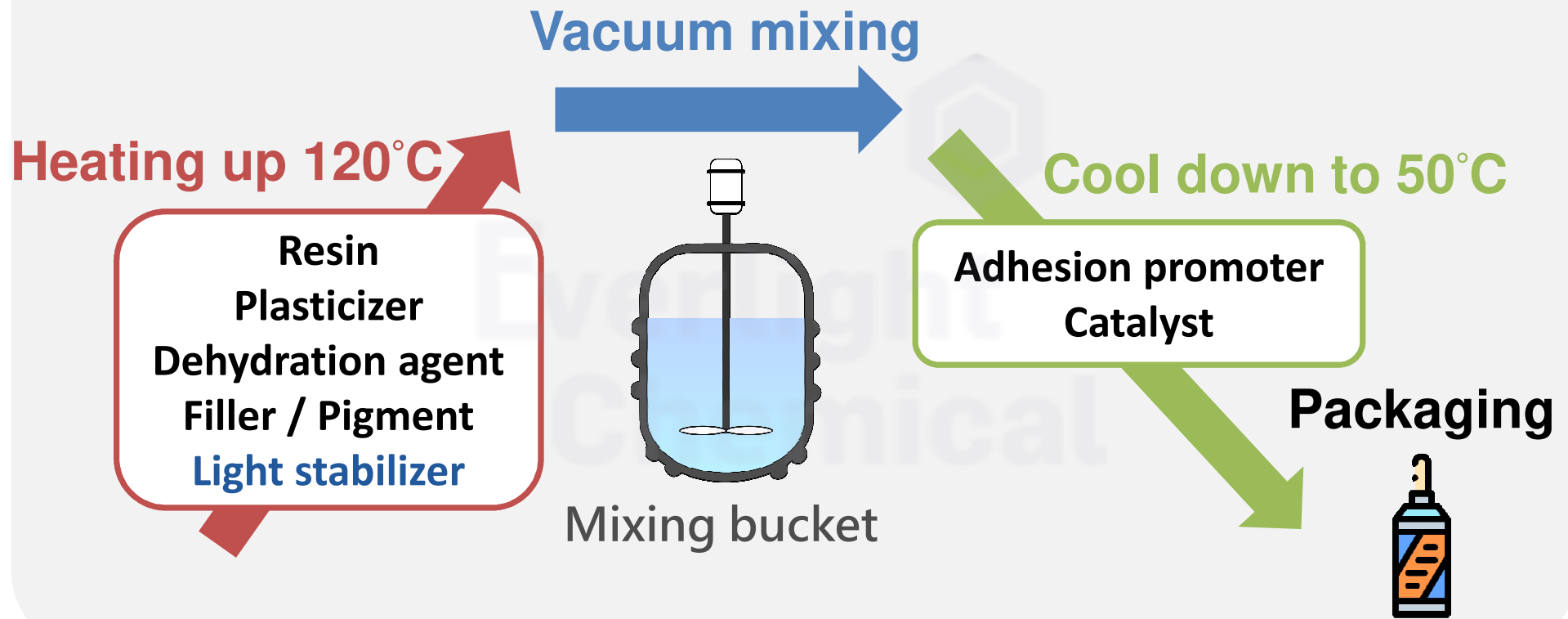


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# Eversorb<sup>®</sup> HP can use directly without heating

## Hybrid Polymer sealant production process



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## Eversorb<sup>®</sup> HP series meet the needs of HP sealants

Product	Appearance	Weatherability Performance	Features
Specially Designed for MS, STPE, SMP and SPUR			
Eversorb <sup>®</sup> HP1	Light Yellow Liquid	★★★★★	<ul style="list-style-type: none"> <li>➤ Superior weatherability and durability</li> <li>➤ Recommended for <b>extreme weather condition &amp; outdoor applications</b></li> </ul>
Eversorb <sup>®</sup> HP2	Light Yellow Liquid	★★★★★	<ul style="list-style-type: none"> <li>➤ No impact on initial colors</li> <li>➤ Recommended for <b>clear and light colored sealants</b></li> </ul>
Eversorb <sup>®</sup> HP3	Light Yellow Liquid	★★★★★	<ul style="list-style-type: none"> <li>➤ Suitable for <b>all types of sealants</b></li> <li>➤ Additional <b>heat protection</b></li> </ul>
Eversorb <sup>®</sup> HP4	Clear Liquid	★★★	<ul style="list-style-type: none"> <li>➤ Economy products</li> <li>➤ Recommended for <b>light and dark colored sealants</b></li> </ul>
Eversorb <sup>®</sup> HP5	Light Yellow Liquid	★★★★★	<ul style="list-style-type: none"> <li>➤ <b>Label-free</b></li> <li>➤ No hazardous substance, more <b>ec0-friendly</b></li> </ul>

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# Eversorb® HP1 provide great weatherability for clear HP sealants

## Weather-resistant test

Test Specimen: : Hybrid polymer resin without fillers

Test Machine : Q-Lab QUV

Test Standard: : ASTM G154-1 (340nm UVA lamp)

Exposure Time: : 1000 hrs



	Yellowness Index (YI)				Tensile Strength Retention (%)
	0 hr	100 hrs	500 hrs	1000 hrs	1000 hrs
No Additive	2.25	Panel Decomposed			Panel Decomposed
1 phr Eversorb® HP1	2.48	4.91	8.72	28.24	72.09
2 phr Eversorb® HP1	2.58	4.12	7.67	24.27	99.91

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# Eversorb<sup>®</sup> HP3 provide great weatherability for white HP sealants

## Weather-resistant test

Test Specimen: : White Hybrid polymer sealant

Test Machine : Q-Lab QUV

Test Standard: : ASTM G154-1 (340nm UVA lamp)

Exposure Time: : 1000 hrs

	Yellowness Index (YI)				Tensile Strength Retention (%)
	0 hr	100 hrs	500 hrs	1000 hrs	1000 hrs
No Additive	2.80	6.96	6.36	7.60	84.25
1 phr Eversorb <sup>®</sup> HP3	2.99	3.96	4.33	4.73	97.71



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How to check the degradation on surface ?

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# Eversorb<sup>®</sup> HP6 is using in white or light color HP sealants

## Traditional UVA / HALS

- Powder type
- UVA & HALS
- For light color



## Eversorb<sup>®</sup> HP6

- Liquid type
- Performance product
- For light color



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# Eversorb<sup>®</sup> HP6

- Liquid type performance product
- Easy dispersion
- High compatibility with hybrid polymer
- Low Migration Risk
- Excellent Light initial color
- Weatherability Improvement



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# Eversorb<sup>®</sup> HP6 can replaces the competitors

## Test Condition :

Formula: White sealant

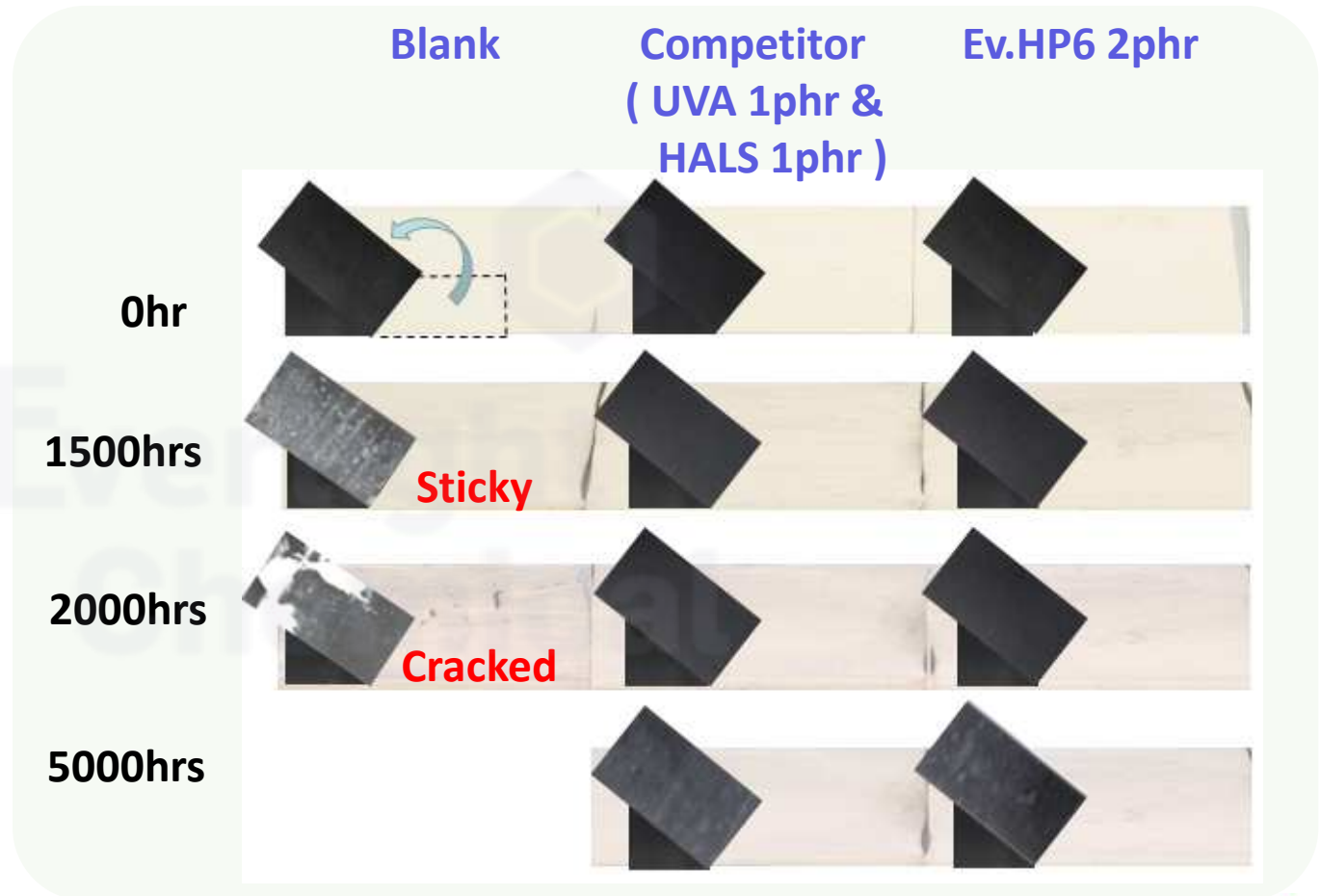
Resin: HP Polymer

Dosage: 2 phr

Test Machine : Q-Lab QUV

Test Standard : ASTM G154-1

Duration : 5000 hours



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# Conclusion

## Eversorb® HP series Decision Tree

