Solution Case Study

Formulate Transparent SMP-Based Adhesives and Sealants with Reduced Yellowing over Time and Increased Mechanical Properties

Applications
• Construction
• Transportation
• DIY
• Industrial assembly

Key benefits
• Transparent SMP-based
• Improved mechanical properties compared to market standard
• Reduced yellowing during storage
• Reduced yellowing during service lifetime

The challenge
Many formulators are facing significant challenges when formulating transparent SMP-based (silane modified polymers) adhesives and sealants. Next to questions around transparency or rheology (where AEROSIL® fumed silicas play an important role), the subsequent creeping of yellowing of such products during storage or even service lifetime are the key for a successful market entry.

The solution
Dynasylan® 1146 and Dynasylan® SIVO 203 are the most suitable organofunctional silanes that provide desired excellent properties (adhesion, mechanical properties, low yellowing) over a wide range of individual applications (construction, transportation, do-it-yourself, industrial assembly ...).

Formulate transparent SMP-based adhesives and sealants with reduced yellowing over time and increased mechanical properties.
Improved mechanical properties: up to 75% tensile strength increase!

Both tailor-made multifunctional silane systems have been tested in a lab study compared to the market standard Dynasylan® AMMO, and led to strongly improved mechanical properties of the corresponding SMP-based sealants (Figure 1, AMMO = 100 as an index).

Significant yellowing reduction: no yellowing during storage nor service lifetime

As shown below, the visual evaluation of said sealants indicated Dynasylan® SIVO 203 as best silane solution with a look on color stability while Dynasylan® 1146 was 2nd best (Figure 2). Dynasylan® AMMO gave proper specimen while (the old standard) Dynasylan® DAMO-T failed.

Last but not least, Dynasylan® SIVO 203—and especially Dynasylan® 1146—offer real opportunities to avoid labeling.