

## Solution Case Study

# Formulate highly flexible and durable SMP-based adhesives and sealants thanks to Dynasytan® 1189 aminosilane

### Technology

**Aminosilane:** Dynasytan® 1189

### Applications

Adhesives and sealants in Silane Modified Polyurethane/Polyether (SMP)

### Markets

Construction

### Key benefits

- High flexibility for adhesives and sealants
- Improved moisture resistance
- Enhanced chemical resistance

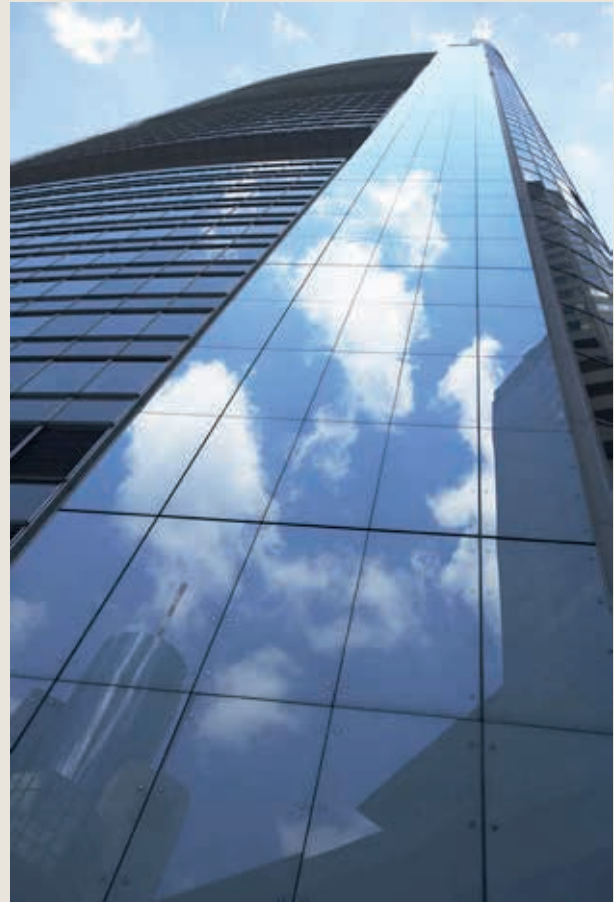
### The challenge

Bonding dissimilar and/or flexible substrates is always challenging for end users. They need an adhesive solution which exhibits high flexibility and long term performance.

### The solution

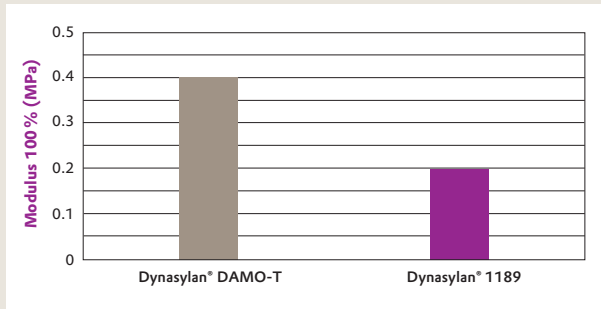
Dynasytan® 1189 is an accompanied adhesion promoter for moisture curable SMP-based adhesives and sealants. When exposed to moisture and incorporated into the final siloxane network, Dynasytan® 1189 exhibits specifically high flexibilities. Further important side effects of formulating Dynasytan® 1189 are better chemical and moisture resistance of the finished products.

Moreover, Dynasytan® 1189 is used to functionalize-polymers with amino-reactive groups such as isocyanate pre-polymers. This functionalization results in new and environmentally friendly moisture curable binders.



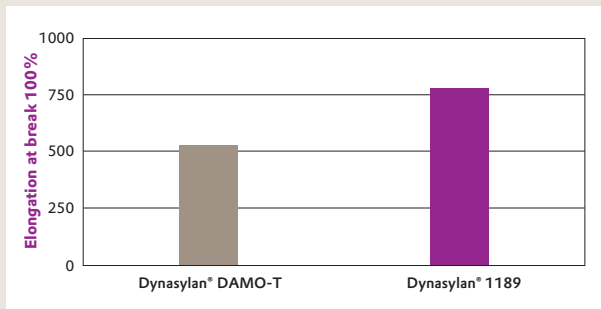
### High flexibility for adhesives and sealants

As shown in the graph below, a STPU sealant formulated with Dynasytan® 1189 exhibits a low modulus (100 %) indicating that the sealant is not rigid:



Modulus (100 %) with Dynasytan® adhesion promoters in cured STPU-sealant

In addition, thanks to Dynasytan® 1189, the final STPU sealant showed a high elongation at break highlighting the deformation capacity of the sealant:

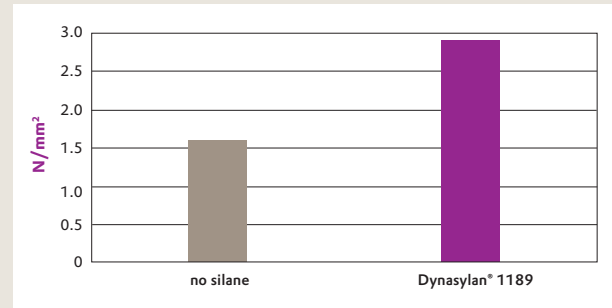


Elongation at break with Dynasytan® adhesion promoter in cured STPU sealant

### Improved moisture resistance

Dynasytan® 1189 enables formulators to keep adhesives or sealants overall performance (adhesion and other) even when they are exposed to a humid environment.

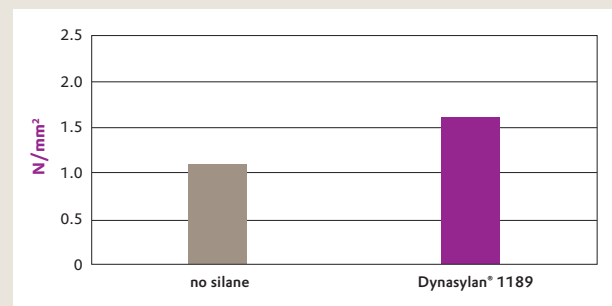
As an example, Dynasytan® 1189 helps to improve the shear resistance of a STPU sealant even when a joint is immersed 6 days in water:



Lap shear strength of an STPU sealant after 6 days aging in water at RT (Test performed on aluminum at 23 °C)

### Enhanced chemical resistance

Not only when exposed to humid environments but also when in contact with harsh chemicals, adhesives or sealants formulated with Dynasytan® 1189 maintain their performance. When used in STPU sealants, Dynasytan® 1189 helps to improve the shear resistance even when joints are immersed 22 days in Isopropanol:



Lap shear strength of an STPU sealant after 22 days aging in Isopropanol (Test performed on aluminum)

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