

# Polymer ST and TEGOPAC®

Your solution for innovative  
silane-modified adhesives and sealants



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# SILANE-MODIFIED POLYMERS

DO YOU WANT TO ADDRESS SPECIFIC MARKETS?  
ARE YOU LOOKING FOR SPECIFIC TECHNICAL  
PARAMETERS?



Building & Construction

The combined portfolio of Polymer ST and TEGOPAC® allows us to offer two different technologies for silane-modified polymers (SMP) which are base raw materials for adhesives and sealants.

Today SMPs cover a broad range of applications from building and con-



Transportation

struction to transportation and industrial assembly. Due to their beneficial properties SMPs are constantly growing and are expected to enter into emerging markets.

It is the aim of this brochure to demonstrate to you our SMP technologies, our product recommendations for the vari-



Industrial Assembly

ous applications, and our service capabilities.

In addition to SMPs Evonik offers a broad portfolio of additives for adhesives and sealants. Our portfolio consists of defoamers, deaerators, wetting agents, dispersing aids and nano-particles.

# FASCINATING TECHNOLOGIES

## EVONIK HAS A STRONG PRESENCE IN THE ADHESIVE AND SEALANT MARKET.

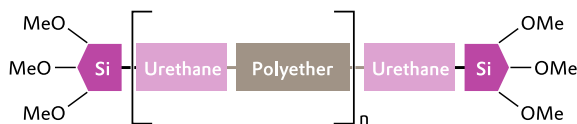
Building & Construction consists of multiple applications, resulting in very different requirements for formulated products. Formulations need to provide outstanding resistance to UV light and

humidity. Additionally, they need to show good adhesion properties to different substrates. Application should be easy and convenient. For some applications it is necessary that formulations

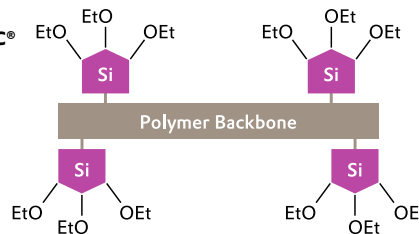
are compatible with high filler loading. All these formulation requirements are influenced by the binder materials selected.

### Flexible design for highest performance

#### Polymer ST



#### TEGOPAC®



#### Polymer ST

##### Properties / Benefits

- Crosslinking via terminal groups
- Excellent elongation through a long backbone
- Outstanding build up of strength through high urethane density
- Fast reacting when catalyzed but easy to handle
- Formulations without tin catalysts are possible
- Crosslinking via lateral groups

#### TEGOPAC®

##### Properties / Benefits

- Excellent elastic recovery due to even distribution of crosslinking points
- Outstanding in-depth cure even in thick layers or large surface areas
- Release of ethanol during cure
- Superior stability in cold and hot water evaluation
- Fast cure time
- Formulations without tin catalysts are possible

# BUILDING & CONSTRUCTION

## CREATING LONG LASTING SOLUTIONS FOR TODAY AND TOMORROW

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substrates. Application should be easy and convenient. For some applications it is necessary that formulations are compatible with high filler loading.

All these formulation requirements are influenced by the binder materials selected.

### What are you looking for?

- Wood flooring and flexible flooring adhesives
- Adhesives for DIY and professionals
- Sealants for expansion/façade joints
- Glazing sealants
- Liquid sealers for terraces or roofs
- Civil engineering
- Wood adhesives
- Silane-modified polymer formulations with improved temperature resistance
- Ethanol releasing adhesives and sealants



1. Quick and reliable solutions for DIY and professionals



2. Adhesives for wood or flexible flooring/ PU alternatives



3. Durable solutions for innovative glazing projects

# TRANSPORTATION

## MOBILITY COUNTS – YOUR FUTURE IN MOTION

Ensuring mobility is a tough job. In terms of adhesives and sealants that means providing products which are reliable, long-lasting, cost-efficient and toxicologically safe.

Polymer ST and TEGOPAC® deliver solutions for various issues in the transportation industry, where the replacement of conventional adhesives and sealants is required.



1. Fast and reliable assembly of cabs



2. Flexible sealants for sound and vibration dampening



3. Resistant adhesives and sealants for aggressive conditions in marine applications

### What do you need to move your future?

- Sealing and sound dampening
- High initial tack for fast assembly with good in-depth cure
- Quick cure with 1K and 2K systems
- High resistance against changing climates
- Improved temperature resistance
- Excellent elasticity at high strength
- Tensile strength up to 10 N/mm<sup>2</sup>
- Ethanol releasing adhesives and sealants



# INDUSTRIAL ASSEMBLY

## UNIQUE SOLUTIONS FOR CUSTOMIZED DEMANDS

Assembly adhesives are essential for a number of industrial applications. They need to show good adhesion properties to various substrates including concrete, wood, glass, metals, and plastics.

Assembly adhesives have to withstand changing climate conditions. Good

resistance against different media is required without degradation.

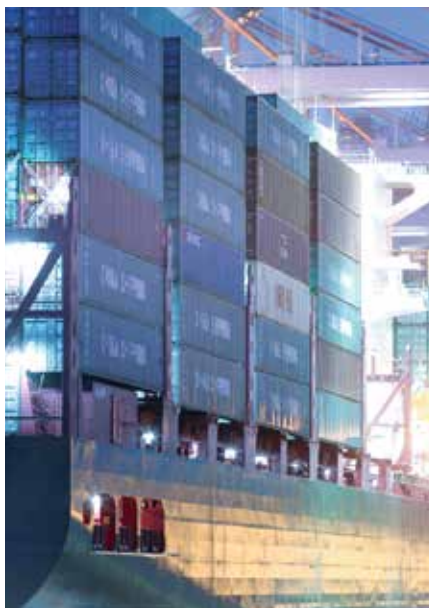
The field of industrial assembly is related to many different applications and requirements. A huge variety of customized products has to be developed.

With the portfolio of Polymer ST and TEGOPAC® it is possible to cover a multitude of such different applications.

Combining our flexible polymers with the right formulation know-how allows us to support the development of many customized solutions.



1. Adhesives for bonding structural elements where large surface areas need to be attached



2. Reliable adhesives and sealants for container



3. Products with high initial tack to ensure fast assembly (1K and 2K)

### What are your needs?

- Low modulus sealants – high modulus adhesives
- Good adhesion properties to various substrates
- Fast curing speed and skin formation
- Shore A (20 - 90)
- Elasticity (60 - 600%)
- Tensile strength (1 N/mm<sup>2</sup> - 10 N/mm<sup>2</sup>)
- Environmental resistance to changing climates and UV light

# WE HEAR YOU

We want to be your reliable partner for supplying polymers. One who provides face-to-face support to you during formulating and testing your product ideas.

Our strong expertise on relevant test methods allows us the opportunity to give you excellent support.



## Our laboratory test methods

- Determination of tensile strength and elongation at break of cured polymer films; DIN 53504, ISO 37, ASTM D 412 (dumbbell specimen)
- Determination of tensile lap-shear strength of bonded assemblies; DIN EN 1465, ISO 4587, ASTM D 1002
- Determination of peel resistance of adhesive bonds; DIN EN 1464 (floating roller method), ISO 8510 1/2, ASTM C 794 (180° adhesion in peel)
- Determination of elastic recovery of sealants; DIN EN ISO 7389
- Determination of tear strength (angle test pieces); DIN ISO 34-1
- Determination of tensile properties (extension at break); DIN EN ISO 8339 (H-specimen)
- Flow and curing behavior of polymers and their formulations using rotation and oscillation rheology
- Aging resistance, weathering stability



1. Standard test substrates



2. Adhesion to different substrates





3. Tensile strength/elongation of polymer materials



4. Elastic recovery/tensile properties



5. H-specimen

# POLYMER ST AND TEGOPAC® SPECIAL SILANE-MODIFIED BINDERS

Polymer ST and TEGOPAC® offer unique polymer structures to address features such as high strength, initial tack, a broad bonding range, reliable through cure and excellent recovery. Having a unique technology position as a strong product base, our products allow formulators to differentiate themselves in the market place. Differentiation is a key success factor for innovative product development.

Beyond these technical features Polymer ST and TEGOPAC® offer solutions for formulations in which plasticizers or residual monomers are undesired.

They can be used to formulate highly transparent adhesives and sealants as well as flame retardant products.

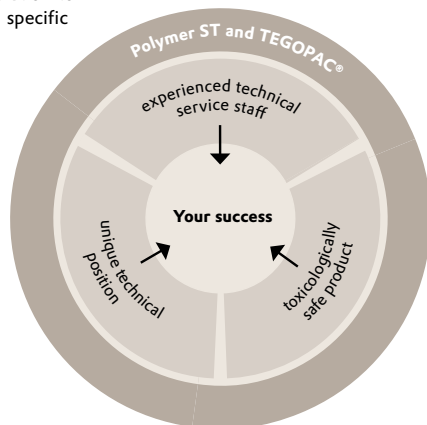
Polymer ST and TEGOPAC® binders are label free raw materials. It is possible to

use them for formulations that meet the demand of eco-labels such as “Blauer Engel” or “Ecode EC1”.

Polymer ST and TEGOPAC® not only deliver high quality solutions for many adhesives and sealants applications, they also come along with excellent technical service and experienced staff.

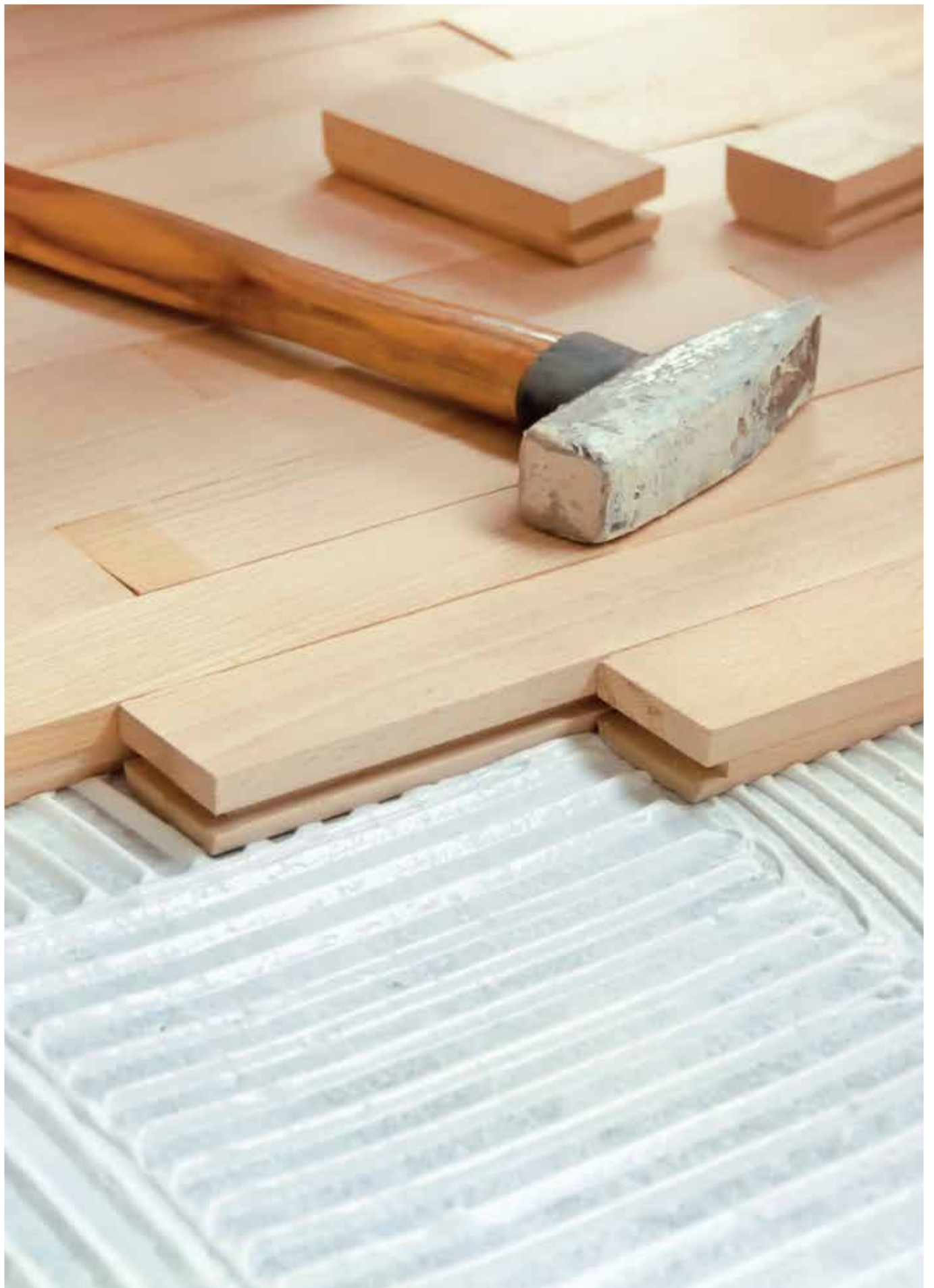
## Three steps to success

With Polymer ST and TEGOPAC® Evonik offers a solution to customers specific needs.



## Our expertise

- Evaluation of adhesive and sealant properties
- Development of guide formulations
- Ready-to-test formulated samples can be provided
- Knowledge about state of the art formulation ingredients
- Recommendation on processing techniques and equipment
- After-sale technical support



**Europe | Middle East | Africa**

**Evonik Nutrition & Care GmbH**  
Goldschmidtstraße 100  
45127 Essen  
Germany  
Phone +49 201 173-2665  
Fax +49 201 173-1990  
www.evonik.com

**Asia | Pacific**

**Evonik Specialty Chemicals Co., Ltd.**  
55, Chundong Road  
Xinzhuang Industry Park  
Shanghai, 201108  
PR China  
Phone +86 21 6119-1125  
Fax +86 21 6119-1406

**The Americas**

**Evonik Corporation**  
7801 Whitepine Road  
P.O. Box 34628  
Richmond, VA 23234  
USA  
Phone +1 804 727-0700  
Fax +1 804 727-0855

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