

Polymer ST and TEGOPAC®

Your solution for innovative adhesives & sealants
based on silane-modified polymers

BL Interface & Performance

Content

Our Place in the Market

Our Product Portfolio

Customer Support

Do you want to address specific markets? Are you looking for specific technical parameters?

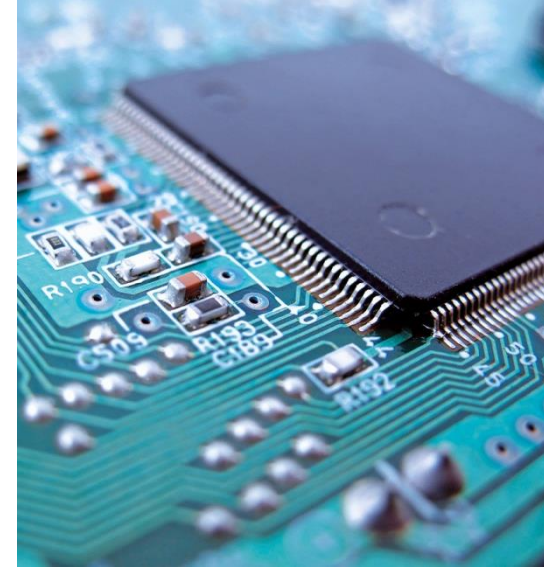
Silane-Modified Polymers (SMP): Applications



Building & Construction



Transportation



Industrial Assembly

The combined portfolio of Polymer ST and TEGOPAC® allows us to offer two different technologies for SMP which are base raw materials for adhesives & sealants.

Building & Construction: Creating long lasting solutions for today & tomorrow

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

Examples

- Quick and reliable solutions for DIY and professionals
- Adhesives for wood or flexible flooring / PU alternatives
- Durable solutions for innovative glazing projects

Transportation: Mobility Counts – Your future in motion

What do you need to move your future?



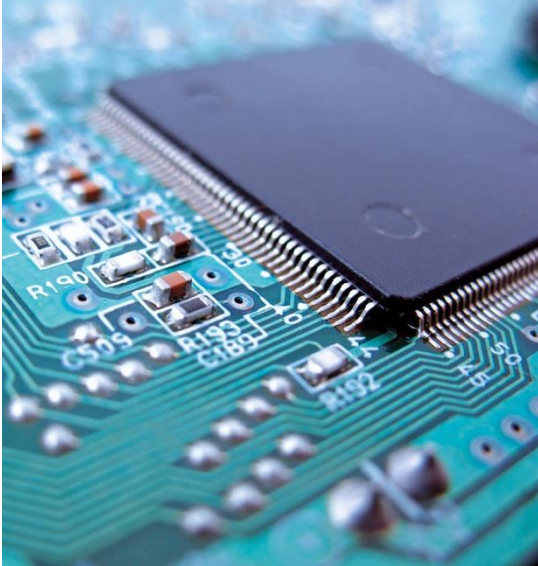
- Sealing and sound dampening
- High initial tack for fast assembly with good in-depth cure
- Quick cure with 1K and 2K systems
- High resistance against changing climates
- Improved temperature resistance
- Excellent elasticity at high strength
- Tensile strength up to 10 N/mm²
- Ethanol-releasing adhesives and sealants

Examples

- Fast and reliable assembly of cabs
- Resistant adhesives and sealants for aggressive conditions in marine applications
- Flexible sealants for sound and vibration dampening

Industrial Assembly: Unique solutions for customized demands

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 / mm² – 10 N / mm²)
- Environmental resistance to changing climates and UV light

Examples

- Adhesives for bonding structural elements where large surface areas need to be attached
- Products with high initial tack to ensure fast assembly (1K and 2K)
- Reliable adhesives and sealants for container

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Our SMP portfolio: Polymer ST and TEGOPAC®



POLYMERS

	Release of	Modulus of formulation	Polymer backbones	Plasticizer	Viscosity at 25°C [mPas]	Position of cross-linking groups
Polymer ST 48	Methanol	low-medium	PPG	DPHP	60,000	terminal
Polymer ST 77	Methanol	low-medium	PPG	Elatur® CH	40,000	terminal
Polymer ST 61	Methanol	high	PPG	none	35,000	terminal
Polymer ST 61 LV	Methanol	high	PPG	none	12,000	terminal
Polymer ST 80	Methanol	high	PPG	none	20,000	terminal
Polymer ST 81	Methanol	high	PPG	none	40,000	terminal
TEGOPAC® Seal 100	Ethanol	low-medium	PPG	none	55,000	lateral
TEGOPAC® Bond 150	Ethanol	medium	PPG	none	55,000	lateral
TEGOPAC® Bond 160	Ethanol	medium	PPG	none	10,000	lateral
TEGOPAC® Bond 170	Ethanol	medium	PPG	none	30,000	lateral
TEGOPAC® Bond 251	Ethanol	medium	modified	none	30,000	lateral

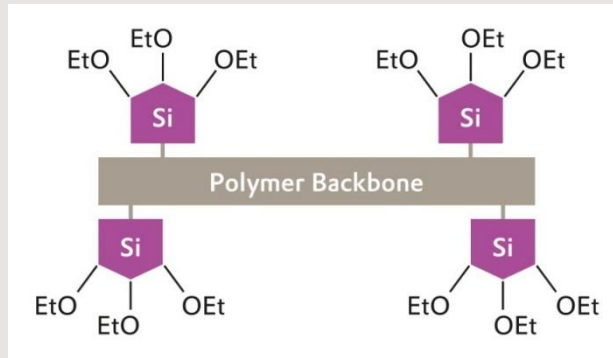
REACTIVE DILUENTS *To adjust viscosity of formulations and for development of "non-bleeding" formulations*

	Release of	Modulus of formulation	Polymer backbones	Plasticizer	Viscosity at 25°C [mPas]	Position of cross-linking groups
TEGOPAC® RD 1	Ethanol	reactive diluent	modified	none	1,000	lateral
TEGOPAC® RD 2	Ethanol	reactive diluent	modified	none	1,500	lateral
TEGOPAC® RDS 1	Ethanol	reactive diluent	PPG	none	300	lateral

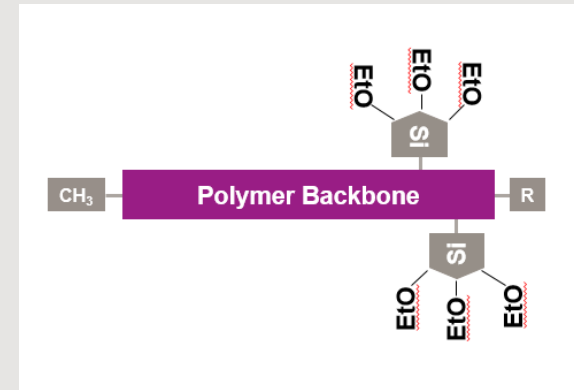
Our SMP portfolio: Polymer ST and TEGOPAC®

for adhesive & sealant Applications	polymer with plasticizer	ST 48	ST 77		
	100% polymer				ST 81 ST 80
	100% polymer + ethanol-releasing	Seal 100	Bond 150	Bond 170	
	100% polymer + ethanol-releasing + modified backbone	Bond 160			Bond 251
for parquet adhesive formulations	100% polymer				ST 61 ST 61 LV
	Modulus				
	Elongation				
Reactive diluents SMP	100% polymer + ethanol-releasing	TEGOPAC® RD 1 TEGOPAC® RD 2 TEGOPAC® XP RDS 1			
Plasticizer	polyether plasticizer	Plasticizer P 860			

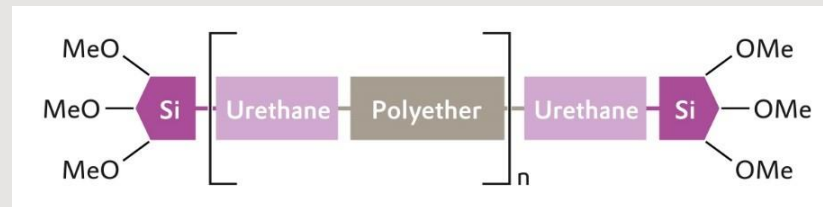
Silane-modified polymers – different technologies



Tegopac® polymers
(Ethanol-release)



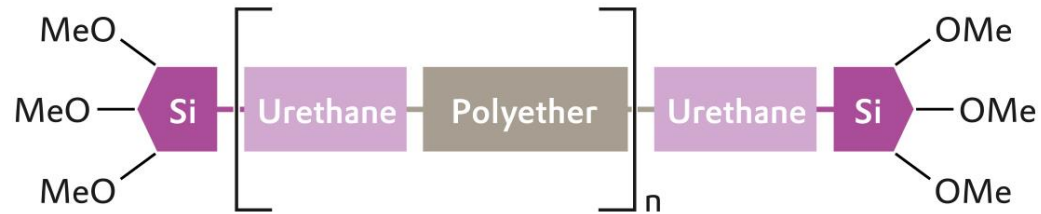
Tegopac® reactive diluents (RD)
(Ethanol-release)



Polymer ST
(SPUR, Methanol release)

Our SMP portfolio: Polymer ST and TEGOPAC®

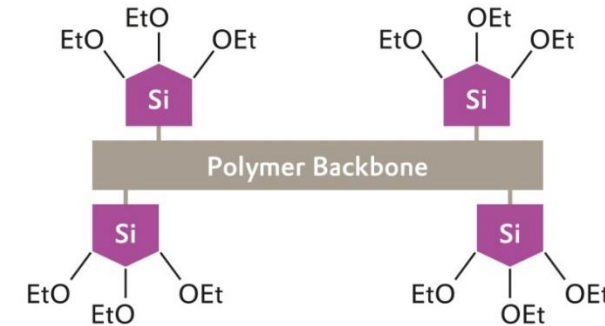
Polymer ST



Benefits

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

TEGOPAC®



Benefits

- Crosslinking via lateral groups, release of Ethanol during cure process
- Excellent elastic recovery due to even distribution of crosslinking points (to address ISO 11600 requirements)
- Outstanding in-depth cure even in thick layers or large surface areas
- Superior stability in cold and hot water evaluation
- Fast cure time
- Formulations without tin catalysts are possible
- Excellent over-coatability

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

Three Steps to Success



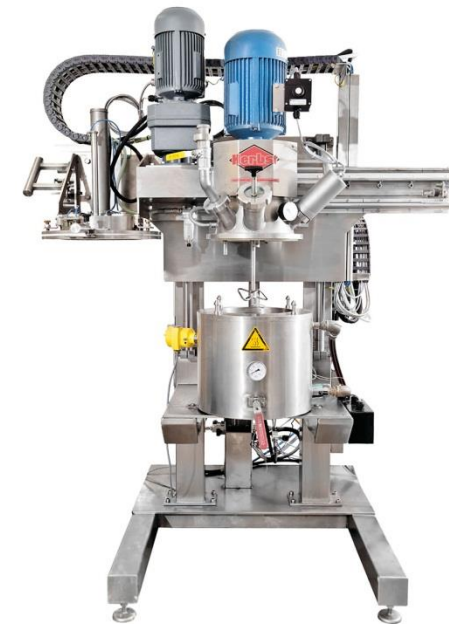
Our Expertise:

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

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

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



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

We assist you in formulating sealants and adhesives with more properties

- Crystal-clear
- Fire resistant / Flame retardant
- High modulus
- Tear Resistant
- Ethanol-releasing formulation
- ...



Polymer ST and TEGOPAC® 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 “Emicode EC1”





EVONIK

Leading Beyond Chemistry