

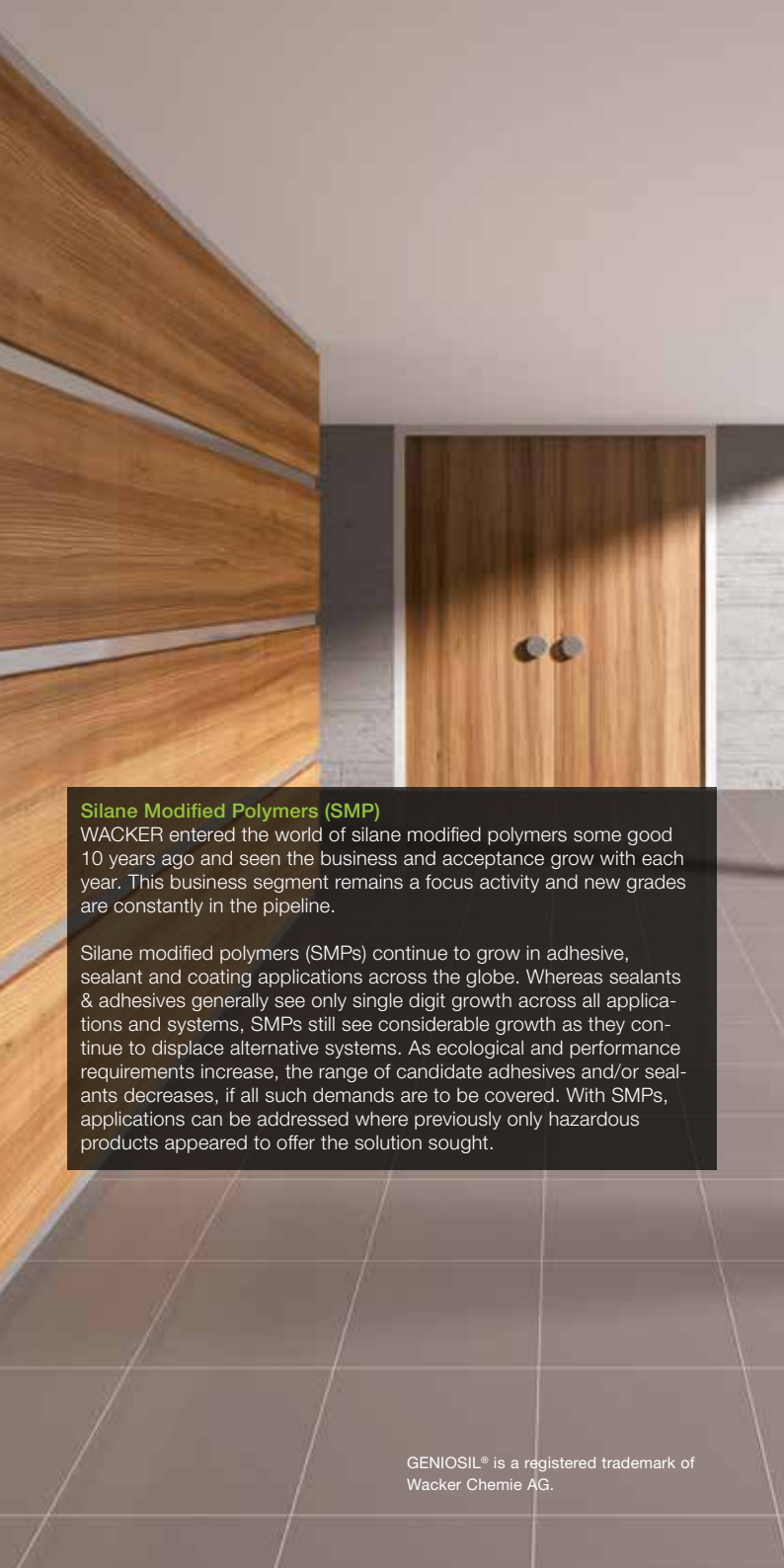
**WACKER**

CREATING TOMORROW'S SOLUTIONS

GENIOSIL®

ADHESIVES & SEALANTS | SILANE MODIFIED POLYMERS

FORMULATING THE FUTURE  
WITH GENIOSIL®



### Silane Modified Polymers (SMP)

WACKER entered the world of silane modified polymers some good 10 years ago and seen the business and acceptance grow with each year. This business segment remains a focus activity and new grades are constantly in the pipeline.

Silane modified polymers (SMPs) continue to grow in adhesive, sealant and coating applications across the globe. Whereas sealants & adhesives generally see only single digit growth across all applications and systems, SMPs still see considerable growth as they continue to displace alternative systems. As ecological and performance requirements increase, the range of candidate adhesives and/or sealants decreases, if all such demands are to be covered. With SMPs, applications can be addressed where previously only hazardous products appeared to offer the solution sought.

# GENIOSIL® STP-E: HYBRID POLYMERS THAT SET NEW STANDARDS

These polymers allow you to compound adhesives & sealants from Shore A 20 to Shore A 70 hardness. The low viscosity, high reactivity of these polymers as well as their universal compatibility means you have a wide choice of chalks and plasticizers suitable for use in the formulation.

Adhesives & sealants based on these polymers have a broader adhesion profile compared to polyurethanes, silicones and acrylics. Furthermore, end-products contain no hazardous raw materials so that packaging does not require warning labels of any kind.



# GENIOSIL® WP: NEW GENERATION OF LIQUID WATERPROOFING COATINGS



As hybrids slowly began to displace toxic or complex solutions in adhesive, sealant or coatings, new application areas could be. Traditionally, polyurethanes, acrylics, polyureas or simply bitumen rolls have been used to cover roofing and/or terraces. However, each of these systems brings drawbacks.

GENIOSIL® WP1 based formulations will give a membrane that is easy to apply, the low viscosity means a membrane can be rolled on or brushed over. The resultant membrane is solvent-free, will fulfil building standards or warranty and guarantee issues (ETAG 005), and gives durability values now sought in the construction sector. Additionally, packaging requires no hazard labelling.

# GENIOSIL<sup>®</sup> XB: HYBRID POLYMERS FOR STRONG ADHESIVE BONDS

As the versatility of hybrid polymers (silane modified polymers) was recognized, a polymer was sought that could be used for an adhesive – that displays high strength where tensile strength values beyond 10 N/mm<sup>2</sup> are required. Increasingly, so-called dissimilar materials must be bonded as industries look to move away from mechanical fastenings.

The XB grade (extra bond strength) was introduced to meet these demands. This silane modified polymer concept now forms the basis of many formulations where D3 and D4 standards are a must – whenever non-structural wood-to-wood bonding looks for a one-component adhesive solution, this grade will allow the formulator to compound an adhesive meeting such performance requirements.



# GENIOSIL® XT: HIGH BONDING STRENGTH YET ELASTIC

Following the launch of the XB grade, it soon became apparent that a similar polymer was needed that would exhibit bond strength yet elasticity. The resultant development saw the XT grades join the GENIOSIL® family. First screening saw the polymer to have potential as both an adhesive and a coating. The adhesives compounded show outstanding tear strength at 30 N/mm – to date unprecedented with hybrid chemistry.



Most exciting were the high strength [ $> 10 \text{ N/mm}^2$ ] and elastic [ $>500\%$  and more if desirable] values, thus lending these polymers suitable for applications where the bonded part is exposed to extreme dynamic stress. Wind-screen adhesive formulations were formulated and results were in line with industry standards. In coatings formulations, industry-standard tensile strength [ $>8 \text{ N/mm}^2$ ], high tear resist values [50 N/mm] with elasticity [ $> 250\%$ ] and hardness in a Shore D range [36] were now attainable with a silane modified polymer. Screened for waterproofing concepts where a film with unmatched clarity and high mechanics, curing swiftly without the necessity of metal catalysts thanks to alpha chemistry, now opens up further application fields for hybrid polymers.



# GENIOSIL® XM: NEW DIMENSIONS FOR ADHESIVES AND SEALANTS

Silane modified polymer based adhesives and sealants are exposed to ever demanding requirements. Some applications require zero migration from plasticizers used in an adhesive. XM grades can replace typical plasticizers and give outstanding adhesion properties. As ecology increasingly decides which adhesive is selected for a particular application, the substrates in question increasingly involve non-polar

surfaces. Such challenges can now be met by incorporating the GENIOSIL® XM grades to further improve adhesion profile of a given adhesive. This grade has also proven suitability in sealant formulations where a low modulus, high recovery sealant is concerned. Alternative sealant systems often find use as a low modulus sealant – these, however, nearly always require the substrate to be primed beforehand.







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