

# GENIOSIL<sup>®</sup> ZK 26



## Silane-Modified Polymers

GENIOSIL<sup>®</sup> ZK 26 is a binder based on a siloxane reinforced alpha-silane technology. It is suitable for coating and adhesive applications. Especially the high tolerance against water offers opportunities to formulate plasticizer free two pack adhesives.

## Properties

GENIOSIL<sup>®</sup> ZK 26 is silicone resin reinforced alpha silane-terminated polymer suitable as a binder in moisture curing formulations. It is a transparent low-viscosity binder and the resultant adhesives display hardness in the low Shore D range when cured. In contradiction to GENIOSIL<sup>®</sup> ZK 26 elastic and enables high strength adhesives. It complements the elastic binder range such as GENIOSIL<sup>®</sup> STP-E10 and can be readily mixed with this product group at various ratios in order to tailor the properties to the respective application. GENIOSIL<sup>®</sup> ZK 26 accept the formulation with water offering plasticizer free, water carrying components in two pack systems.

- plasticizer free if desirable
- transparent systems
- good mechanics
- long shelf life
- hardness in the Shore D range
- good adhesion to metals, glass and ceramics
- non-bubbling
- Isocyanate, tin and solvent-free - Formulation of water resistant products possible
- good heat stability

## Applications

- Adhesives
- Building & Construction Adhesives
- Do It Yourself
- Industrial Adhesives
- Wood-to-Wood Bonding

## Application details

GENIOSIL® ZK 26 dissolves readily in standard organic solvents. It is virtually insoluble in aqueous media, and reacts slowly releasing methanol and forming a resinous deposit. Despite its highly reactive terminal groups, uncatalyzed GENIOSIL® ZK 26 is stable in air for several days. However, its reactivity with water or atmospheric humidity must be taken into account during storage and processing, since the material will slowly start to condense. GENIOSIL® ZK 26 can be formulated by conventional methods and mixing processes. The formulation composition depends on the required property profile. GENIOSIL® ZK 26 can be formulated with a variety of fillers. The range starts with oxides, such as aluminum hydroxide, quartz powders or pyrogenic silica, and extends to coated and uncoated chalks. The type and amount depends on the mechanical needs as well the desired thixotropy. Water scavengers can be added to stabilize the formulations against premature curing as this is moisture-curing technology. Therefore exclusion of moisture during compounding and storage is necessary. GENIOSIL® XL 10 or GENIOSIL® XL 70 are particularly suitable scavengers. Any type of plasticizer can be used to further lower the viscosity. In order to plasticize a GENIOSIL® ZK 26 based formulation it is recommended to use any type of silane modified polymer e.g. GENIOSIL® STP-E10. Antioxidants, UV- and light-stabilizers are mandatory to ensure durable sealants and adhesives. The amount and type of stabilizer depends on application needs. Curing of GENIOSIL® ZK 26 requires a catalyst that does not necessarily have to be organo-metallic. However dioctyl tin may be used if required. Catalysis can also be accelerated with titanium compounds as well as inorganic (phosphoric) or organic (tartaric) acids. Primarily, we recommend using an amine catalyst, and adjusting the skin-formation time by varying the amount of aminosilane used. GENIOSIL® GF 9 and GENIOSIL® GF 95 have proven particularly advantageous here. In particular, GENIOSIL® GF 95 can attain improved water resistance, which can further be increased by the addition of epoxy silanes. Surface Treatment Always apply the formulation to clean and dry surfaces.

GENIOSIL® ZK 26 is used as a reactive binder for adhesives, potting compounds and coatings. Curing takes place at ambient temperature in the presence of both moisture and catalyst. Depending on the formulation, either prepared as one-part or two-part systems, it will give good adhesion to a wide variety of substrates even without pretreatment. Adhesives can be formulated having high lap-shear strength ( $> 5 \text{ N/mm}^2$ ) on a wide variety of substrates. With certain substrates, modifying the elasticity of the GENIOSIL® ZK 26 containing binder is advisable. Based on the model formulation using a filler (1 : 1), with 2.5 % GENIOSIL® GF 9 as the catalyst, the lap-shear-strength of beech/beech and aluminum/aluminum test specimens was determined. While GENIOSIL® ZK 26 is ideal for wood bonding, GENIOSIL® ZK 26 is more suitable for metal connections.

An equally simple model recipe can be conveyed to a 2-pack system. Component A consists of a polymer, e.g. GENIOSIL® STP-E10, filler (1:1) and 2.5% GENIOSIL® GF 9. Component B consists of GENIOSIL® ZK 26, filler (1:1) and 2.5% water. Both components are mixed at a ratio of 1:1 and applied. After one day you can already observe good bonding properties with lap shear strength values of greater than  $5 \text{ N/mm}^2$ .

## Packaging and storage

### Packaging

Information on available container sizes is obtainable from WACKER subsidiaries.

### Storage

The 'Best use before end' date of each batch is shown on the product label. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

## Safety notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed via WACKER web site <http://www.wacker.com>.

## QR Code GENIOSIL® ZK 26



**For technical, quality or product safety questions, please contact:**

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