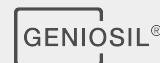


GENIOSIL® ZK 23



Silane-Modified Polymers

GENIOSIL® ZK 23 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

Self-reinforcing alpha-silane terminated polymers represent a novel range of moisture-curing systems that even cure in the absence of tin catalysts. GENIOSIL® ZK 23 is a transparent, low viscosity polymer which upon cure as a coating or adhesive renders high hardness values in Shore D range. This grade thus complements the elastic GENIOSIL® STP-E polymer range and can be blended without restriction with these STP-E grades. Properties according to targeted applications can thereby be individually steered.

Furthermore, GENIOSIL® ZK 23 is characterized by its high tolerance to water. This feature allows the formulation of water-bearing components, ideal for 2-pack products that can be manufactured plasticizer free.

Specific characteristics of the polymer GENIOSIL® ZK 23:

- very low viscosity
- easy handling and dosage
- tin-free catalysis
- no hazard labelling
- water compatible
- water-bearing components in 2-pack systems

Adhesive properties based on GENIOSIL® ZK 23:

- high mechanical strength at slow strength build-up
- exceptional hardness in Shore D range
- isocyanate, tin and solvent free
- good thermal stability
- low yellowing

Applications

- Adhesives
- Building & Construction Adhesives
- Do It Yourself

- Industrial Adhesives
- Wood-to-Wood Bonding

Application details

GENIOSIL® ZK 23 can easily be integrated into standard solvents. It is virtually insoluble in water, can however, be formulated with water allowing for gradual hydrolysis of the polymer, which will remain liquid in an uncatalyzed condition (curing catalyst or an amine compound).

GENIOSIL® ZK 23 can be formulated according to standard processes in a mixer with dissolver or blade stirrers at temperatures of up to 100°C subject to the typical safety measures. Furthermore, 2-pack formulations with significant amounts of water are now conceivable. The B-component is water-bearing allowing the system to be plasticizer free. GENIOSIL® ZK 23 can be formulated with a variety of fillers. These can, on the one hand, be treated or untreated chalks, on the other hand all types of aluminum and silicon oxides are equally suitable. Especially synthetic oxides such as pyrogenic silicas display thixotropic properties.

GENIOSIL® XL 10, GENIOSIL® XL 70 and further plasticizers can be used to reduce the viscosity. However, in order to plasticize the hardness of GENIOSIL® ZK 23 based formulations or to attain higher elongation, the products of choice are the GENIOSIL® STP-E polymers, such as GENIOSIL® STP-E10 or GENIOSIL® STP-E35.

Anti-oxidants, UV and light stabilizers must be added to the formulation and loading is dependent on the target application, where the addition rate is generally between 0.5% and 1.5%.

GENIOSIL® ZK 23 cures under atmospheric moisture using a variety of catalysts. Slow cure rates are attainable via primary amines, whereas metal catalysts e.g. dialkyl tin (II) salts can greatly speed up cure.

Care should be taken that the surfaces to be treated are free of dust and oil.

GENIOSIL® ZK 23 is a reactive polymer for use in adhesives, potting compounds and coatings. Cure takes place under normal conditions in the presence of moisture and a catalyst. Furthermore, 2-pack systems are conceivable whereby an initial component, e.g. water, is added.

Based on a simple model recipe using polymer to filler ratio of 1:1, catalyzed with 2.5% of GENIOSIL® GF 9, basic adhesive properties can already be illustrated. Depending on the ratio used of GENIOSIL® ZK 23 to GENIOSIL® STP-E10, lap shear strength will vary tremendously for the different types of substrates to be bonded. By increasing adhesive hardness and a higher amount of GENIOSIL® ZK 23 will see greater lap shear strength values to wood of up to 15 N/mm². In contrast the bonding of metals will be improved via elasticity achieved with the addition of GENIOSIL® STP-E.

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 23, 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 wood bonding with lap shear strength values of greater than 10 N/mm².

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 23



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

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