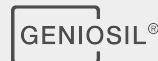


GENIOSIL® GPTM SQ



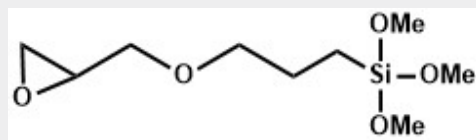
Organofunctional Silanes

3-Glycidoxypropyltrimethoxysilane

GENIOSIL® GPTM SQ is a clear, colorless liquid with a characteristic odor.

GENIOSIL® GPTM SQ has a slightly higher purity compared to GENIOSIL® GPTM.

CAS No. 2530-83-8 | Empirical formula $C_9H_{20}O_5Si$ | Molecular weight 236.34 g/mol



Properties

GENIOSIL® GPTM SQ is an epoxyfunctional alkoxy silane. It's a clear, colorless liquid with a characteristic odor. The silane hydrolyzes in the presence of moisture (methanol is released) to form silanols, which can then react with themselves to produce siloxanes. The epoxy group on GENIOSIL® GPTM SQ can undergo a ring-opening reaction with nucleophiles such as alcohols and amines. An acidic or basic catalyst may be required. As a bifunctional, organic molecule with a silyl group, GENIOSIL® GPTM SQ is able to function as a molecular bridge between inorganic and organic substrates. The use of GENIOSIL® GPTM SQ as a coupling agent in mineral-filled plastics improves filler dispersibility, reduces its sedimentation tendency and greatly lowers the resin's viscosity. In addition, it leads to higher filler loading and a marked increase in water (vapor) resistance, as well as resistance to acids and bases. As a component of adhesives and sealants, GENIOSIL® GPTM SQ improves both adhesion to the substrate and mechanical properties such as flexural strength, tensile strength and modulus of elasticity.

Technical data

General Characteristics

Property	Condition	Value	Method
Appearance	-	clear, colorless liquid	-
Auto ignition temperature	-	400 °C	-
Boiling point	1013 hPa	248 °C	-
Density	20 °C 1013 hPa	approx. 1.07 g/cm ³	-
Purity	-	> 99 %	-
Refractive index	25 °C	approx. 1.427	-

These figures are only intended as a guide and should not be used in preparing specifications.

All the information provided is in accordance with the present state of our knowledge. Nonetheless, we disclaim any warranty or liability whatsoever and reserve the right, at any time, to effect technical alterations. The information provided, as well as the product's fitness for an intended application, should be checked by the buyer in preliminary trials. Contractual terms and conditions always take precedence. This disclaimer of warranty and liability also applies particularly in foreign countries with respect to third parties' rights.

Applications

- Adhesives
- Building & Construction Adhesives
- Chemical Industry
- Composites
- Industrial Coatings
- Thermoplastics & Elastomers

Application details

1. General processing information:

GENIOSIL® GPTM SQ is highly miscible with standard organic solvents, such as alcohols, hydrocarbons and acetone. GENIOSIL® GPTM SQ can be physically dissolved in neutral water to an extent upward of 5 wt. %. Much stronger homogeneous aqueous concentrations (up to 50% by weight) can be obtained by way of hydrolysis. By incorporating a hydrolysis catalyst (e.g. acetic acid), hydrolysis can be greatly accelerated at pH values of 3 to 4. However, at pH values below 4, the epoxy ring may start to open.

2. GENIOSIL® GPTM SQ as a surface modifier:

Fillers are treated either with pure GENIOSIL® GPTM SQ or a solution thereof. It may be necessary to pretreat the substrate with water and/or a catalyst (e.g. ammonia). Subsequent binding of the treated filler, for example to epoxy resins, is preferably effected during the normal crosslinking process. In an alternative procedure referred to as blending, GENIOSIL® GPTM SQ is added directly to the polymer - either before the filler is incorporated or at the same time. A prerequisite for the blending process is that GENIOSIL® GPTM SQ and the polymer are compatible and that the resin and GENIOSIL® GPTM SQ do not react prematurely.

3. GENIOSIL® GPTM SQ as an adhesion promoter in formulations:

Used as a primer, GENIOSIL® GPTM SQ is applied as an aqueous or organic solution to an inorganic substrate (e.g. metal or glass surfaces). Once GENIOSIL® GPTM SQ has dried and bonded to the surface, an organic coating may be applied using a standard technique (e.g. spraying or knife coating).

In adhesives and sealants GENIOSIL® GPTM SQ may be added to the formulation as an adhesion promoter. Processing is effected by means of standard mixing methods.

GENIOSIL® GPTM SQ is mainly used in the treatment of fibers for various polymer types, such as epoxy resins, urethane, melamine resins and an additive or primer in coatings, paints, adhesives and sealants.

Packaging and storage

Packaging

GENIOSIL® GPTM SQ is currently available in the following packaging units:

- 200 KG drum

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® GPTM SQ



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

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productinformation@wacker.com, www.wacker.com

The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.