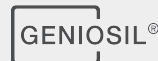


# GENIOSIL<sup>®</sup> GF 80



## Organofunctional Silanes

3-Glycidoxypropyltrimethoxysilane

### Properties

The use of GENIOSIL<sup>®</sup> GF 80 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<sup>®</sup> GF 80 improves both adhesion to the substrate and mechanical properties such as flexural strength, tensile strength and modulus of elasticity. GENIOSIL<sup>®</sup> GF 80 is an epoxy functional 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<sup>®</sup> GF 80 can undergo a ring-opening reaction with nucleophiles such as alcohols and amines. An acidic or basic catalyst may be required. As a bifunctional, organically unsaturated molecule, GENIOSIL<sup>®</sup> GF 80 is able to function as a molecular bridge between inorganic and organic substrates.

## Technical data

### General Characteristics

Property	Condition	Value	Method
Boiling point	1013 hPa	248 °C	DIN 51356
Density	20 °C	approx. 1.07 g/cm <sup>3</sup>	DIN 51757
Epoxy content	-	approx. 17.5 %	-
Flash point	-	122 °C	EN 22719
Ignition temperature	-	400 °C	DIN 51794
Purity	-	> 97.0 %	-
Refractive index	25.0 °C	1.427	DIN 51423

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

- Building & Construction Adhesives
- Do It Yourself
- Flooring Installation
- Heat-Resistant Coatings
- Industrial Coatings
- Interior Paints & Coatings
- Marine & Protective Coatings
- Sealants
- Waterproofing Membranes

## Application details

1. General processing information GENIOSIL® GF 80 is highly miscible with standard organic solvents, such as alcohols, hydrocarbons and acetone. GENIOSIL® GF 80 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® GF 80 as a surface modifier Fillers are treated either with pure GENIOSIL® GF 80 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® GF 80 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® GF 80 and the polymer are compatible and that the resin and GENIOSIL® GF 80 do not react prematurely. 3. GENIOSIL® GF 80 as an adhesion promoter in formulations Used as a primer, GENIOSIL® GF 80 is applied as an aqueous or organic solution to an inorganic substrate (e.g. metal or glass surfaces). Once GENIOSIL® GF 80 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® GF 80 may be added to the formulation as an adhesion promoter. Processing is effected by means of standard mixing methods. GENIOSIL® GF 80 is mainly used in the treatment of inorganic fillers (e.g. glass, mineral and glass wools, ATH, kaolin, mica, metallic oxides) for various polymer types, such as epoxy resins, urethane, melamine resins, EPDM, and for polysulfides, and an additive or primer in coatings, paints, adhesives and sealants.

## 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® GF 80



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

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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.