GLOXIL SF 91 A

1. Description

GLOXIL SF 91 A is a functional hybrid filler made of fiber and Silfit Z 91 with subsequent amino surface modification. The process parameters have been selected in such a way that on the one hand, anchoring to the surface takes place and on the other hand, released by-products are removed as far as possible during production. Undesirable side effects, such as occur during mixing in situ (i.e. direct addition of the additive), are therefore significantly reduced.

During compounding, the amino groups of GLOXIL SF 91 A ensure good wetting and excellent dispersion in the matrix polymer. In addition, in polymers with suitable functional groups the use of this grade leads to high composite strength via hydrogen bonds or covalent bonds.

Characteristics

Color CIELAB scale:	L* b*	97.7 1.2
Residue > 40 µm		< 0.1 %
Volatile matter at 105 °C		0.3 %
Densitiy		2.4 g/cm³
Bulk densitiy		0.19 g/cm³
Particle size distribution	D_{50} D_{97}	3 µm 20 µm
BET		9 m²/g
Oil absorption		110 g/100 g
Loss on ignition (625 °C)		approx. 14 %

Packaging

Paper bags	á 20 kg
Big Bags	on demand

Shelf life

2 years if stored properly under dry conditions.

2. Applications

GLOXIL SF 91 A is used as a functional filler in thermoplastics.

Compared to the Aktifit grades, it is characterized by significantly higher stiffness and higher heat deflection resistance.

It is used wherever increased stiffness and heat resistance, high surface quality and scratch resistance are just as important as good melt flowability, relatively high elongation at break and impact strength.

In PP copolymer compounds, GLOXIL SF 91 A achieves the best results when maleic anhydride grafted polypropylene (PP-MAH) is added as a reactant for the amino groups of GLOXIL SF 91 A, resulting in improved tensile and flexural strength and, above all, optimum scratch resistance.

The stronger increase in stiffness can be utilized for weight-reduced compounds due to a lower filler loading. For example, 11 to 13 % GLOXIL SF 91 A in PP copolymer provides stiffness similar to 20 % talc and thus enable a weight reduction of up to 7 %.

Fields of application

- visible parts and covers with good surfaces and best scratch resistance
- 3D Printing
- wood Plastic Composites (WPC)
- films as functional filler and matting

Polymers:
- polyamides (PA)
- aliphatic Polyketone (PK)
- ABS
- PP
- TPU, PE/EVA

Please note:
Maximum melt temperature 260 °C

Dosages:
up to 50 % (m/m), typically 5 % to 40 %

3. Benefits

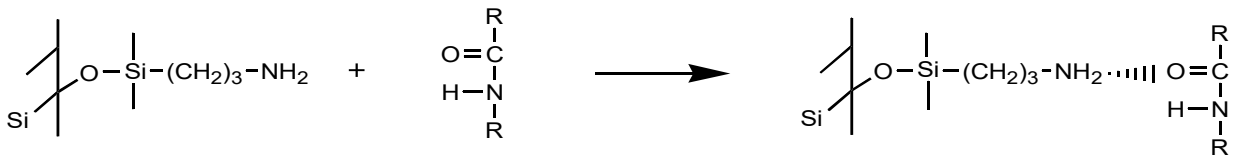
GLOXIL SF 91 A shows in comparison to unfilled polymer following advantages:

- lower warpage
- higher hardness
- higher scratch resistance
- higher stiffness (modulus)
- higher tensile and flex strength
- improved heat deflection temperature
- higher heat conductivity
- improved dimensional stability with varying humidity conditions (polyamides)

In comparison with other mineral fillers, GLOXIL SF 91 A offers the following advantages:

- good wetting and dispersion properties
- high melt flow rates
- no crosslinking in PK-compounds
- relatively low warpage
- excellent surface finish
- optimum scratch resistance
- no graying of black-colored compounds
- increased stiffness (modulus)
- relatively high elongation at break
- relatively high impact strength, even at low temperature
- increased heat deflection temperature (HDT)
- matting (in films)

4. Effect in Polymer Matrix



GLOXIL SF 91 A suitable functional group of polymer,
i. e. amide, carbonyl, carboxyl, acid anhydride

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5. Performance example

The following properties were determined on a precursor product (marked with *) of similar composition to GLOXIL SF 91 A:

PP copolymer compounds, light weight and enhanced scratch resistance

20 %
Ultrafine Premium Talk

Recommended for
- high impact strength
- good scratch resistance

11 %
Gloxil SF 91 A*

+ 1% PP-MAH
(addition into the compound)