AKTISIL PF 777/89

Field of application: Paint & Varnish

1. Description

AKTISIL PF 777/89 is an activated SILLITIN Z 89, produced by modifying the surface with an alkyl functional group. The by-products split off during the treatment reaction are largely removed during the production process which firmly attaches the functional group to the filler surface. This helps minimize undesirable side effects, as they are potentially encountered with in-situ mixing (direct addition of additive into the compound). The non-polar alkyl groups of the coating agent impart the desired hydrophobic properties to the filler surface.

During paint manufacture (dispersion), the hydrophobic surface of AKTISIL PF 777/89 provides strong interaction with low polarity binder, which gives rise to optimum wetting.

Characteristics

Appearance		free-flowing powder
Bulk density		0,3 g/cm³
Color CIELAB scale:	L* a* b*	96 0.2 4.2
Volatile matter at 105 °C		0.3 %
Density		2.6 g/cm³
Particle size distribution	D_{50} D_{97}	2.1 µm 10 µm
Oil absorption		35 g/100 g
Water absorption acc. Baumann		≤ 0.1 %

Packaging

Paper bags	á 25 kg
EVA bags	≤ 20 kg
Big Bags	550 - 900 kg

Shelf life

3 years if stored properly under dry conditions.

2. Applications

In paints and varnishes, AKTISIL PF 777/89 is used as a functional filler alone or in combination with rheological additives and/or matting agents. The optimum effectiveness depends strongly on the binder used. In non-polar to slightly polar binder systems, AKTISIL PF 777/89 disperses well even with low shear energy input and leads to shear thinning in rheological terms. In highly polar systems, corresponding loadings cause thixotropic properties, strong shear thinning and lead to a high yield point.

The applications therefore relate to areas in which easy dispersibility, desired rheological effects and very low sedimentation tendency are just as important as hydrophobic properties, good corrosion protection and high chemical resistance.

Aktisil PF 777/89 has a high brightness and color neutrality and is therefore also suitable for use in light-colored and color-sensitive applications.

Fields of application

- high performance industrial coatings
- sealant and casting compounds, including one-component PU systems
- anti-corrosion coatings, including DTM
- high solid fillers and primers, topcoats
- thickening and rheology control of epoxide resins, PU systems and plastisols

Minimum film thickness:
> 10 µm, in special cases even lower

Metering:
Depending on the target, up to 50 % (m/m), PVC up to appr. 30 %

3. Benefits

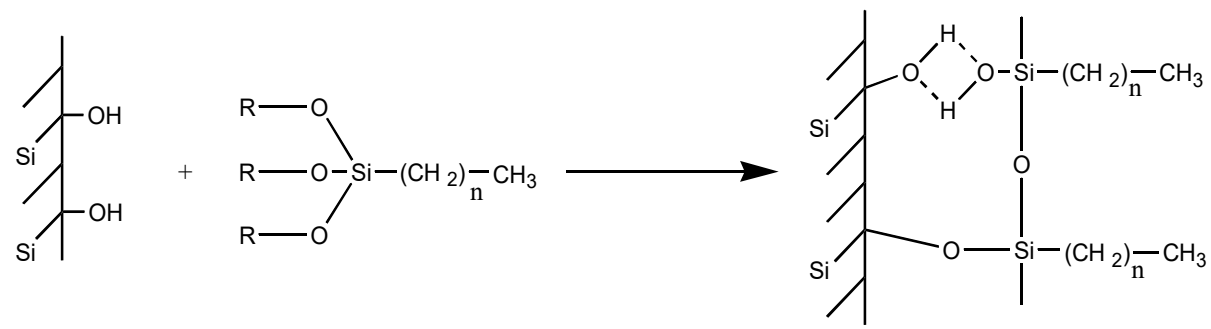
The excellent properties of the base material SILLITIN Z 89 are retained:

- high filling ratio
- outstanding dispersion behavior
- good pigment dispersion (spacer effect)
- low abrasivity
- very low tendency to settle
- soft sediment
- good edge covering
- quick drying
- weathering resistance
- breathability
- scratch resistance
- high abrasion resistance
- good transparency
- slight flatting effect

AKTISIL PF 777/89 provides the following benefits compared with the base SILLITIN Z 89:

- hydrophobic
- improved wetting and easy dispersion in binders with low to slight polarity
- rheological activity
- rheological stability
- improvement of adhesion on non blasted steel
- improvement of anti-corrosive properties (blistering, rust creepage and elamination at scribe, adhesion)
- improved humidity test results
- increased resistance to chemicals, particularly acids

4. Reaction at HOFFMANN MINERAL (model)



SILLITIN alkyl silane AKTISIL PF 777/89

5. Rheology

50 phr in epoxy resin (bisphenol F-type),
complete formulation with hardener TETA (triethylenetetraamine)

The rheological effects of Aktisil PF 777/89 largely correspond to those of Aktisil PF 777.

For details on the viscosity curve, yield point and structural recovery after shear stress, see the technical data sheet for Aktisil PF 777 on our homepage www.hoffmann-mineral.com.

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