



## AKTIFIT PF 111

Field of application: Thermoplastics

### 1. Description

AKTIFIT PF 111 is an activated SILFIT Z 91, produced by modifying the surface with a special 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 to the compound).

The non-polar alkyl groups of the coating agent and a special process technology during production of AKTIFIT PF 111 provides high hydrophobicity as well as low moisture absorption even under very humid conditions.

### Characteristics

Appearance		free-flowing powder
Color CIELAB scale:	L* a* b*	96.3 - 0.1 1.0
Sieve residue > 40 µm		10 mg/kg
Volatile matter at 105 °C		0.2 %
Density		2.6 g/cm <sup>3</sup>
Particle size distribution	D <sub>50</sub> D <sub>97</sub>	2 µm 10 µm
Surface area BET		9 m <sup>2</sup> /g
Oil absorption		60 g/100 g
Equilibrium moisture content at 23 °C:		
50 % relative humidity		0.07 %
80 % relative humidity		0.10 %
90 % relative humidity		0.13 %

### Packaging

Paper bags	à 25 kg
EVA bags	on demand
Big Bags	on demand

### Shelf life

2 years if stored properly under dry conditions.



## 2. Applications

In thermoplastics AKTIFIT PF 111 is used as a functional filler and anti-blocking additive. Optimum effects are achieved in polyolefins like PE, PP and in polycarbonate (PC), most frequently without any other filler or reinforcement.

AKTIFIT PF 111 should be considered whenever low warpage, perfect surface finish and scratch resistance are as important as good melt flow, high strain at break and high impact strength.

In addition AKTIFIT PF 111 enables good thermostability of the PC melt even being used in higher concentrations.

In PP homopolymer compounds AKTIFIT PF 111 performs in high strain at break and high impact strength as well as high melt flowability and scratch resistance.

AKTIFIT PF 111 performs well as anti-blocking agent in thin polyolefin films. In contrast to synthetic silicas AKTIFIT PF 111 causes hardly any adsorption of slip or stabilizer additives (HALS etc.) due to its comparatively low surface area and additionally non-polar surface.

## Fields of application

- scratch and impact resistant trims, panels, claddings and housings
- films

### Polymers:

- PE, PP
- Polycarbonate (PC)

### Dosage:

- Anti-blocking additive in films: 1000 ppm to 1 % (LDPE)
- Compounds: 10 to 55 % (m/m), typical 20 % to 40 %; PC: 10 to 30 %



### 3. Benefits

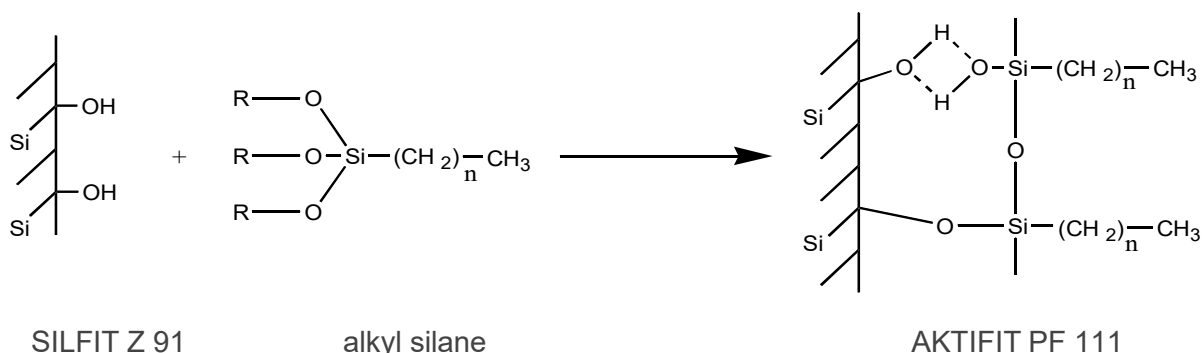
**In comparison with the unfilled polymer, the use of AKTIFIT PF 111 will result in the following advantages:**

- higher hardness
- improvement of scratch resistance
- higher stiffness (modulus)
- higher tensile and flex strength
- improved heat distortion temperature
- higher heat conductivity

**In comparison with other mineral fillers, AKTIFIT PF 111 offers the following advantages:**

- very low sieve residues
- very low moisture
- outstandingly low moisture absorption even under very humid conditions
- highly hydrophobic
- easy feeding and metering
- good wetting and dispersion properties
- high melt flow rates
- good thermostability of the PC melt even at higher concentrations
- excellent surface finish
- improvement of scratch resistance
- no graying of black-colored compounds
- excellent high tensile strain at break
- excellent high impact strength, even at low temperature and black-colored compounds

### 4. Reaction at HOFFMANN MINERAL (model)



More information about Aktifit PF 111 in thermoplastics at [www.hoffmann-mineral.com](http://www.hoffmann-mineral.com).

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