AKTIFIT VM

Field of application: Thermoplastics

1. Description

AKTIFIT VM is an activated SILFIT Z 91, produced by modifying the surface with a special vinyl 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).
A special process technology during production of AKTIFIT VM provides high hydrophobicity as well as outstanding low moisture absorption even under very humid conditions. During compounding, the hydro-phobic vinyl groups groups of AKTIFIT VM ensure good wetting and excellent dispersion in the matrix polymer. In addition, in polymers with suitable functional groups and presence of free radicals, i. e. peroxides, Aktifit VM can be covalently bonded into the polymeric matrix.

Characteristics

Appearance		free-flowing powder
Color CIELAB scale:	L* a* b*	96.2 - 0.1 1.0
Sieve residue > 40 µm		10 mg/kg
Volatile matter at 105 °C		0.1 %
Densitiy		2.6 g/cm³
Particle size distribution	D_{50} D_{97}	2.3 µm 11.0 µm
Surface area BET		10 m²/g
Oil absorption		65 g/100 g
Equilibrium moisture content at 23 °C: 50 % relative humidity 80 % relative humidity 90 % relative humidity		 0.05 % 0.07 % 0.08 %

Packaging

Paper bags	á 25 kg
EVA bags	on demand
Big Bags	550 – 900 kg

Shelf life

2 years if stored properly under dry conditions.

2. Applications

In thermoplastics AKTIFIT VM is used as a functional filler. Optimum effects are achieved in thermoplastic polyesters like polybutylene terephthalate (PBT) and polycarbonate (PC), most frequently without any other filler or reinforcement.

AKTIFIT VM 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 VM enables good thermostability of the PC melt even being used in higher concentrations.

Information on compliance with certain regulations/recommendations and other safety-related aspects: Product safety information

Fields of application

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

Polymers:
- prefered PBT , PC, PC-Blends
- basically also other thermoplastics and radically crosslinkable resins like PE and PE/EVA

Dosage:
- 10 to 55 % (m/m), typical 20 % to 40 %
- PC: 10 to 30 %

3. Benefits

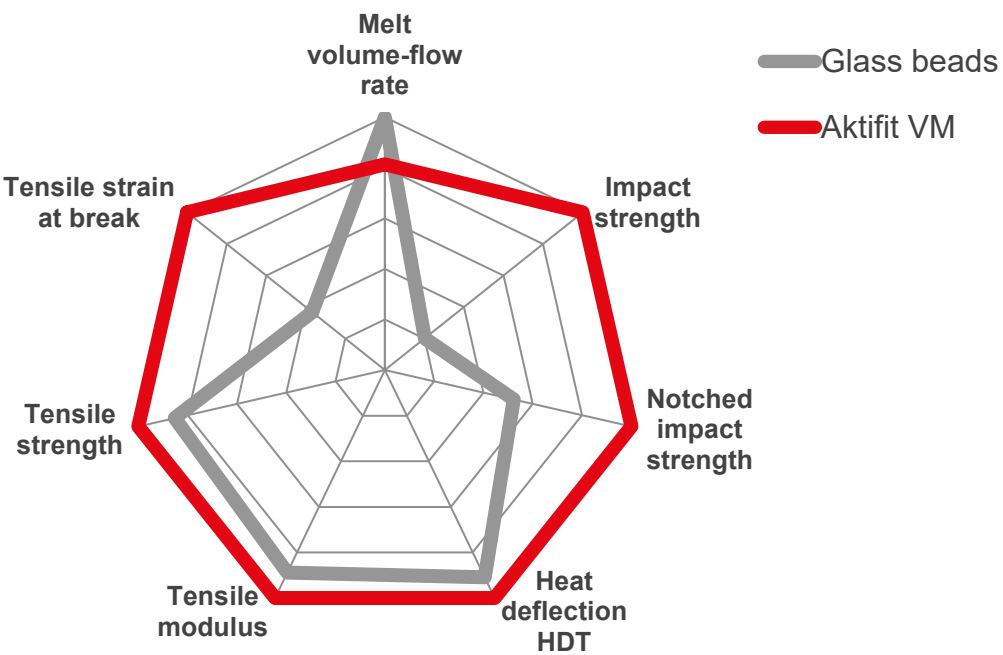
In comparison with the unfilled polymer, the use of AKTIFIT VM will result in the following advantages:

- 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 VM 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
- good translucency in PC compounds
- 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. Performance in Polybutylene terephthalate (PBT), 30 %



5. Performance in Polycarbonate (PC)

- high thermostability of the melt even at higher AKTIFIT VM concentrations
- high translucency
- retaining high gloss surface
- good scratch resistance
- high strain at break
- outstandingly high impact strength

More information about Aktifit VM in thermoplastics at www.hoffmann-mineral.com.

Our applications engineering advice and the information contained in this memorandum are based on experience and are made to the best of our knowledge and belief, they must be regarded however as non-binding advice without guarantee. Working and employment conditions over which we have no control exclude any damage claim arising from the use of our data and recommendations. Furthermore we cannot assume any responsibility for patent infringements, which might result from the use of our information.

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com