

## AKTISIL PF 216

Field of application: Elastomers

### 1. Description

AKTISIL PF 216 is an activated SILLITIN Z 86, produced by modifying the surface with a tetrasulfane 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 processing technique makes the material hydrophobic.

During vulcanization, the tetrasulfane groups of the AKTISIL PF 216 react in the presence of accelerators and sulfur, forming disulfide and polysulfide bonds with the polymer.

### Characteristics

|                            |                 |                       |
|----------------------------|-----------------|-----------------------|
| Appearance                 |                 | free-flowing powder   |
| Color CIELAB scale:        | L*              | 94.0                  |
|                            | a*              | 1.0                   |
|                            | b*              | 9.9                   |
| Volatile matter at 105 °C  |                 | 0.3 %                 |
| Density                    |                 | 2.6 g/cm <sup>3</sup> |
| Particle size distribution | D <sub>50</sub> | 2.2 µm                |
|                            | D <sub>97</sub> | 10.0 µm               |
| Oil absorption             |                 | 50 g/100 g            |

### Packaging

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

### Shelf life

2 years if stored properly under dry conditions.



## 2. Applications

In elastomer applications AKTISIL PF 216 can be used as a functional filler either on its own or in combination with another non-reinforcing or reinforcing filler. The optimum effect is achieved in curing systems based on sulfur and sulfur donors.

It can be used whenever high tensile strength and high modulus, combined with low tensile and compression set, are as important as excellent processing and extrusion properties.

These properties are an ideal combination for pressure-less cured extruded products and sponge rubber.

The disulfide and polysulfide bonds to the polymer make AKTISIL PF 216 particularly suitable for dynamic applications.

## Fields of application

- pressure-less cured extruded products (profiles, hoses)
- cable sheaths and cable insulation
- sponge rubber products
- molded products and seals
- products subject to high dynamic stress (tire components/solid rubber tires, roller coverings, conveyor belts, vibration dampers)

### Methods of processing:

Any process commonly used in the rubber industry.

### Elastomers:

NR, IR, BR, CR, in particular SBR, NBR, partly-hydrogenated HNBR, IIR, BIIR, CIIR, EPDM

### Metering:

SBR: 50 - 250 phr

NBR: 50 - 250 phr

EPDM: 50 - 300 phr

NR: 50 - 200 phr



### 3. Benefits

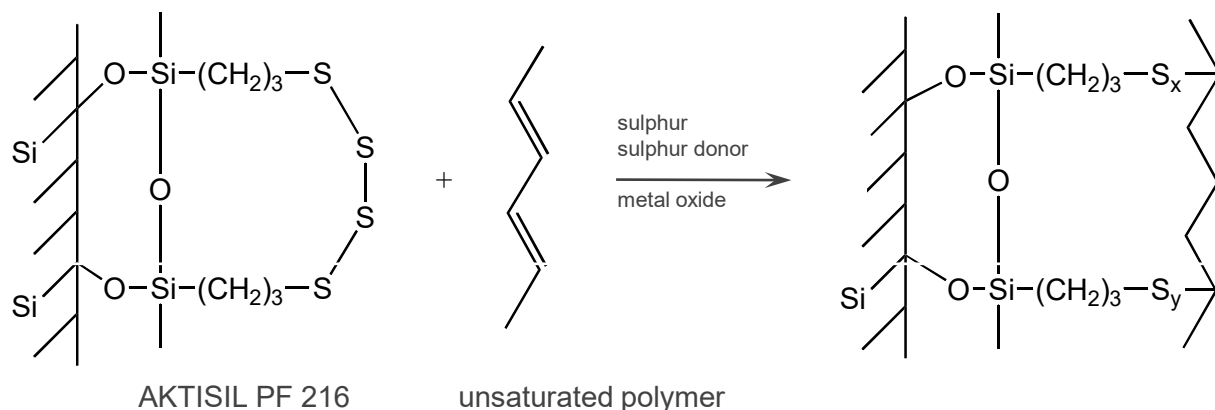
The excellent properties of the base material SILLITIN Z 86 are retained:

- good, fast incorporation
- very good dispersion behavior
- good rheological properties
- excellent surfaces
- very good extrusion properties
- good heat conductivity
- no negative influence on curing rate
- low tensile and compression set
- high electric insulation resistance
- good aging properties
- high chemical resistance
- matting effect

**AKTISIL PF 216 also provides the following benefits compared with the base SILLITIN Z 86:**

- water-repellent filler
- increased tensile strength
- maximum tensile strength combined with a higher level of filling
- increase in modulus
- reduced tension and compression set
- in the case of SBR higher rebound resilience
- reduced abrasion
- improved resistance to liquids
- electric insulation resistance remains high and constant after storage in water
- improved dynamic load capacity
- less heat build-up under dynamic stress

### 4. Possible reaction during vulcanization at user's plant (model)



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