



STRUKTOSIL 45 AM

1. Description

STRUKTOSIL 45 AM is a talc which surface is modified with a special amino functional group. The process parameters are 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 by-products, such as occur during in-situ mixing (i.e. during the direct addition of the additives), are therefore practically completely prevented.

During compounding, the amino groups of STRUKTOSIL 45 AM provide good wetting and very good dispersion in the matrix polymer. Furthermore, it achieves high bond strengths in polymers with suitable functional group by hydrogen bonding or covalent bonding.

Characteristics

Color CIELAB scale:	L*	98
	b*	0.6
Volatile matter at 105 °C		0.2 %
Density		2.95 g/cm ³
Bulk density		0.21 g/cm ³
Particle size distribution	D ₅₀	4 µm
	D ₉₇	11 µm
BET		9 m ² /g
pH-value		9,5
Air-jet screening > 125 µm		0 %
Oil absorption		55 g/100 g

Packaging

Paper bags	á 12.5 kg
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Shelf life

24 month if stored properly under dry conditions.



2. Applications

The main areas of application for STRUKTOSIL 45 AM are elastomers, thermoplastics and thermosets as well as paints and varnishes, reactive resins and adhesives.

Within elastomers, the main application are compounds for gaskets with very good compression set, very low swelling in hot water with as well a very good barrier behavior to gases.

Due to the modification with the amino functionality, a better integration of the platy filler into the polymer matrix is possible, which leads to an improvement of the compound properties

Fields of application

STRUKTOSIL 45 AM is suitable for the following applications:

Elastomers:

all standard rubber types and cross-linking types

Thermoplastics:

- Polyamides (PA)
- Aliphatic polyketone (PK)
- PP (with addition of PP-g-MAH)
- ABS, PPS, TPU, PE/EVA

In addition, further surface functionalizations for elastomers and thermoplastics are available, which are suitable especially for peroxide cured elastomer compounds as well as PC, PC blends and PBT.

Paints and varnishes:

primarily suitable for corrosion protection coatings based on epoxy or polyurethanes

Thermosets, reactive resins and adhesives:

primarily for epoxy and polyurethane resins

Dosage:

depending on usage up to 150 phr or 50 % (m/m).



3. Benefits

Advantages of STRUKTOSIL 45 AM compared to talc without any surface functionality, based on an EPDM formulation for molded parts:

- shorter conversion time t_{90} = faster vulcanization in Sulphur cured environment
- lower tan delta at the end of the vulcanization
- highly increased modulus 100%
- highly decreased compression set
- increased tear resistance
- better abrasion resistance
- lower absorption of water after storage in hot water

Advantages of STRUKTOSIL 45 AM compared to a competitor's talc with an amino functionality modified surface, based on an EPDM formulation for molded parts:

- lower viscosity
- elastograph: lower torque minimum
- shorter conversion time t_{90} = faster vulcanization in sulfur cure
- lower tan delta at the end of the vulcanization
- increased modulus 100%
- improved compression set (peroxide cured)
- increased tear resistance
- improved abrasion resistance
- color with higher brightness
- significantly lower absorption of water after storage in hot water

Also see number 4.

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.

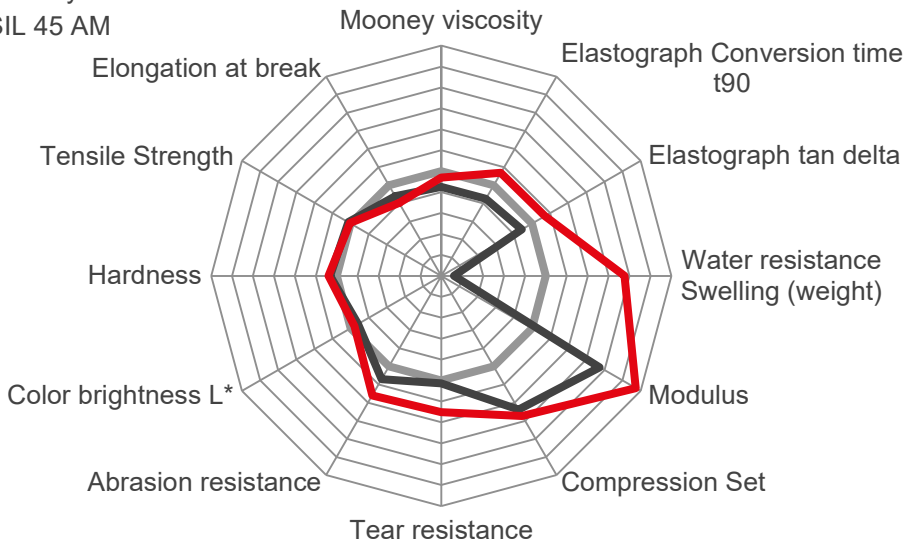


4. Effects of STRUKTOSIL 45 AM

Example in an EPDM formulation for molded parts, 120 phr filler, sulfur cured

Performance Index,
Talc without surface modification= 1, higher = better

- Talc without functionalization
- Competitor talc with amino functionality
- STRUKTOSIL 45 AM



Example in EPDM formulation for molded parts, 120 phr filler, peroxide cured

Performance Index,
Talc without surface modification, higher = better

- Talc without functionalization
- Competitor talc with amino functionality
- STRUKTOSIL 45 AM

