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TECHNICAL DATA

STRUKTOL® SU 135A

PREPARATION OF INSOLUBLE SULFUR

COMPOSITION

Total sulfur	75%
Organic dispersing agent	25%
Insoluble sulfur	36 ± 1%

TYPICAL PROPERTIES

Appearance	yellow non dusting powder
Flash Point (°C)	207
Specific Gravity	1.55
Physiological Behavior	Refer to safety data sheet
Storage Stability	at least 2 years under normal storage conditions
Packaging	55 lb. bag in a box

RECOMMENDATIONS FOR APPLICATION

Two basic types of sulfur are used for rubber compounding, i.e. ordinary ground sulfur called “soluble sulfur” because of its solubility in carbon disulphide (CS_2), and the so-called “insoluble sulfur” which is insoluble in CS_2.

This characteristic of the sulfur types is paralleled by their solubility in rubbers: insoluble sulfur is completely insoluble in rubber while ground sulfur is in part soluble. This solubility depends upon temperature and excessive sulfur crystallizes from a compound mixed at higher temperatures. A grayish sulfur bloom appears on the green compound followed by small sulfur crystals, which can no longer be dispersed in the rubber compound.

Consequences of sulfur blooming are:

- increased scorch risk in areas where sulfur has concentrated
- decreased building tack
- local overcure
- variations in physical properties

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When using insoluble sulfur, blooming from the green compound can be avoided. While ordinary ground sulfur is easily incorporated/dispersed in most rubber compounds, insoluble sulfur can give rise to problems. Owing to static electricity of this type agglomerates are formed which are only partially dispersed. The specialty dispersing agents contained in Struktol coated sulfurs effect a fast incorporation and optimum sulfur dispersion. Static electricity is minimized. The dispersing agents used are non-discoloring and have no influence on the cure rate.

In STRUKTOL® SU 135A, part of the sulfur is present in the soluble state. The ratio of insoluble sulfur to soluble sulfur is well balanced so that in most applications STRUKTOL® SU 135A can offer advantages like insoluble sulfur itself. Blooming can, in particular, be avoided at low sulfur dosages or in compounds that dissolve sulfur to an acceptable extent.

When using insoluble sulfur it is important to recognize that this form reverts to soluble sulfur at elevated temperatures, i.e. it should be admixed at temperatures below the critical reversion point (80°C). This also applies to any further processing of the finalized compound.

It is also important to note that the reversion of insoluble sulfur is not only promoted through temperature, but also through inorganic bases (amines). Special attention must be paid to the accelerator system in compounding and care should be taken that activators are not too alkaline.

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