



Producers of Specialty Chemicals

Struktol Company of America

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STRUKTOL® SCA 98 & SCA 985

An Overview

STRUKTOL® SCA 98 and SCA 985 are silane coupling agents for use in rubber compounding. When used in rubber compounding, they provide coupling of non-black pigments to the polymer backbone allowing for:

Improved abrasion resistance

Higher compound modulus

Lower hysteresis

Improved compression set

Improved rolling resistance in tire tread compounds

The theory for their effectiveness is that the silane portion of the molecule couples with OH groups on the silica and silicate surfaces in non-black pigments. The sulfur portion of the molecule is available for curing activity and can enter into the vulcanization mechanism. The SCA 98 is a tetra-sulfide silane while the SCA 985 is a di-sulfide silane. When the SCA 985 is used as a 1:1 replacement for the SCA 98, a reduction in the cured modulus and maximum tensile may be noticed. This can usually be regained by increasing the sulfur level in the final mix pass.

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NON-BLACK FILLERS WHOSE REINFORCEMENT IS
ENHANCED BY STRUKTOL[®] SCA 98 & SCA 985

	Suggested Dosage phr Levels per 100 phr filler
Silica, ppt	3-13
Clay	0.3-1.0
Calcium Silicate	6-7
Magnesium Silicate (talc)	1-4
Fumed Silica	3-15

MIXING AND DUMP TEMPERATURE

Part or all of the non-black filler should be dispersed with the STRUKTOL[®] SCA 98/SCA 985 in the first mixing stage. The remaining ingredients should be added after the silane coupling agent and the filler have been incorporated. Curatives should be added in the last mixing stage.

SUGGESTED TYPICAL MIX SCHEDULE

0'	Rubber
½'	½ to all non-black pigment STRUKTOL [®] SCA 98/SCA 985
2½'	Black, if present, oil, stearic acid, zinc oxide
3½'	AO ₂ , AO ₃
4½'	Clean
5'	Dump

Because of the sulfur present in the STRUKTOL[®] SCA 98/SCA 985, it is necessary to control the maximum mixing temperature.

The following are recommended dump temperatures:

Natural Rubber	150°C
SBR	150-160°C
NBR	140°C

POLYMERS AND STRUKTOL[®] SCA 98/SCA 985 EFFECTIVENESS

ACM	NDA
IIR	GOOD
CM	GOOD
XNBR	GOOD
EPDM	EXCELLENT
ECO	EXCELLENT
FKM	NDA
HIIR HALOBUTYL	GOOD
CSM	EXCELLENT
NATURAL RUBBER	EXCELLENT
CR	EXCELLENT
NBR	EXCELLENT
BR	EXCELLENT
IR	EXCELLENT
SBR	EXCELLENT
URETHANTE	GOOD
VAMAC	GOOD

Excellent - STRUKTOL[®] SCA 98/SCA 985 favorably influences properties, producing significant improvements in physical properties and state of cure.

Good - STRUKTOL[®] SCA 98/SCA 985 has an effect on physical properties producing enhanced modulus and improved abrasion.

NDA - No data available in actual experience with STRUKTOL[®] SCA 98/SCA 985.