



PERFORMANCE ADDITIVES

TECHNICAL DATA SHEET
STAN-MAG® BEADS
CR-GRADE MAGNESIA

Stan-Mag® Beads are a bonded magnesium oxide powder in the physical form of easy to handle, free-flowing, high-density beads. Stan-Mag Beads contain a high activity grade of magnesium oxide to provide the optimum in scorch protection for the compounder. The binder used to form the product into beads in a petroleum oil which is compatible with natural and most synthetic elastomers. This binder will have no adverse effect on the physical or chemical properties of the vulcanizate.

The binder used in Stan-Mag Beads coats all of the magnesia particles with a protective film which prevents the rapid deterioration of activity which is characteristic of the powder forms of magnesium oxide when exposed to the atmosphere. This binder also improves the rate and degree of dispersion attained in rubber compounds. Thus, even though the binder is a diluent for the magnesia, it has been observed that the beads provide virtually equivalent scorch protection to the powder. Therefore, in all but the most critical formulations, Stan-Mag Beads may be substituted for the powder forms of magnesium oxide at equal concentrations.

The high bulk density of Stan-Mag Beads offers considerable savings in storage space since a 50 lb. package occupies only about 30% of the space required for conventional magnesium oxide powder.

TYPICAL PROPERTIES

Table with 2 columns: Property and Value. Properties include Type Magnesium, Physical Form, Color, Specific Gravity, and Bulk Density (lb./cu. ft.). Values include Medium Light Calcined Beads, Light Brown, 1.7, and 60.

To illustrate the protection from atmospheric degradation, a small sample of Stan- Mag Beads was exposed to the atmosphere for periods of 3, 5, and 19 days. The activity, as measured by Mooney scorch, does not change significantly and still provides satisfactory protection even after 19 days of exposure which far exceeds what would be normal exposure in a plant. The bin storage stability of compounded Neoprene (sulfur modified) formulation containing 4.0 phr Stan-Mag Beads showed no change in viscosity and a loss of only one minute in Mooney scorch.

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COMPARISON OF VARIOUS MAGNESIAS IN NEOPRENE

<u>Formula</u>	<u>phr</u>
Neoprene (M-type)	100.0
SRF Black	29.0
Antioxidant	2.0
Stearic Acid	0.5
Zinc Oxide - Pasco 524	5.0
ETU	0.4
Magnesia	4.0

VULCANIZATE PROPERTIES-30 MIN @ 310 °F

Mooney Scorch ML 250°F Tensile 200% Modulus Elongation Shore A
Type

<u>Magnesium Oxide</u>	<u>(Min. to 5 Point Rise)</u>		<u>(psi)</u>	<u>(psi)</u>	<u>(%) Hardness</u>
Stan-Mag MLW Powder	8.4	3150	800	455	60
Stan-Mag Beads	8.7	3100	750	485	59

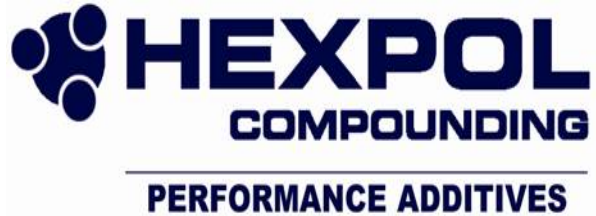
EFFECT OF EXPOSURE AND BIN STORAGE ON SCORCH PROTECTION

<u>Formula</u>	<u>phr</u>
Neoprene Type (S-Type)	100.0
SRF Black	29.0
Antioxidant	2.0
Stearic Acid F-1000	0.5
Zinc Oxide - Pasco 524	5.0
ETU	0.4
Magnesia	4.0

Type	Days Exposure Before Incorporation into <u>Neoprene Compound</u>	Mooney Scorch ML 250°F <u>(Minutes to 5 Point Rise)</u>
<u>Magnesium Oxide</u> Stan-Mag Beads	0	15.3
	3	14.5
	5	14.9
	19	12.0

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Effect of Bin Storage of Neoprene Compound on Mooney Viscosity and Mooney Scorch at 250°F.

Type	Minimum Viscosity		Mooney Scorch ML (Minutes to 5 Point Rise)	
	<u>Initial</u>	<u>After 2 Months</u>	<u>Initial</u>	<u>After 2 Months</u>
<u>Magnesium Oxide</u> Stan-Mag MLW Powder	35.9	35.0	14.0	2.5
Stan-Mag Beads	28.5	29.0	12.5	11.5

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