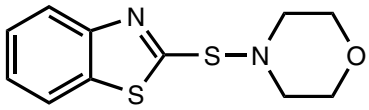
FLEXSYS

Accelerators

Product Data

SANTOCURE MBS



2-(4-Morpholinothio)benzothiazole

CAS Reg. No.: 102-77-2

Molecular weight: 252

FUNCTION

Santocure MBS is a general purpose primary accelerator giving the highest level of processing safety of all (moderately) fast curing sulfenamide accelerators, combined with a moderately fast cure rate and good modulus development.

MAJOR APPLICATIONS AND PROPERTIES

- The product can be used as sole accelerator or in combination with low levels of secondary accelerators in NR or synthetic rubber compounds where extended scorch times are required. Typical examples are thick tire treads and extrusions, compounds with high loadings of furnace blacks and compounds which are stored, uncured, for long periods, such as camelback.
- The long scorch delay of Santocure MBS is also advantageous in injection molding, allowing the safe use of high injection temperatures.
- Santocure MBS is also an excellent accelerator for EPDM cure systems were a high degree of processing safety needs to be combined with a fast cure.
- Its general characteristics closely resemble Santocure CBS, but Santocure MBS gives better scorch resistance and cures slightly slower.
- It should be noted that in the application of Santocure MBS, N-nitrosomorpholine can be formed by the reaction of morpholine, a decomposition product, with nitrosating agents (nitrogen oxides).
- At high concentrations, Santocure MBS will cause slight discoloration in white or light colored compounds, but it is non-staining.
- Santocure MBS is regulated for use in articles in contact with food as specified under FDA 21 CFR 177.2600 and under BgVV XXI, Category 4.

COMPOUNDING INFORMATION

In NR the levels of Santocure MBS range from 0.5 to 1.5 phr with the higher levels being associated with reduced levels of sulfur.
Because Santocure TBBS already gives adequate processing safety, Santocure MBS is less frequently used in SBR based compounds. In synthetic rubber compounds where long scorch delay is required, Santocure MBS can be used at similar levels as Santocure TBBS. In SBR Santocure MBS levels usually vary between 1.0 and 2.5 phr with sulfur levels of 2 to 1 phr respectively.
Increasing the accelerator/sulfur-ratio in general increases the cure efficiency, resulting in improved scorch resistance, faster cure rate, and improved reversion and aging resistance. However, after fully efficient cure (EV) of NR compounds, flex-cracking and dynamic properties will be lower.
Improved aging and flex resistance, with only little effect on initial flex-cracking resistance in NR, can be accomplished by direct replacement of sulfur by Sulfasan DTDM. Maximum aging resistance can be obtained by omission of sulfur and addition of Perkacit TMTD as a means of obtaining the required modulus.
Santocure MBS based cure systems can be boosted by activators such as thiurams, dithiocarbamates and DPG.

HANDLING PRECAUTIONS

For detailed information on toxicological properties and handling precautions please refer to the current Safety Data Sheet. This information sheet can be downloaded from our web site or requested from the nearest Flexsys office and should be consulted before handling this product.

STORAGE RECOMMENDATIONS

Store Santocure MBS in single stacked pallets in a cool, dry, well ventilated area, avoiding exposure of the packaged product to direct sunlight. Double stacking of palletized material can result in unusually compacted product or broken granules. High humidity and/or temperature can cause degradation that may result in reduced scorch time. Material suspected of degradation can be evaluated in a test compound before use. Do not store this product near Crystex as the amine vapors characteristically emitted from this material can cause Crystex to revert to "Rubber Maker's" sulfur.

PRODUCT INFORMATION

Santocure MBS Product form		**grs-2mm** 2mm granules	
PRODUCT SPECIFICATIONS			Test method
Appearance		off white to tan granules	FF97.5
Assay (titration)	(%) min.	95.0	FAc90.4
Melting point, final	(°C)	82-88	FF83.9
Moisture	(%) max.	0.4	FAmp90.1
Ash	(%) max.	0.3	FGr90.9
Insoluble in methanol (on binder-free basis)	(%) max.	0.5	FGr90.7
TYPICAL PROPERTIES			
Density at 20 °C	(kg/m^3)	1360	

For further information please contact your local Flexsys office or regional Flexsys headquarters:

Regional Headquarters	:	Brussels	Akron	Singapore
Tel.	:	+32 2 714 32 11	+1 330 666 41 11	+65 872 28 08
Fax	:	+32 2 714 32 32	+1 330 668 83 45	+65 872 28 18