FLEXSYS

Material Safety Data Sheet

Last Revision: 04/27/2007
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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **SANTOCURE® MBS**

MSDS NO. **FLXP0027**

Chemical Name: 2-(Morpholinothio)benzothiazole
Synonyms: Santocure MOR; Perkacit MBS; N-Oxydiethylene-benzothiazole-2-sulfenamide; Benzothiazole, 2-(4-morpholinothio)-
Use: Accelerator.
Manufactured By: Flexsys America L.P. 260 Springside Drive Akron OH 44333-2433 USA

Emergency Telephone:
CHEMTREC: 1-800-424-9300 [TOLL FREE - USA and Territories]
703-527-3887 [ELSEWHERE - Collect Calls Accepted]
CANUTEC: 613-996-6666 [Canada]
SETIQ: 91-800-00-214 [Mexico]

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2. HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Combustible dust - explosion potential. This material is irritating to skin, eyes and respiratory tract. May cause allergic skin reaction.

Eye Contact: Causes eye irritation. Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing and hazy vision.

Skin Contact: Causes moderate skin irritation. Burning sensation may result. Moderate Skin Irritation: signs/symptoms can include redness, swelling, itching and dryness.

Inhalation: Causes moderate respiratory irritation. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

Ingestion: Illness may occur after a single swallowing of relatively large quantities of this material.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
2-(Morpholinothio)benzothiazole	102-77-2	> 95
Morpholine	110-91-8	< 0.5
Mercaptobenzothiazole Disulfide	120-78-5	< 1
2-Mercaptobenzothiazole	149-30-4	< 1
Benzothiazole	95-16-9	< 0.5
Potassium Stearate [Binder]	593-29-3	< 0.5

4. FIRST AID MEASURES

In Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

4. FIRST AID MEASURES

On Skin:	Remove contaminated clothing. Wash skin with water, using soap if available. Launder clothing before reuse. Get medical attention if irritation persists.
Inhaled:	Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.
Notes To Physician:	Provide symptomatic/supportive care as necessary. Treatment based on sound judgment of physician and individual reactions of patient. Observe for signs of respiratory distress.

5. FIRE FIGHTING MEASURES

Flash Point (°F/C):	350°F / 177°C
Flash Point Method:	Cleveland Open Cup
Autoignition Temp. (°F/C):	660°F / 349°C (Dust)
Lower Explosion Limit (LEL):	Not Determined
Upper Explosion Limit (UEL):	Not Determined.
Extinguishing Media:	Use water fog, carbon dioxide, foam or dry chemical.
Special Exposure Hazards:	Fight fire from a safe distance and from a protected location. Combustible dust when in a finely divided and highly suspended state. Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.
Special Protective Equipment:	Fire fighters should wear full impervious protective clothing, including self-contained breathing equipment.
Unusual Fire/Explosion Hazards:	Toxic emissions may result if product is involved in a fire. Fire produces carbon monoxide and carbon dioxide gases.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures:	Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.
Procedure for Cleaning/Absorption:	Isolate area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Scoop up and remove solids. Do NOT spread spilled product with water.
CERCLA Reportable Quantity (RQ):	Not Applicable

7. HANDLING AND STORAGE

Handling:	Good hygienic practices should be observed. Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded with material. Avoid generating or breathing dust. Avoid contact with eyes, skin and clothing. Reclose containers of unused product. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Do not reuse this container.
Storage:	Store closed containers in a cool, dry, well-ventilated area. Store away from strong oxidizing materials. Avoid exposure to direct sunlight. Do not store near Crystex Insoluble Sulfur. Slowly degrades and releases irritating vapors under warm, humid conditions.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection:	Wear safety glasses or goggles to protect against exposure.
Skin Protection:	Normal work coveralls. Launder contaminated clothing before reuse.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Gloves: Use gloves as a standard industrial handling procedure. All cleanable impervious glove types are acceptable.

Respiratory Protection: Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Firefighting: Use a Positive Pressure Demand Full Face Self Contained Breathing Apparatus.

Ventilation: General; local exhaust ventilation as necessary to control any air contaminants to within their exposure limits during the use of this product. Adequate ventilation should be provided to keep dust concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with the applicable air pollutions control regulations. Eliminate ignition sources.

Airborne Exposure Limits: Nuisance Dust. OSHA PEL/8Hr-TWA = 15 mg/m^3 (Total Dust). OSHA PEL/8-Hr TWA = 05 mg/m^3 (Respirable Dust). ACGIH TLV/8-Hr TWA = 10 mg/m^3. Morpholine: OSHA PEL/8Hr TWA = 20 ppm. ACGIH TLV/8Hr TWA = 20 ppm *skin. NIOSH REL/8Hr TWA = 20 ppm *skin. NIOSH STEL = 30 ppm *skin For "Stearates": ACGIH TLV/8Hr TWA = 10 ppm.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White to off-white granules.
Odor:	MILD AMINE
pH:	Not Applicable
Specific Gravity:	1.4 @ 25°C
Density:	1.35
Bulk Density:	1360 kg/m^3
Melting Point (°F/C):	82-88°C
Boiling Point (°F/C):	Decomposes >385°C
Vapor Pressure:	1.34 x 10(-6) hPa @25°C
Vapor Density (Air=1):	Not Applicable
% Volatile by Volume:	<0.5%
Solubility in Water:	32 ppm @ 25°C
Other Solubility:	Soluble in: Acetone Organic liquids, including fats and oils Ether
Viscosity:	Not Applicable
Other Data:	Ash content = 0.3% max.
Molecular Weight:	252.3
Molecular Formula:	C11-H12-N2-O-S2

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored at room temperature in closed, original container. Stable under normal conditions of handling, use and transportation. Stable if protected from heat and exposure to air. Loses potency with time. Protect from moisture.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Keep away from heat, sparks and flame.

Materials to Avoid: Reducing agents. Contact with acids. Avoid contamination of product with small amounts of water. Do not store near Crystex Insoluble Sulfur.

Hazardous Decomposition Products: Carbon monoxide. Oxides of nitrogen. Oxides of sulfur. Amines

Additional Guidelines: Amine vapors can cause insoluble sulfur to revert to soluble form.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD50 (mg/kg):	>7940 mg/kg (Rat)
Acute Dermal LD50 (mg/kg):	>7940 mg/kg (Rabbit)
Acute Inhalation LC50 (mg/l):	Not Determined

Target Organs / Principle Routes of Exposure: Eyes. Inhalation. Dermal - skin.

11. TOXICOLOGICAL INFORMATION

Ingestion: Illness may occur after a single swallowing of relatively large quantities of this material.

Skin Contact: Causes moderate skin irritation. Burning sensation may result. Moderate Skin Irritation: signs/symptoms can include redness, swelling, itching and dryness.

Inhalation: Causes moderate respiratory irritation. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

Eye Contact: Causes eye irritation. Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing and hazy vision.

Aggravated Conditions: Pulmonary disorders. Dermal ailments. Eye, skin, respiratory, blood, liver and/or kidney ailments. This material or its emissions may cause an allergic or sensitization reaction and thereby aggravate systemic disease.

Carcinogenicity Comment: This product, or one of its ingredients present at 0.1% or more, is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC or OSHA.

Other Information: WARNING: Can react with nitrosating agents to form the carcinogenic compound N-Nitrosomorpholine. Product releases amine vapors during cure. Decomposition products and fumes from vulcanization and cross-linking may cause eye, skin and respiratory sensitization. May be a skin sensitizer.

Primary Irritation Effect: Moderately irritating to skin and eyes. Moderate to strong skin sensitizer in human patch test studies.

Carcinogenicity: Negative in standard tests using bacteria and/or yeast cells.

Genotoxicity: Both negative and positive effects have been found in standard in vitro tests using animal cells. Both negative and positive effects have been found in standard in vivo tests.

Reproductive/Developmental Toxicity: No evidence of teratogenicity in animal studies using rats, mice and/or hamsters. Embryotoxicity reported in studies conducted on chicken embryos. Did not affect reproductive performance or post-natal development in animal studies. Higher doses administered during gestation in rats resulted in a slight increase in fetal mortality and a slight decrease in fetal body weights.

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity: 96Hr LC50 Rainbow Trout = 1.3 mg/l. 96Hr LC50 Bluegill Sunfish = 4.4 mg/l. 96Hr LC50 Fathead Minnow = 3.5 mg/l. 48Hr LC50 Midge = 5.3 mg/l.

Acute Crustaceans Toxicity: 48Hr LC50 Daphnia Magna = 4.10 mg/l

Acute Algae Toxicity: 96Hr EC50 Algae = 2.0 mg/l

Octanol/Water Coefficient: Log P = 3.49

Chemical Fate Information: Hydrolysis: 100% in 7 days. Bioconcentration Factor: 100 (Calculated).

Other Information: Ready Biodegradation: 0% after 28 days.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: This material is not a RCRA hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Empty containers should be handled in a manner not to cause dusting during collection, transporation and disposal.

Contaminated Packaging: If empty container retains product residues, all label precautions must be observed. Store away from ignition sources. Transport with all closures in place. Return for reuse or dispose according to national or local regulations. Dispose of container according to national or local regulations.

14. TRANSPORT INFORMATION

DOT: UN 3077, Environmentally Hazardous Substance, Solid, N.O.S., (2-(Morpholinothio)benzothiazole), 9, III

DOT Reportable Quantity (lbs): None

ICAO/IATA: See DOT

14. TRANSPORT INFORMATION

IMDG:	See DOT
Marine Pollutant:	No
TDG (Canada):	See DOT
Remarks:	NOTE: NEW shipping description effective May 21, 2007.

15. REGULATORY INFORMATION

<u>**Worldwide Inventory Status**</u>

USA (TSCA):	Listed
Canada (DSL):	Listed
Canada (NDSL):	Not Applicable. Listed on the DSL.
European Union (EINECS/ELINCS):	Listed
Japan (ENCS):	Listed
Korea (ECL):	Listed
Australia (AICS):	Listed
New Zealand (NZ):	Listed
Phillipines (PICCS):	Listed
China (CLECS):	Listed.

<u>**US Regulatory Rules**</u>

SARA Section 302:	None Found
SARA 311/312 Hazard Catagories:	Immediate Delayed
SARA 313 Chemical:	Component 2-Mercaptobenzothiazole.
RCRA Status:	Not a RCRA waste.

<u>**Other Regulations:**</u>

California Proposition 65:	NONE
New Jersey Right-to-Know List:	Component 2-Mercaptobenzothiazole: New Jersey Substance ID# 3710. Component Morpholine: New Jersey Substance ID# 1315.
Pennsylvania Right to Know List:	Component Morpholine.
Florida Right to Know:	Component Morpholine.
Minnesota Right to Know:	Component Morpholine. Component Potassium Stearate ["Stearates"] .
Massachusetts Right to Know Law:	Component Morpholine.
FDA Status 21 CFR:	Regulated for Use under the following sections of 21 CFR: 177.2600 Rubber Articles Intended for Repeated Use in Food Contact.

<u>**Canadian Regulations**</u>

WHMIS Hazard Class:	D2B TOXIC MATERIALS / Materials Causing Other Toxic Effects
NPRI:	Component 2-Mercaptobenzothiazole: NPRI Part 1, Group 1, ID# 148, minimum concentration 1%.

16. OTHER INFORMATION

<u>**Hazard Rating Systems:**</u>

HMIS Classification:	HEALTH 2, FLAMMABILITY 1, REACTIVITY 0
NFPA Rating:	HEALTH 2, FLAMMABILITY 1, REACTIVITY 0

16. OTHER INFORMATION

The following has been revised since the last issue of this MSDS: New MSDS format. Transport information or classification has been changed/corrected. Change in 'Additive Package' information.

Additional Information: Components Morpholine and 2-Mercaptobenzothiazole: WHMIS Ingredient Disclosure List (Canada): WHMIS Concentration threshold = 1%. MORPHOLINE: Canadian Workplace OELs apply in Alberta, British Colombia, Ontario and Quebec. Mexican Workplace OELs apply. Listed as a specific Hazardous Chemical in the following US states: CA, CT, IL, IN, KY, LA, NC, RI. Potassium Stearate CAS# 593-29-3. Occupational Exposure Levels (OELs) for "Stearates" have been established in Canada, Mexico and South America.

Important Note: This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****