FLEXSYS

Material Safety Data Sheet

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

Product Name: SANTOCURE® TBSI

MSDS NO. FLXP0029

Chemical Name: N-t-Butyl-di-(2-benzothiazolesulfenimide).
Synonyms: Bis-MBT; N,N-bis[(2-benzothiazolyl)thio]-t-butylamine; 2-Benzothiazolesulfenamide, N-(2-benzothiazolylthio)-n-(1,1-dimethylethyl)-.
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]

Prepared By: Flexsys America Product Safety: Phone (330) 668-8281 FAX (330) 668-8345
E:mail sharen.b.breyer@flexsys.com

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: May cause mild eye irritation. Mild Eye Irritation: signs/symptoms can include redness, swelling, pain and tearing.

Skin Contact: May cause mild skin irritation. May cause skin defatting with prolonged exposure. May cause a rash and itching of the skin. May cause an allergic skin reaction.

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

Ingestion: Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
N-t-Butyl-di-(2-benzothiazolesulfenimide)	3741-80-8	87.5 - 93.5
N-tert-butyl-2-benzothiazolesulfenamide	95-31-8	0 - 3.5
Mercaptobenzothiazole Disulfide	120-78-5	0 - 3.0
White Mineral Oil	8042-47-5	1.0 - 2.0

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. Remove contaminated clothing and launder 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): 330°F / 166°C (estimated)
Flash Point Method: Not Determined
Autoignition Temp. (°F/C): Not Determined
Lower Explosion Limit (LEL): Minimum Explosive Concentration (MEC) = 40 g/m^3 Dust class: St-2
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 highly toxic sulfur dioxide gas.

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. Remove ignition sources and work with non-sparking tools. Scoop up and remove material. Reuse if not contaminated. 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

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Eye Protection:	Wear safety glasses or goggles to protect against exposure.
Skin Protection:	Normal work coveralls. Launder contaminated clothing before reuse.
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. White Mineral Oil OSHA PEL/8-Hr TWA = 5mg/m^3 ACGIH TLV/8-Hr TWA = 5mg/m^3.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White powder
Odor:	SLIGHT
pH:	Not Applicable
Specific Gravity:	1.35 @ 25°C
Density:	1.3
Bulk Density:	1350 kg/m^3
Melting Point (°F/C):	262.4°F / 128°C
Boiling Point (°F/C):	Decomposes before boiling
Vapor Pressure:	Negligible: 5.3 X 10(-6) hPa
Vapor Density (Air=1):	Not Applicable
% Volatile by Volume:	<0.5%
Solubility in Water:	0.0029 mg/L @ 25°C
Other Solubility:	Soluble in: Acetone Organic liquids, including fats and oils
Viscosity:	Not Applicable
Other Data:	Ash content = 0.5% max.
Molecular Weight:	403.61
Molecular Formula:	C18-H17-N3-S4

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):	>5000 mg/kg (Rat)
Acute Dermal LD50 (mg/kg):	>2000 mg/kg (Rabbit)
Acute Inhalation LC50 (mg/l):	Not Determined

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

11. TOXICOLOGICAL INFORMATION

Ingestion:	Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.
Skin Contact:	May cause mild skin irritation. May cause skin defatting with prolonged exposure. May cause a rash and itching of the skin. May cause an allergic skin reaction.
Inhalation:	Causes moderate respiratory irritation. Irritates mucous membranes. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.
Eye Contact:	May cause mild eye irritation. Mild Eye Irritation: signs/symptoms can include redness, swelling, pain and tearing.
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:	Decomposition products and fumes from vulcanization and cross-linking may cause eye, skin and respiratory sensitization. May be a skin sensitizer. Product releases amine vapors during cure.
Primary Irritation Effect:	Practically non-irritating to skin and eyes. Not sensitizing in animal studies. Similar compounds have at least some potential for allergic skin reactions in humans after prolonged and repeated exposures.
Carcinogenicity:	Negative in standard tests using bacteria and/or yeast cells.
Genotoxicity:	Negative for genetic activity - in vitro tests. Negative for genetic activity - in vivo tests.
Reproductive/Developmental Toxicity:	No evidence of teratogenicity in animal studies using rats, mice and/or hamsters.

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity:	96Hr LC50 Fathead Minnow = >2.7 mg/l.
Acute Crustaceans Toxicity:	48Hr EC50 Daphnia Magna = Highly Toxic (<1.0 mg/l)
Acute Algae Toxicity:	96Hr EC50 Algae = >0.87 mg/l
Octanol/Water Coefficient:	Log P = 6.7 [Measured].
Chemical Fate Information:	Biodegradation by CO2 evolution: 32% @ 10 mg/L after 57 days.
Other Information:	Tests indicate this material will not bioaccumulate or persist in the environment.

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., (N-tert-Butyl-di-(2-benzothiazolesulfen)imide), 9, III
DOT Reportable Quantity (lbs):	None
ICAO/IATA:	See DOT
IMDG:	See DOT
Marine Pollutant:	No
TDG (Canada):	See DOT

14. TRANSPORT INFORMATION

Remarks: NOTE: NEW shipping description effective May 21, 2007.

15. REGULATORY INFORMATION

Worldwide Inventory Status

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

US Regulatory Rules

SARA Section 302:	None Found
SARA 311/312 Hazard Catagories:	Immediate Fire
SARA 313 Chemical:	Not Applicable / None
RCRA Status:	Not a RCRA waste.

Other Regulations:

California Proposition 65:	NONE
New Jersey Right-to-Know List:	Not Applicable.
Pennsylvania Right to Know List:	Not Applicable.
Florida Right to Know:	Not Applicable.
Minnesota Right to Know:	Not Applicable
Massachusetts Right to Know Law:	Not Applicable.
FDA Status 21 CFR:	Not Regulated For Use in food contact applications under 21 CFR.

Canadian Regulations

WHMIS Hazard Class:	D2B TOXIC MATERIALS / Materials Causing Other Toxic Effects
NPRI:	Not Listed. [Canada]

16. OTHER INFORMATION

Hazard Rating Systems:

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

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

Additional Information: Component 2-Mercaptobenzothiazole Disulfide appears on the WHMIS Ingredient Disclosure List [Canada]. WHMIS Concentration threshold = 1%.

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*****