



Material Safety Data Sheet

Last Revision: 05/03/2007

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: SANTOCURE® TBBS
MSDS NO. FLXP0028
Chemical Name: N-tert-butyl-benzothiazolesulfenamide
Synonyms: Santocure NS; Perkacit TBBS; TBBS
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.

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

Skin Contact: Causes mild skin irritation. Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching. May cause an allergic skin reaction.

Inhalation: May cause mild respiratory irritation. May irritate mouth, nose, and throat. 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 % |
|---|-----------|----------|
| N-tert-butyl-2-benzothiazolesulfenamide | 95-31-8 | > 97 |
| Vegetable Oil [Dedustant] | 8013-07-8 | 1 |
| Benzothiazole | 95-16-9 | < 0.5 |
| Mercaptobenzothiazole Disulfide | 120-78-5 | < 1 |
| 2-Mercaptobenzothiazole | 149-30-4 | < 1 |
| t-Butylamine | 75-64-9 | < 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.

MARKETED BY

**HARWICK STANDARD
DISTRIBUTION CORPORATION**

60 S. Seiberling Street • Akron, Ohio 44305

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4. FIRST AID MEASURES

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| 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

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| Flash Point (°F/C): | 330°F / 166°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 highly toxic sulfur dioxide gas. |

6. ACCIDENTAL RELEASE MEASURES

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| 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

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| 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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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| Eye Protection: | Wear safety glasses or goggles to protect against exposure. Eye protection is not required during typical product use conditions |
| 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 . t-Butylamine: OSHA PEL/8-Hr TWA: None Established. |

9. PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance: | White to off-white granules. |
| Odor: | MILD AMINE |
| pH: | Not Applicable |
| Specific Gravity: | 1.28 @ 25°C |
| Density: | 1.3 |
| Bulk Density: | 1280 kg/m ³ |
| Melting Point (°F/C): | 105-112°C |
| Boiling Point (°F/C): | Not Determined |
| Vapor Pressure: | Negligible |
| Vapor Density (Air=1): | Not Applicable |
| % Volatile by Volume: | <0.5% |
| Solubility in Water: | INSOLUBLE |
| Other Solubility: | Soluble in: Acetone Ether Ethanol |
| Viscosity: | Not Applicable |
| Other Data: | Ash content = 0.4% max |
| Molecular Weight: | 238.4 |
| Molecular Formula: | C11-H14-N2-S2 |

10. STABILITY AND REACTIVITY

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| 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

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| Acute Oral LD50 (mg/kg): | >6310 mg/kg (Rat) |
| Acute Dermal LD50 (mg/kg): | >7940 mg/kg (Rabbit) |
| Acute Inhalation LC50 (mg/l): | Not Determined |

11. TOXICOLOGICAL INFORMATION

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

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| Ingestion: | Illness may occur after a single swallowing of relatively large quantities of this material. |
| Skin Contact: | Causes mild skin irritation. Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching. May cause an allergic skin reaction. |
| Inhalation: | May cause mild respiratory irritation. May irritate mouth, nose, and throat. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing. |
| Eye Contact: | Causes 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: | Slightly irritating to skin and eyes. Possible sensitizer. 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: | Both negative and weak positive results in standard in vitro and in vivo tests using mammalian cells. |
| Reproductive/Developmental Toxicity: | No evidence of teratogenicity in animal studies using rats, mice and/or hamsters. |

12. ECOLOGICAL INFORMATION

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| Acute Fish Toxicity: | 96Hr LC50 Rainbow Trout = 1.6 mg/l. 96Hr LC50 Bluegill Sunfish = 1.2 mg/l. 96Hr LC50 Fathead Minnow = 21 mg/l. |
| Acute Crustaceans Toxicity: | 48Hr LC50 Daphnia Magna = >100 mg/l |
| Acute Algae Toxicity: | 96Hr LC50 Algae = 4.0 mg/l |
| Octanol/Water Coefficient: | Log P = 2.56 |
| Chemical Fate Information: | Bioconcentration Factor: 310 (Calculated) |
| Other Information: | Rapid degradation via hydrolysis. Tests indicate this material will not bioaccumulate or persist in the environment. |

13. DISPOSAL CONSIDERATIONS

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| 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, transportation 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

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| DOT: | Not Regulated |
| DOT Reportable Quantity (lbs): | None |
| ICAO/IATA: | See DOT |
| IMDG: | See DOT |
| Marine Pollutant: | No |

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14. TRANSPORT INFORMATION

TDG (Canada): See DOT

Remarks: None

15. REGULATORY INFORMATION

Worldwide Inventory Status

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| 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): | All components are listed. |
| China (CLECS): | All components are listed. |

US Regulatory Rules

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| SARA Section 302: | None Found |
| SARA 311/312 Hazard Categories: | Immediate |
| SARA 313 Chemical: | Component 2-Mercaptobenzothiazole. De minimis concentration = 1.0%. |
| RCRA Status: | Not a RCRA waste. |

Other Regulations:

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| California Proposition 65: | NONE |
| New Jersey Right-to-Know List: | Component 2-Mercaptobenzothiazole: New Jersey Substance ID# 3710. |
| 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. |

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| 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. |
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Canadian Regulations

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| 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

Hazard Rating Systems:

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

The following has been revised since the last issue of this MSDS: New MSDS format.

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Additional Information:

The vegetable oil used for dedusting in this product is NOT a peanut oil. 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*****