

MATERIAL SAFETY DATA SHEET

For MBTS

Product Name: MBTS

Chemical Name: Mercaptobenzothiazole Disulfide

Synonyms: Thiofide; MBTS; 2,2'-Dithiobis(benzothiazole); Benzothiazyl disulfide

1. COMPOSITION/INFORMATION ON INGREDIENTS

Components/CAS#	Percent
Mercaptobenzothiazole Disulfide 120-78-5	97-100
White Mineral Oi 8042-47-5	10-2.5

2. HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Combustible dust - explosion potential. Keep away from heat, sparks, and flame. Dust may be irritating to eyes and upper respiratory tract.

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

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

Inhalation: May cause mild respiratory irritation.

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

3. 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.

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.

4. FIRE FIGHTING MEASURES

Flash Point (°F/C): 520°F / 271°C

Flash Point Method: Cleveland Open Cup

Autoignition Temp. (°F/C): 680°F / 360°C

Lower Explosion Limit in Air (LEL): Not Determined

Upper Explosion Limit in Air (UEL): Not Determined.

Extinguishing Media: Water fog, carbon dioxide, foam, dry chemical

Special Exposure Hazards: Fight fire from a safe distance and from a protected location. Flammable dust when in finely divided and highly suspended state. Use water spray to cool fire exposed surfaces. Do not allow runoff to enter waterways.

Special Protective Equipment: Fire fighters should wear full 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

5. 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. Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Scoop up and remove. Do NOT spread spilled product with water.

CERCLA Reportable Quantity (RQ): Not Applicable.

6. HANDLING AND STORAGE

Handling: Good hygienic practices should be observed. Work clothes should be washed separately at the end of each 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.

7. EXPOSURE CONTROLS/PERSONAL PROTECTION

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/m³ (Total Dust). OSHA PEL/8-Hr TWA = 05 mg/m³ (Respirable Dust). ACGIH TLV/8-Hr TWA = 10 mg/m³. White Mineral Oil OSHA PEL/8-Hr TWA = 5mg/m³ ACGIH TLV/8-Hr TWA = 5mg/m³.

8. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off-white powder. White to off-white granules.

Odor: SLIGHT AROMATIC

pH: Not Applicable

Specific Gravity: 1.54 @ 25°C

Density: Unknown

Bulk Density: Not Determined

Melting Point (°F/C): 365°F / 180°C

Boiling Point (°F/C): 500°F / 260°C

Vapor Pressure: Negligible

Vapor Density (Air=1): Not Determined

% Volatile by Volume: <0.5%

Solubility in Water: <0.01 g/ml @20°C

Other Solubility: Slightly soluble in Ethanol Acetone

Viscosity: Not determined.

Other Data: Decomposes above boiling point

Molecular Weight: 332.38

Molecular Formula: C14-H8-N2-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.

Hazardous Polymerization: Will not occur

Conditions to Avoid: Keep away from heat, sparks and flame. Dispersion of dust. Temperatures above 250°C. Avoid contact with strong oxidants such as liquid chlorine and concentrated oxygen.

Materials to Avoid: Strong oxidizing agents. Strong acids.

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

Additional Guidelines: Not Applicable

11. TOXICOLOGICAL INFORMATION

Target Organs

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

Principle Routes of Exposure: Eyes. Inhalation. Dermal - skin.

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

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

Inhalation: May cause mild respiratory irritation.

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 ailments.

Carcinogenicity Comment: This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA. Carcinogenic: Category 3

Other: No other first aid needed. Only hazard is a dust hazard.

Primary Irritation Effect: Practically non-irritating

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

Genotoxicity: None

Reproductive/Developmental

Toxicity: No evidence of teratogenicity in animal studies using rats, mice and/or hamsters.

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity: 96Hr LC50 Rainbow Trout = 66.0 mg/l. 96Hr LC50 Bluegill Sunfish = 82.0 mg/l. 96Hr LC50 Fathead Minnow = >1000 mg/l.

Acute Crustaceans Toxicity: 48Hr LC50 Daphnia Magna = 82.0 mg/l

Acute Algae Toxicity: 96Hr EC50 Algae (cell number) = 0.7 mg/l

Octanol/Water Coefficient: 4.5 (Estimated)

Chemical Fate Information: Sunlight Photolysis: T(1/2) = 3 hours.

Other Information: Marginally susceptible to indirect photolysis.

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, 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

DOT:DOT Status: Not Regulated

DOT Shipping Name: NONE

DOT Reportable Quantity (lbs): None

ICAO/IATA:Status: NOT REGULATED FOR TRANSPORTATION

Proper Shipping Name: None

UN/NA Number: NONE

IMDG:Status: Not Regulated

Proper Shipping Name: None

TDG (Canada):Status: Not Regulated

Proper Shipping Name: None

15. REGULATORY INFORMATION

Worldwide Inventory Status

TSCA (USA): Listed

Canadian DSL: Listed

Canadian NDSL: Not Applicable. Listed on the DSL.

EINECS/ELINCS (Europe): Listed

Japanese Inventory (ENCS): Listed

Korean Chemical Inventory (ECL): Listed

Australian Chemical Inventories

(AICS):

Listed

New Zealand (NZ): Listed

Phillipines (PICCS) Inventory: Listed

China (CLECS): Listed

US Regulatory Rules

SARA Section 302: None Found

SARA 311/312 Hazard Categories: Immediate Delayed Fire

SARA 313 Chemical: Not Applicable / None

RCRA Status: Not a RCRA waste.