



Chemicals Corp.

Technical Data Sheet

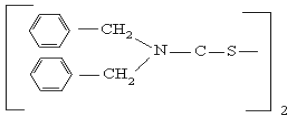
TBzTD

Tetrabenzyl thiuram Disulfide

CAS Number: 10591-85-2

Molecular weight: 544

Molecular formula: $C_{30}H_{28}S_4N_2$



PRODUCT INFORMATION

PRODUCT SPECIFICATIONS		GRANULES	OIL POWDER	POWDER
Appearance		Light yellow granules	Light yellow oil powder	Light yellow powder
Initial Melting Point	°C min	128.0	128.0	128.0
Loss on drying	% max	0.50	0.50	0.30
Ash	% max	0.50	0.50	0.30
Residue on sieve (63µm)	% max	-	1.00	1.00
Residue on sieve (150µm)	% max	-	0.10	0.10
Oil content	%	-	0.0-2.0	-
<u>Typical properties</u>				
Density	g/cm ³	1.15		
<u>Packaging</u>				
Bag		25kg (55 lbs)		
Pallet		500kg or 600kg (1102 lbs or 1323 lbs)		

FUNCTION

TBzTD is a fast curing primary and secondary accelerator in NR, SBR and NBR applications.

APPLICATIONS AND PROPERTIES

- TBzTD was developed to replace thiurams such as TMTD, where the presence of nitrosamines is of concern.
- The dibenzyl nitrosamine is not carcinogenic according to published material.
- TBzTD has longer scorch times than TMTD.
- Sometimes used as a retarder in the vulcanization of PVC rubber.
- Product is non-staining and non-discolouring.
- TBzTD is not regulated for use in food contact applications under FDA 21 CFR.

STORAGE

Material should be stored in a cool, dry, well ventilated area, away from high temperatures. Avoid exposure to direct sunlight. Product should not be stacked. Stacking of palletized material or temperatures above 35°C can cause unusual compacting of the product. The maximum recommended storage life is 1 year when stored under normal conditions.

HANDLING PRECAUTIONS

For detailed information on toxicological properties and handling precautions, please refer to the current Safety Data Sheet. This information is available by request from **SunBoss Chemicals Corp.**

[Revised: November 6, 2014 by kk]

Safety Data Sheet

TBzTD

1. IDENTIFICATION OF SUBSTANCE / COMPANY INFORMATION

Chemical Name	Tetrabenzyl thiuram Disulfide
Synonyms	TBzTD
CAS #	10591-85-2
Formula	C ₃₀ H ₂₈ S ₄ N ₂
Chemical Family	Accelerator
Supplier	SunBoss Chemicals Corp.
Address	8-110 West Beaver Creek Road Richmond Hill, ON L4B 1J9
Telephone	905-707-3433
Fax	905-707-7393

Emergency Information After normal hours call Chemtrec at 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>Weight %</u>	<u>EC No.</u>
Tetrabenzylthiuram disulfide	10591-85-2	> 97	404-310-0
White Mineral Oil (powder only)	8042-47-5	1-2	232-455-8
	<u>Symbol(s)</u>	<u>Risk Phrase(s)</u>	
	None	None	

3. HEALTH HAZARDS INFORMATION

EMERGENCY OVERVIEW

Signal Word: **WARNING!**

COMBUSTIBLE MATERIAL!

Inhalation and ingestion may cause alcohol intolerance (Antabuse Effect)

Skin, eye and respiratory tract irritant.

Potential Health Effects

Inhalation

Exposure to dust particles generated from this material may cause irritation of the respiratory tract. Inhalation may cause alcohol intolerance.

Ingestion

May cause alcohol intolerance (Antabuse Effect) May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation.

Skin contact	May be absorbed through the skin and contribute to the symptoms listed under ingestion. My cause skin defatting with prolonged exposure.
Eye Contact	Causes mild eye irritation. Signs / symptoms can include redness, swelling, pain and tearing.

4. EMERGENCY FIRST AID PROCEDURES

Inhalation	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.
Ingestion	Seek immediate medical advice. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.
Skin	Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.
Eyes	Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Note to Physician	Treat symptomatically. Exposure by ingestion, inhalation or skin absorption may cause alcohol intolerance (Antabuse Effect)

5. FIRE AND EXPLOSION HAZARD MEASURES

Flammability	Not determined
Flash Point	Not determined
Flash Point Method	Not determined
DOT Category	Not regulated
Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical
Auto Ignition Temperature	440°C
Flammable Limits	Not determined
Special Fire Fighting Procedures	Fight fire from a safe distance and from a protected location. 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	Full protective clothing and approved self-contained breathing apparatus required for fire-fighting personnel.
Unusual Fire and Explosion Hazards	Combustible. Minimum Ignition Energy (MIE) = <3 mJ. Kst - 129 bar.m/s. Toxic emissions may result if product is involved in a fire.

6. ACCIDENTAL RELEASE MEASURES

Procedures	Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.
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Clean up Methods

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 solids. Do NOT spread spilled product with water.

7. HANDLING AND STORAGE

Handling

Avoid contact with eyes, skin and clothing. Avoid generating or breathing dust. Wash thoroughly with soap and water after handling. Wash hands before eating, drinking, and chewing gum, using tobacco or using the toilet. Reclose containers of unused product. Keep containers tightly closed when not in use. 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Avoid dust generation. Ensure good ventilation and local exhaustion of the working area. Combustible material, keep away from ignition sources. Discharge from the ventilation system should comply with the applicable air pollution control regulations.

Exposure Limit

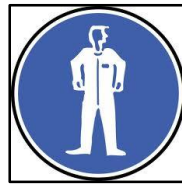
Tetrabenzyl thiuram Disulfide
Mineral Oil

ACGIH (TLV)

None reported
5mg/m³

OSHA (PEL)

None reported
5mg/m³



Respiratory

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Use in a well-ventilated area.

Eyes

Wear safety glasses or goggles to protect against exposure. Wear eye protection appropriate to handling activities.

Skin

Normal work coveralls. Launder contaminated clothing before reuse.

Gloves

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Light yellow powder or granules

Odour

Slight

Specific Gravity

1.40 @20°C

Density

1.15 g/cm³

Bulk Density

230-270 kg/m³ (powder) 235-365 kg/m³ (oiled)

Solubility in water	INSOLUBLE - 0.001-0.01 mg/l @ 20.5°C
pH	Not applicable
Other Solubility	Soluble in benzene, Carbon Disulfide, Organic liquids, including fats and oils.
Boiling point	147-149°C
Melting Point	128°C min
Molecular Weight	544.8
Molecular Formula	C ₃₀ H ₂₈ S ₄ N ₂

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.
Conditions to avoid	Avoid contact with heat, sparks, open flame, and static discharge.
Incompatibility	Contact with oxidizing agents.
Hazardous Polymerization	Will not occur
Hazardous Decomposition Products	Carbon monoxide, Oxides of nitrogen and sulphur.
Additional Guidelines	Not applicable

11. TOXICOLOGICAL INFORMATION

Acute oral LD 50 (mg/kg)	>5000 mg/kg (Rat).
Acute Dermal LD 50 (mg/kg)	Not determined
Acute Inhalation LC50 (mg/l)	>5.03 mg/l (No Mortalities in 4 hours).
Principle routes of Exposure	Eyes. Inhalation. Dermal - skin.
Ingestion	May cause alcohol intolerance (Antabuse Effect) May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation.
Skin contact	May be absorbed through the skin and contribute to the symptoms listed under ingestion. My cause skin defatting with prolonged exposure.
Inhalation	Exposure to dust particles generated from this material may cause irritation of the respiratory tract. Inhalation may cause alcohol intolerance.
Eye Contact	Causes mild eye irritation. Signs / symptoms can include redness, swelling, pain and tearing.
Aggravated Conditions	Alcohol consumption problems. Pulmonary disorders.

Carcinogenicity	This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected by NTP, IARC, or OSHA. Carcinogenic: Category 3 NOTE: May react with nitrosating agents during rubber vulcanization to form nitrosamines. Some nitrosamines are suspect human carcinogens.
Primary Irritation Effect	Practically non-irritating to skin. Lightly irritating to eyes. Not sensitizing in animal studies.
Genotoxicity	Negative for genetic activity - in vitro tests. Borderline (equivocal) results have been obtained in a mouse micronucleus in vivo study.
Reproductive/Developmental Toxicity	Not determined

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity	96 Hr LC50 Guppy = >32 mg/l.
Acute Crustacean Toxicity	48Hr EC50 Daphnia Magna = 10 mg/l.
Octonal/Water Coefficient	3.4 and 3.7 log P
Chemical Fate Information	Ready Biodegradability (modified Strum) = Slight to nil.
Other Information	LC 50 (earthworms) > 1000 mg/kg of dry soil. Similar compounds show a low potential for bioaccumulation and environmental persistence.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	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

<u>DOT</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG</u>	Not regulated
<u>TDG (Canada)</u>	Not regulated

15. REGULATORY INFORMATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO THE EEC DANGEROUS SUBSTANCE DIRECTIVE AND THE DANGEROUS PREPARATION DIRECTIVE.

Risk Phrase(s)	None
Safety Phrase(s)	None

FDA Status 21 CFR	Not regulated for use in food contact applications under FDA 21 CFR.
TSCA	Listed
Canadian DSL	Listed
EINECS/ELINCS	Listed

US Regulations

SARA Section 302	Not applicable
SARA 311/312 Hazard Categories	Immediate
SARA 313 Chemical	Not applicable
RCRA Status	Not a RCRA waste

Canadian Regulations

WHMIS Hazard Class	Non-controlled
NPRI	Not Listed

16. HAZARD RATING SYSTEM

NFPA Rating (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	1
FIRE	1
REACTIVITY	0

HMIS Classification (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	1
FIRE	1
REACTIVITY	0

17. OTHER INFORMATION

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

Abbreviations and Acronyms

- ACGIH: American Conference of Governmental Industrial Hygienists Inc.
- CAS: Chemical Abstracts Service (Division of American Chemical Society)
- DOT: Department of Transportation (USA)
- EINECS: European Inventory of Existing Commercial Chemical Substances
- HMIS: Hazardous Materials Identification System (USA)
- IARC: Internal Agency for Research on Cancer

IATA: International Air Transport Association
IMDG: International Marine Code for Dangerous Goods
LD50: Lethal Dose Medium
LC50: Lethal Concentration Medium
EC50: Effective Concentration Medium
NIOSH: National Institute for Occupational Safety and Health
NFPA: National Fire Protection Association (USA)
NPRI: National Pollutant Release Inventory (Canada)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration (USA)
PEL: Permissible Exposure Limits
TDG: Transportation of Dangerous Goods (Canada)
TLV: Threshold Limit Value
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

17. REVISION DATE

Revision number: 5

Date of Issue: September 9, 2014

Changes: Number and format of headings changed; Updates to Sections 1: Identification of Substance - EC information added; 2: Health Hazards Information; 8: Specific Personal Protection Equipment - pictograms added; 14: Transport information - pictograms added; 15: Regulatory information - EC information added; 16: Hazard Rating System - table added; 17: Abbreviations and Acronyms added