


SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME	DISULFIRAM, USP
PRODUCT CODE	1971
SUPPLIER	MEDISCA Inc. Tel.: 1.800.932.1039 Fax.: 1.855.850.5855 626 Tom Miller Road, Plattsburgh, NY, 12901 MEDISCA Pharmaceutique Inc. Tel.: 1.800.665.6334 Fax.: 514.338.1693 4509 Rue Dobrin, St. Laurent, QC, H4R 2L8 MEDISCA Australia PTY LTD Tel.: 1.300.786.392 Fax.: 61.2.9700.9047 Unit 7, Heritage Business Park 5-9 Ricketty Street, Mascot, NSW 2020
EMERGENCY PHONE	CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 NSW Poisons Information Centre: 131 126 National Chemical Emergency Centre 44(0)1235239670
RECOMMENDED USES	Pharmaceutical Manufacturing
RESTRICTIONS ON USE	Not applicable

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION	Acute Toxicity - Oral (Category 4) Acute Aquatic Toxicity (Category 1) Eye Irritation (Category 2A) Sensitization - Skin (Category 1) Specific Target Organ Toxicity - Repeated Exposure (Category 2) - (central nervous system, liver)
PICTOGRAM	
SIGNAL WORD	Warning
HAZARD STATEMENT(S)	Harmful if swallowed. Very toxic to aquatic life. Causes serious eye irritation. May cause an allergic skin reaction. May cause damage to organs through prolonged or repeated exposure (central nervous system, liver).
ADVERSE PHYSIOCHEMICAL, HUMAN HEALTH AND ENVIRONMENTAL EFFECTS	Not Applicable

PRECAUTIONARY STATEMENT(S)
Prevention

Wash hands thoroughly after handling. Do not touch eyes.
 Avoid breathing dust, fume, gas, mist, vapors, and spray.
 Contaminated work clothing should not be allowed out of the workplace.
 Do not breathe dust/fume/gas/mist/vapors/spray.
 Wear eye and face protection and protective gloves.
 In case of inadequate ventilation wear respiratory protection.
 Avoid release to the environment.

Response

IF SWALLOWED: Immediately call a poison center or medical professional; Rinse mouth.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical help.
 IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical help advice/attention. Take off contaminated clothing and wash it before reuse.
 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms call a poison center or medical professional.
 IF EXPOSED: Call a poison center or doctor
 COLLECT SPILLAGE.
 Get medical help if you feel unwell.

Storage

Store locked up.

Disposal

Dispose of contents and/or container in accordance with local regulations.

HMS CLASSIFICATION
Health Hazard

1

Flammability

1

Reactivity

0

Personal Protection

E

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
CHEMICAL NAME

Bis(diethylthiocarbamoyl) disulfide

BOTANICAL NAME

Not applicable

SYNONYM

Tetraethylthiuram disulfide; Bis(diethylthiocarbamoyl)disulfide

CHEMICAL FORMULA

C₁₀H₂₀N₂S₄

CHEMICAL FAMILY

Carbamate derivative

CAS NUMBER

97-77-8

ALTERNATE CAS NUMBER

Not applicable

MOLECULAR WEIGHT

296.546

COMPOSITION

CHEMICAL NAME	CAS NUMBER	EC NUMBER	% BY WEIGHT
DISULFIRAM	97-77-8	202-607-8	100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as health hazards and hence require reporting in this section.

SECTION 4: FIRST-AID MEASURES
IN CASE OF EYE CONTACT

Flush with copious amounts of water for 15 minutes, separating eyelids with fingers. If irritation persists seek medical aid.

IN CASE OF SKIN CONTACT

Wash with soap & water for 15 minutes. If irritation persists seek medical aid.

IF SWALLOWED

Call a physician. Wash out mouth with water. Do not induce vomiting without medical advice.

IF INHALED	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician
MEDICAL ATTENTION AND SPECIAL TREATMENT	Get emergency medical help.
SYMPTOMS CAUSED BY EXPOSURE	Not expected to present a significant hazard under anticipated conditions of normal use.

SECTION 5: FIREFIGHTING MEASURES

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL	Moderate dust deflagration hazard. Sensitive to ignition by electrostatic discharge.
FLAMMABLE PROPERTIES	May be combustible at high temperature
HAZARDOUS COMBUSTION PRODUCTS	Under fire conditions, hazardous fumes will be present.
SUITABLE & UNSUITABLE EXTINGUISHING MEDIA	Small fire: dry chemical, CO ₂ or water spray. Large fire: dry chemical, CO ₂ , alcohol resistant foam or water spray. Do not get water inside containers.
PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
NOTES	Dust explosion properties Kst: 150 bar.m/s St class: 1 Minimum explosible concentration (MEC): 20 g/m ³

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
METHODS & MATERIAL FOR CONTAINMENT	On land, sweep or shovel into suitable containers. Minimize generation of dust.
CLEANUP PROCEDURE	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Shut off all sources of ignition. Evacuate the area. If necessary, employ water fog to disperse the vapors. Absorb the matter with compatible vermiculite or other absorbing material. Place in a suitable container and retain for disposal. Ventilate and clean the affected area. Do not flush into sewerage system or to drains.
REFERENCE TO OTHER SECTIONS	See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	Do not inhale. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Wash thoroughly after handling. Store away from incompatible materials, in a well-ventilated area. Eliminate all sources of ignition. Store in accordance with local regulations. Do not store in unlabeled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination.
-------------------------------	---

CONDITIONS FOR SAFE STORAGE

Store away from incompatible materials, in a well-ventilated area. Eliminate all sources of ignition. Store in accordance with local regulations. Do not store in unlabeled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination.

STORAGE CONDITIONS

Store in original container, tightly sealed, protected from direct sunlight and moisture.

Short term excursions, temperature excursions as experienced during shipping and warehousing, up to 40°C are acceptable.

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

Chemical Name: DISULFIRAM CAS #: 97-77-8

	Country	Limit value-8 hours		Limit value-Short Term		IDLH	REL	Advisory	Notes
		ppm	mg/m ³	ppm	mg/m ³				
OSHA	USA	N/L	N/L	N/L	N/L	N/L	N/L	N/A	N/A
ACGIH	USA	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
NIOSH	USA	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
WEEL	USA	N/L	N/L	N/L	N/L	N/L	N/L	N/A	N/A
HSIS	Australia	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
HSE	UK	N/L	N/L	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Austria	N/L	2	N/L	20	N/L	N/L	N/A	inhalable aerosol
GESTIS	Belgium	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Canada - Ontario	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Canada - Québec	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Denmark	N/L	2	N/L	4	N/L	N/L	N/A	N/A
GESTIS	Finland	N/L	2	N/L	6 (1)	N/L	N/L	N/A	(1) 15 minutes average value
GESTIS	France	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Germany (AGS)	N/L	2	N/L	16	N/L	N/L	N/A	inhalable aerosol; 15 minutes average value
GESTIS	Germany (DFG)	N/L	2 (1)	N/L	16 (1)(2)	N/L	N/L	N/A	(1) Inhalable fraction (2) 15 minutes average value
GESTIS	Ireland	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	New Zealand	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	China	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Singapore	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	South Korea	N/L	2	N/L	N/L	N/L	N/L	N/A	N/A
GESTIS	Spain	N/L	2	N/L	N/L	N/L	N/L	N/A	sen
GESTIS	Sweden	N/L	1	N/L	2 (1)	N/L	N/L	N/A	(1) 15 minutes average value
GESTIS	Switzerland	N/L	2	N/L	N/L	N/L	N/L	N/A	inhalable aerosol

N/L = Not listed ; N/A = Not Available

PELs are 8-hour TWAs = Limit value - Eight hours

Ceiling or Short-Term TWA = STEL = Limit value - Short term

EXPOSURE GUIDELINES

Consult local authorities for provincial or state exposure limits. Particulates not otherwise regulated, respirable fraction: 5 mg/m³

PERSONAL PROTECTIVE EQUIPMENT

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by WHMIS or OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. **Skin:** Wear appropriate gloves to prevent skin exposure. **Clothing:** Wear appropriate protective clothing to minimize contact with skin. **Respirators:** Follow WHMIS or OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. **Thermal Hazards:** For products representing a thermal hazard, appropriate Personal Protective Equipment should be used.

SPECIFIC ENGINEERING CONTROLS

Adequate mechanical ventilation. Fumehood, eye wash station, and safety shower.

BIOLOGICAL MONITORING

Not available

CONTROL BANDING

Not available

NOTES

Precautions should be taken to avoid concurrent exposure to ethylene dibromide.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE

Solid

DESCRIPTION

White to off-white crystalline powder, may have a characteristic odor.

SOLUBILITY

Soluble in acetone, in alcohol, in carbon disulfide, and in chloroform; very slightly soluble in water.

ODOR

Characteristic odor

FLAMMABILITY

May be combustible at high temperature

AUTO-IGNITION TEMPERATURE

(240 - 280)°C,
(464-536)°F

BOILING POINT

117°C, 242.6°F

DECOMPOSITION TEMPERATURE

Not available

EVAPORATION RATE

Not available

EXPLOSIVE LIMIT

Not available

FLASH POINT

>120°C, >248°F
(closed cup)

log P (OCTANOL-WATER)

3.88

LOWER FLAMMABLE/EXPLOSIVE LIMIT(S)

Not available

MELTING/FREEZING POINT

(69-72)°C,
(156.2-161.6)°F

PARTICLE CHARACTERISTICS

Not available

OXIDIZING PROPERTY

Not available

pH

Not available

RELATIVE DENSITY (WATER = 1)

1.3

SPECIFIC GRAVITY

1.3

UPPER FLAMMABLE/EXPLOSIVE LIMIT(S)

Not available

VAPOR DENSITY (AIR = 1)

Not available

VAPOR PRESSURE

0.0000009 kPa
(25°C)

VISCOSITY

Not available

The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY	Not established
CHEMICAL STABILITY	Stable under recommended storage conditions
INCOMPATIBLE MATERIALS	Strong acids. Strong oxidizers. Nitrosating agents.
HAZARDOUS DECOMPOSITION PRODUCTS	Toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides and other gases may occur
HAZARDOUS POLYMERIZATION	Will not occur
POSSIBILITY OF HAZARDOUS REACTION	Not established
CONDITIONS TO AVOID	Moisture, sunlight and extreme temperatures

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY	Oral: Rat: LD50: (mg/kg): 500 - 8600 Dermal: Rabbit LD50: (mg/kg): >5000 Inhalation: Rat: LC50: (mg/L/4hr): Not available
SKIN CORROSION/IRRITATION	Based on available data, the classification criteria are not met. Irritancy; Species: Rabbit; Organ: Skin; Result: Not irritating; Test Duration: 4hrs; Observation Period: 48hrs Irritancy; Species: Rabbit; Organ: Skin; Severity: Slight
SERIOUS EYE DAMAGE/EYE IRRITATION	Causes serious eye irritation. Irritancy; Species: Rabbit; Organ: Eye; Severity: Moderate Irritancy, Species: Rabbit with and without rinsing; Organ: Eye; Saturated aqueous solution pH 5.1; Recovery Period: 2 days; Severity: Slight Standard Draize; Species: Rabbit; Organ: Eye; Severity: Mild
RESPIRATORY SENSITIZATION	Due to lack of data the classification is not possible.
SKIN SENSITIZATION	May cause an allergic skin reaction.
GERM CELL MUTAGENICITY	Due to lack of data the classification is not possible.
CARCINOGENICITY	OSHA DISULFIRAM is not listed. NTP DISULFIRAM is not listed. IARC DISULFIRAM is listed in group 3 (not classifiable as to its carcinogenicity to humans). California Proposition This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.
ADDITIONAL CARCINOGENICITY INFORMATION	Based on available data, the classification criteria are not met.
REPRODUCTIVE TOXICITY	Based on available data, the classification criteria are not met.
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	Due to lack of data the classification is not possible.
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	May cause damage to organs (central nervous system, liver) through prolonged or repeated exposure.
ASPIRATION HAZARDS	Based on available data, the classification criteria are not met.

**SIGNS AND SYMPTOMS OF
EXPOSURE**
ROUTES OF EXPOSURE:

Oral, Dermal, Inhalation, Eye contact

EARLY ONSET SYMPTOMS RELATED TO EXPOSURE:

Not available

DELAYED HEALTH EFFECT FROM EXPOSURE:

Low blood pressure. Peripheral neuropathy. Optic neuritis. Psychosis. Seizures. Hepatotoxicity. Hepatitis. Liver failure. Death.

Symptoms related to the physical, chemical, and toxicological characteristics:

Alcohol intolerance. Nausea. Diarrhea. Garlic-like taste or odor on breath and skin. Bitter or metallic taste. Headache. Restlessness. Confusion. Delirium. Dizziness. Tremor. Fatigue. Numbness, pain, tingling, or weakness in hands or feet. Dark urine. Impotence. Rash. Vision loss.

Cross sensitivity:

Persons sensitive to other thiuram derivatives (used in rubber, pesticides, and fungicides) may be sensitive to this material also. Persons currently or recently exposed to metronidazole, paraldehyde, vapors of ethylene dibromide, alcohol, or alcohol-containing preparations (e.g., cough syrups and the like) may experience a toxic interaction.

Medical conditions aggravated by exposure:

Exposure to alcohol or other organic solvents. Active alcoholism. Liver impairment. Kidney impairment. High blood pressure. Epilepsy. Hypothyroidism. Diabetes. Cardiovascular disease. Psychosis.

POTENTIAL HEALTH EFFECTS
Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion

Harmful if swallowed.

Skin

May be harmful if absorbed through skin. May cause skin irritation. May cause an allergic skin reaction.

Eyes

Causes serious eye irritation.

SECTION 12: ECOLOGICAL INFORMATION
ECOTOXICITY

EC50: 48 Hr: Crustacea: Daphnia magna (mg/L): 0.1 - 0.14

LC50: 96 Hr: Fish: Poecilia reticulata (mg/L): 0.24 - 0.43

EC50: 96 Hr: Algae: (mg/L): 1.8

**PERSISTENCE AND
DEGRADABILITY**

Not available

BIOACCUMULATIVE POTENTIAL

Log Pow: 3.88

MOBILITY IN SOIL

Very slightly soluble in water.

Water Solubility: 4.09mg/L (25°C)

Vapor Pressure: 8.70E-04mm Hg (25°C)

Henry's Law Constant: 8.32E-05atm-m³/mole (25°C)

OTHER ADVERSE EFFECTS

Not available

This product is not intended to be released into the environment

SECTION 13: DISPOSAL CONSIDERATIONS
DISPOSAL METHODS

Dispose of in accordance with federal / local laws and regulations. Avoid release into the environment.

SECTION 14: TRANSPORT INFORMATION

UN PROPER SHIPPING NAME	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
UN NUMBER	3077
CLASS	9
PACKING GROUP	III
AUSTRALIA	
HAZCHEM	2Z
EU	
TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE	Not listed
ENVIRONMENTAL HAZARDS	Not available
SPECIAL SHIPPING INFORMATION	Not applicable

SECTION 15: REGULATORY INFORMATION
UNITED STATES REGULATIONS

Chemical Name & CAS	CERCLA 40 CFR Part 302.4	SARA (Title III) 40 CFR	EPA 40 CFR Part 355		Pennsylvania	Right-to-know			California Prop 65
			Appendix A	Appendix B		New Jersey	Massachusetts		
DISULFIRAM, 97-77-8	N/L	N/L	N/L	N/L	X	X	X	N/L	

N/L = Not Listed; X = Listed

AUSTRALIAN REGULATIONS

Chemical Name & CAS	Poisons and Therapeutic Goods	Therapeutic Goods Act	Code of Practices - Illicit Drug	Poisons Standard	Work Health and Safety Regulations	Inventory of Industrial Chemicals
DISULFIRAM, 97-77-8	N/L	Listed as Schedule 4	N/L	Listed	N/L	N/L

N/L = Not Listed

EU REGULATIONS

Chemical Name & CAS	REACH ANNEX XVII	REACH ANNEX XIV	EC 1005/2009	EC 850/2004	EC 1107/2009	PIC - Prior Informed Consent Regulation	EC 2012/18
DISULFIRAM, 97-77-8	N/L	N/L	N/L	N/L	N/L	N/L	N/L

N/L = Not Listed; X = Listed

Any EU regulation not listed above is not applicable to this product.

SUBJECT TO INTERNATIONAL AGREEMENT Not applicable

SECTION 16: OTHER INFORMATION

REFERENCES

Available upon request

ABBREVIATIONS AND ACRONYMS

ACGIH - American Conference of Governmental Industrial Hygienists; **AIHA WEEL** – American Industrial Hygiene Association Workplace Environment Exposure Levels; **CAESAR** – Computer Assisted Evaluation of industrial chemical Abstract Substances According to Regulations; **CAS** – Chemical Abstract Service; **CERCLA** – Comprehensive Environmental Response, Compensation, and Liability Act; **EC50** – Effective Concentration, 50%; **EPA** – Environmental Protection Agency; **GHS** – Global Harmonized System; **HMIS** – Hazardous Materials Information System; **HSE** – Health and Safety Executive; **HSIS** – Hazardous Substances Information System; **IARC** – International Agency for Research on Cancer; **IDLH** - Immediately Dangerous to Life or Health; **IRFMN** – Ready Biodegradability Model; **ISS** – Istituto Superiore Sanità; **LC50** – Lethal Concentration, 50%; **LD50** – Lethal Dose, 50%; **MSHA** - Mine Safety and Health Administration; **NIOSH** – National Institute for Occupational Safety and Health; **NTP** – National Toxicology Program; **OSHA PEL** – Occupational Safety & Health Administration Permissible Exposure Limits; **QSAR** – Quantitative Structure-activity relationship; **REL** - Recommended Exposure Limit; **SARA** – Superfund Amendments and Reauthorization Act; **STEL** – Short Term Exposure Limit; **TLV** – Threshold Limit Value; **TWA** – Time Weighted Average; **WHMIS** – Workplace Hazardous Materials Information System

LAST REVISION

02/2023

SUPERSEDES

05/2021

For a list of changes to the SDS since the last version, please communicate with MEDISCA at www.medisca.com

DISCLAIMER

This document was created in accordance with OSHA, Safe Work Australia and WHMIS regulations. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. MEDISCA® shall not be held liable for any damage resulting from handling or from contact with the above product. Recipients of the product must take responsibility for observing existing laws and regulations.

SUPPLEMENTARY INFORMATION

For all country specific requirements not outlined on this Safety Data Sheet, please request Supplementary Page to this Safety Data Sheet.