



MATERIAL SAFETY DATA SHEET

N-948 Biocide (Technical Grade)

DATE: 04/19/2007

CAS NO: 6317-18-6

SUPERSEDES: 08/18/2006

For Formulating Bactericides, Fungicides, Algacides Only

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: N-948 Biocide (Technical Grade)
SYNONYMS: Methylene bis thiocyanate
MOLECULAR FORMULA: C₃S₂N₂
MOLECULAR WEIGHT: 128

VERICHEM, 3499 Grand Avenue, Pittsburgh, PA 15225 (412-331-7299, 8:30 am to 5:00 pm)

EMERGENCY PHONE: For any emergency involving spill, leak, fire, exposure, or accident call CHEMTREC:
1-800-424-9300. Outside the USA and Canada call: 703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

REGULATED COMPONENTS

COMPONENT	CAS NUMBER	PERCENT	WORKER EXPOSURE	REFERENCE
Methylene bis thiocyanate	6317-18-6	98	N/A	

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: Corrosive. Causes eye and skin damage. This product is a potential skin sensitizer. Do not get in eyes, on skin, or on clothing. Wear goggles and face shield and chemical resistant gloves when handling. Fatal if swallowed. Wash thoroughly with soap and water after handling, and before eating, drinking and using tobacco.

APPEARANCE AND ODOR: Yellow to light orange in color, solid with pungent odor.

EFFECTS OF OVEREXPOSURE:

EYE EXPOSURE: Corrosive. Effects may range from moderate to severe (corrosive) depending on the length of exposure, solution concentration, and first aid measures. **SKIN EXPOSURE:** Corrosive. Effects may range from moderate to severe (corrosive) depending on the length of exposure, solution concentration, and first aid measures. **INHALATION:** Extremely toxic if inhaled. Causes coughing, shortness of breath, chest pain, significant respiratory tract irritation. **INGESTION:** No data is available on human ingestion. May be harmful.

4. FIRST AID MEASURES (IN CASE OF CONTACT)

CALL A POISON CENTER OR A PHYSICIAN IMMEDIATELY

If a known exposure is suspected, do not wait for symptoms to develop. Immediately start the recommended procedures below and simultaneously contact a Poison Center, a physician, or the nearest hospital. Inform the person contacted of the type and extent of exposure, describe the victim's symptoms, and follow the advice given.

EYE: Immediately flush the eyes with large amounts of running water for a minimum of five minutes. Hold eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used at this time. Continue the flushing for an additional 15 minutes if a physician is not immediately available.

SKIN: Immediately remove all contaminated clothing and shoes. Under a safety shower, flush all affected areas thoroughly with large amounts of running water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention immediately. Wash clothing before re-use.

ORAL: If swallowed, immediately give several glasses of water but do not induce vomiting. This material is corrosive. If vomiting does occur, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Do not give anything by mouth to an unconscious or convulsing person.

INHALATION: If inhaled, remove to fresh air. If not breathing. Clear victim's airway and start mouth to mouth artificial respiration, which may be supplemented by the use of a bag-mask respirator or manually triggered oxygen supply capable of delivering one liter per second or more. If victim is breathing, supplemental oxygen may be given from a demand-type or continuous-flow inhaler, preferable with a physician's advice. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	N/A
FLAMMABLE LIMITS (% BY VOLUME):	N/A
AUTOIGNITION TEMPERATURE:	N/A
DECOMPOSITION TEMPERATURE:	N/A
<u>EXTINGUISHING MEDIA AND FIRE FIGHTING INSTRUCTION</u>	

This product is considered to be combustible. The product will support combustion and decompose under fire conditions to give off toxic materials such as sulfur dioxide and nitrous oxide. A thermal explosion may occur in a closed container. The product is not sensitive to static discharge. Vapors and products of combustion are irritating to the respiratory tract and may cause breathing difficulty and pulmonary edema. Symptoms may be delayed several hours or longer depending upon the extent of exposure. As in any fire, prevent human exposure to fire, smoke, fumes, or products of combustion. Evacuate nonessential personnel from the fire area.

Firefighters should wear full-face, self-contained breathing apparatus and imperious protective clothing. Use standard fire-fighting techniques to extinguish fires involving this material. Use water spray, dry chemicals or carbon dioxide. If not leaking, keep fire-exposed containers cool with a water spray to prevent rupture due to excessive heat. High-pressure water hose may spread product from broken containers increasing contamination or fire hazard. Contaminated buildings, areas, and equipment must not be used until they are properly decontaminated. If fire cannot be controlled and containers are heated, EVACUATE THE AREA!

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices.

Any person entering either an area of a significant spill or of an unknown concentration of gas, vapor or dust should use a NIOSH-approved, Positive-pressure, self-contained breathing apparatus or a NIOSH-approved, positive-pressure, air-supplied respirator with escape pack.

Small spills can be handled routinely. Use adequate ventilation and/or wear a NIOSH-approved dust, mist and fume respirator to prevent inhalation exposure. Wear protective clothing to prevent skin and eye contact. Use the following procedure:

Sweep up spilled material being careful not to create dust. Place sweepings in a chemical waste containers for disposal. Generously cover contaminated area with a slurry of common, powdered household laundry detergent and water. Using a stiff brush, work the slurry into cracks and crevices. Allow to stand for 2-3 minutes then flush with water. Repeat if necessary.

Large spills should be handled according to a predetermined plan.

7. HANDLING AND STORAGE

Containers should be stored in a cool, dry, well-ventilated area away from flammable materials and sources of heat or flames. Store away from foodstuffs or animal feed. Exercise due caution to prevent damage to or leakage from the container. Avoid prolonged storage at temperatures above 158°F (70°C). Do not store near strong oxidizing agents or alkalis.

Containers should not be opened until ready for use. It is recommended that the product not be used after 12 months from the date of manufacturing.

8. PERSONAL PROTECTION

EYE PROTECTION REQUIREMENTS: Goggles or Safety Glasses and Full Face Shield

SKIN PROTECTION REQUIREMENTS: Protective clothing such as chemical resistant gloves, tyvek suit with elastic hood-wrist-ankle and full face respirator (NIOSH or ANSI Z87 or 29 CFR 1910.134 equivalent approved equipment)

VENTILATION REQUIREMENTS: Local exhaust ventilation.

RESPIRATOR REQUIREMENTS: Full face respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR:	Yellow to yellow white powder
BOILING POINT:	N/A
MELTING POINT:	104 - 106°C
VAPOR PRESSURE:	N/A
SPECIFIC GRAVITY:	0.6 g/ml
VAPOR DENSITY:	N/A
PERCENT VOLATILE (BY WEIGHT):	N/A
pH (1% w/w solution):	4.6
SATURATION IN AIR (PERCENT BY VOLUME):	N/A
EVAPORATION RATE:	N/A
SOLUBILITY IN WATER:	0.2% in water @ 25°C/77°F

10. STABILITY AND REACTIVITY

STABILITY (CONDITIONS TO AVOID): At temperature above the melting point N-948 is very unstable. At 212°F (100°C) the half-life is three months, whereas at 302°F (150°C) IT IS ABOUT 35 MINUTES. The heat of decomposition (-209 cal/gram) is more than sufficient for thermal runaway. At 338-374°F (170-190°C) decomposition would be almost instantaneous, toxic and odiferous gases such as carbon disulfide, methyl mercaptan and carbonyl sulfide.

POLYMERIZATION (CONDITIONS TO AVOID): Will not occur

INCOMPATIBLE MATERIALS: Strong bases, strong acids, strong oxidizing agents

11. TOXICOLOGICAL INFORMATION

EYE: Corrosive to rabbit eyes. Moderate corneal opacity and marked irritation persisted throughout the seven days of observation.

SKIN CONTACT: The acute dermal LD₅₀ is greater than 20,000 mg/kg in rabbits. A single dermal application of 9,000 mg/kg did not produce signs of toxicity in rabbits.

Moderate to severe irritant to rabbit skin following a 24-hour exposure.

Does produce dermal sensitization when tested on guinea pigs. Delayed contact hypersensitivity was observed in guinea pigs two weeks after the initial exposure period.

INHALATION: A single one hour inhalation exposure to a nominal concentration of 2.6 mg/l produced dyspnea, gasping, irritation of the eyes and upper respiratory tract, salivation and 20 percent mortality in rats. A single one-hour inhalation exposure to a nominal concentration of 1.6 mg/l produced 10 percent mortality in rats.

ACUTE EFFECTS:

- Acute Oral LD₅₀: 69.0 mg/kg
- Acute Dermal LD₅₀: >2,000 mg/kg
- Irritation effects: Corrosive to skin and eyes
- Sensitization effects: Potential Sensitizer
- Carcinogenic potential: Not listed in any of OSHA Standards, Section 1910.1200 sources as carcinogenic; not tested.
- Target Organ effects: Skin and eyes (irritation) are expected to be the primary target organs of this product.
- Other health effects: None known.

12. ECOLOGICAL INFORMATION

FISH AND WILDLIFE

AQUATIC: This product is toxic to fish. Do not contaminate water sources by cleaning equipment or disposing of water.

Acute Aquatic LC₅₀:

- 48 hr. Daphnia Magna: 0.061 mg/l
- 96 Hr. Bluegill Sunfish: 0.25 mg/l
- 96 Hr. Rainbow Trout: 0.089 mg/l

AVIAN LIFE:

Acute Oral LD₅₀

- Mallard Ducks: 56.0 mg/kg
- Bobwhite quail: 57.0 mg/kg

Dietary LC₅₀

- Mallard duck: 5,000 ppm
- Bobwhite quail: 2,230 ppm

13. DISPOSAL CONSIDERATION

DISPOSAL METHOD: Material that cannot be used or chemically reprocessed should be disposed of at an approved facility in accordance with any applicable regulations. NOTE: State and local regulations may be more stringent than federal.

ENVIRONMENTAL DATA: This product is toxic to fish. Do not contaminate water sources by cleaning equipment or disposing of water.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

	DOT Shipping Information	IMO Shipping Information	ICAO/IATA	TRANSPORT CANADA
Shipping Name	Toxic solids, organic, n.o.s. (methylene bis thiocyanate)		Toxic solids, organic, n.o.s. (methylene bis thiocyanate)	
Hazard Class	6.1		6.1	
Packing Group	III		III	
Subsidiary Class	_____		_____	
UN/ID Number	2811		2811	
Transport Label Required	Poison		Toxic	
Packing Instructions Passenger Cargo			619 619	
Max. Net Quantity Passenger Cargo			100 kg 200 kg	
D.O.T. Hazardous Substances				
IMDG Page				

15. REGULATORY INFORMATION

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State, and Local regulations may also be applicable.

SARA: (Superfund Amendments and Reauthorization Act):

SARA 302 Extremely Hazardous Substances List: No components of this product are listed:

SARA 312 Hazard Category: Immediate (ACUTE) Health Hazard.

SARA 313 Toxic Chemicals List: No Section 313 listed substances are present above minimum levels.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): No components of this product are listed.

RCRA (Resource Conservation and Recovery Act) Listed Hazardous Wastes: No components of this product are listed.

CWA (Clean Water Act) Listed Substances: No components of this product are listed.

TSCA (Toxic Substances Control Act) Applicability: Registered pesticides are exempt from the requirements of TSCA. All components may not be listed on TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act): This product is a registered pesticide.

EPA Reg. No. 67869-17.

16. OTHER INFORMATION

NFPA HAZARD RATING (NATIONAL FIRE PROTECTION ASSOCIATION)

FIRE: 1
HEALTH: 3
REACTIVITY: 1

THE INFORMATION ON THIS DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION, AND INVESTIGATION, AND REPRESENTS OUR CURRENT DATA AND BEST OPINION AS TO THE PROPER USE OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THE PRODUCT WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET OR WHICH INVOLVES USING THE PRODUCT IN COMBINATION WITH ANY OTHER PRODUCT OR ANY OTHER PROCESS IS THE RESPONSIBILITY OF THE USER. THIS INFORMATION IS PROVIDED WITHOUT WARRANTIES, EITHER EXPRESSED, OR IMPLIED, AND WE ASSUME NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.