

1. Product and Company Identification

Material name	VAPAM® HL
Version #	01
Issue date	07-16-2015
Chemical name	Sodium N–methyldithiocarbamate solution
Chemical description	Orange to light yellow-green liquid with the possibility of an amine or a sulfur odor.
MSDS Number	141.5
Synonym(s)	VAPAM® HL Soil Fumigant
Pest Control Products Act (Canada)	WHMIS: 29128
Manufacturer information	AMVAC Chemical Corporation 4100 E Washington Blvd Los Angeles, CA 90023 USA CustServ@Amvac-Chemical.com www.Amvac-Chemical.com AMVAC Chemical Corp 323-264-3910 AMVAC Chemical Corp 323-268-1028 (FAX) CHEMTREC® (Outside USA) +1-703-527-3887 CHEMTREC® (USA+Canada) 800-424-9300 Medical 888-681-4261 Product Use 888-462-6822

2. Hazards Identification

Emergency overview	CAUTION Keep out of Reach of Children. Harmful by inhalation and if swallowed. Irritating to eyes, nose, throat and skin. Avoid breathing vapour. Do not get in eyes, on skin, or on clothing. Potential skin sensitizer.
Potential health effects	
Routes of exposure	Inhalation.
Eyes	Causes eye irritation.
Skin	May be irritating to the skin. May cause sensitization by skin contact.
Inhalation	Harmful if inhaled. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	May be harmful if swallowed.
Potential environmental effects	May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Non-hazardous components	CAS #	Percent
Sodium methyldithiocarbamate	137-42-8	42

Composition comments All concentrations are in percent by weight.

4. First Aid Measures

First aid procedures	
Inhalation	Move to fresh air. Administer oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Notes to physician	Symptoms may be delayed. Contact your local or State Poison control Center for further information.

General advice If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties Not flammable by WHMIS criteria.

Extinguishing media

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media Material reacts with water. Dilution with water may cause generation of flammable and toxic fumes of MITC and Hydrogen sulfide. See Chemical Stability information in SECTION 10.

Protection of firefighters

Specific hazards arising from the chemical This product can release toxic fumes of methyl isothiocyanate (MITC) and hydrogen sulfide, as well as nitrogen oxides, when heated to decomposition or diluted with water. Material reacts with water.

Fire fighting equipment/instructions Evacuate the area promptly.

Explosion data

Sensitivity to static discharge None known.

Sensitivity to mechanical impact Not explosive.

Hazardous combustion products This product will emit hazardous fumes and smoke of unknown composition when heated excessively or burned.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Avoid contact with eyes, skin, and clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the MSDS.

Environmental precautions Do not contaminate water.

Methods for containment Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up Should not be released into the environment. This product is miscible in water.

Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and Storage

Handling Keep out of the reach of children. Keep away from food, drink and animal feedstuffs. Keep away from heat and sources of ignition. Do not breathe dust/fume/gas/mist/vapors/spray. Do not use in areas without adequate ventilation. Avoid release to the environment. Read label before use.

Storage Keep away from food, drink and animal feedstuffs. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure Controls / Personal Protection

Occupational exposure limits No exposure limits noted for ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Engineering controls Mechanical ventilation or local exhaust ventilation may be required.

Personal protective equipment

Eye/face protection Safety glasses with side shields or tight fitting chemical goggles should be used whenever hazardous chemicals are being handled. A full face respirator should be worn whenever there is a chance of splashing or misting.

Skin protection Wear suitable protective clothing.

Respiratory protection For exposures that may exceed the TLV, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) is required. A full-face respirator or a SCBA may be required if misting or splashing are possible.

Hand protection Wear chemical resistant gloves (preferably nitrile)

9. Physical & Chemical Properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Light yellow-green
Odor	Essentially odorless to fairly strong odor of amine or sulfur.
Odor threshold	Not available.
pH	9.5 - 11
Vapor pressure	2.40E+01 mm Hg (77 °F (25 °C))
Vapor density	Not available.
Boiling point	234 °F (112 °C)
Melting point/Freezing point	32 °F (0 °C)
Solubility (water)	Miscible.
Specific gravity	1.21 at 20°C/4°C (68°F/39°F)
Relative density	Not available.
Flash point	> 200 °F (> 93 °C) Closed Cup
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	1 compared to water
Percent volatile	82 % (to 150°C)
Bulk density	10.1 lb/gal
Molecular weight	129.18 g/mol
Molecular formula	C2-H4-N-S2.Na
Other data	
Flammability (solid, gas)	Not applicable.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions. Material reacts with water. Metam Sodium decomposes, when diluted with water, to methyl isothiocyanate (MITC, a lachrymator and moderate poison) and/or to hydrogen sulfide (a highly poisonous gas). Use the solution promptly after mixing. Do not allow the solution to stand. Metam Sodium can also decompose to carbon disulfide and monomethylamine (both highly flammable) if contacted with a strong acid.
Conditions to avoid	Contact with incompatible materials. Contact with water liberates flammable gas.
Incompatible materials	This product is incompatible with additional water and strong aqueous acids. In addition, it is corrosive to copper, brass, and zinc, and may soften and/or discolor iron.
Hazardous decomposition products	When treated with water or heated to decomposition, this product will give off toxic fumes of methyl isothiocyanate (MITC), hydrogen sulfide, and nitrogen oxides. If treated with strong acids, fumes of carbon disulfide and monomethylamine will be given off.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
Sodium methyldithiocarbamate		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 2020 mg/kg

Product	Species	Test Results
Inhalation LC50	Rat	2.28 mg/l
Oral LD50	Rat	812 mg/kg
Acute effects		
Sensitization	May cause sensitization by skin contact.	
Chronic effects	Not expected to be hazardous by WHMIS criteria.	
Carcinogenicity	Based on available data, the classification criteria are not met. Limited evidence of a carcinogenic effect.	
Skin corrosion/irritation	Not available.	
Serious eye damage/irritation	Not available.	
Mutagenicity	No evidence of mutagenicity in vivo but some evidence has been observed in vitro, in mutagenicity animal testing.	
Reproductive effects	This product has shown some developmental effects but has not shown any reproductive effects in laboratory animals.	
Teratogenicity	Laboratory studies have shown some developmental effects in laboratory animals.	
Symptoms and target organs	<p>Overexposure to Metam Sodium as sold may result in damage to the skin, skin irritation, excessive salivation, sweating, fatigue, weakness, nausea, headache, dizziness, eye, nose, throat and respiratory tract irritation. In addition, dilution to use levels results in the release of methyl isothiocyanate (MITC) and/or hydrogen sulfide. Overexposure to MITC may result in strong skin and eye irritation, running nose, dizziness, cramps, nausea, vomiting, and mild to severe disturbances of the nervous system. Overexposure to hydrogen sulfide may result in severe irritation to the eyes and mucous membranes. In addition, exposure may result in headache, dizziness, excitement, staggering gait, diarrhea, difficult or painful urination, difficult breathing, chronic pulmonary edema, coma and death.</p> <p>Chronic exposure may also cause conjunctivitis, photophobia, digestive disturbances, weight loss, general bodily weakness, and blurred vision. In addition, laboratory studies have shown that exposure to the active ingredient, followed by ingestion of alcohol, may cause an adverse reaction, including low blood pressure, rapid heart beat, and flushing of the skin. Consumption of alcohol during and after exposure to this product should be avoided. Impaired pulmonary function and preexisting eye problems may be aggravated. Preexisting skin diseases may also be aggravated by exposure to the decomposition products.</p>	
Synergistic materials	Not available.	
12. Ecological Information		
Ecotoxicological data	No ecotoxicity data noted for the ingredient(s).	
Ecotoxicity	This product is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.	
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.	
Aquatic toxicity	Not available.	
Persistence and degradability	Not available.	
Mobility in environmental media	This product is miscible in water.	
Other adverse effects	None known.	
13. Disposal Considerations		
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site according to all applicable regulations. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.	
Waste from residues / unused products	Dispose of in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).	

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal according to all applicable regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information**TDG**

UN number UN3266
UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Metam Sodium 42%)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards Marine pollutant only when containing 10% or more substances identified as marine pollutants or severe marine pollutant when containing 1% or more substances identified as severe marine pollutants
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

IATA

UN number UN3266
UN proper shipping name Corrosive liquid, basic, inorganic, n.o.s. (Metam Sodium 42%)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards No.
ERG Code 8L
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

Other information

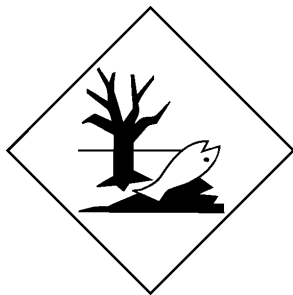
Passenger and cargo aircraft Allowed.
Cargo aircraft only Allowed.

IMDG

UN number UN3266
UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Metam Sodium 42%), MARINE POLLUTANT
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-A, S-B
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

IATA; IMDG; TDG

Marine pollutant



General information

IMDG Regulated Marine Pollutant.

15. Regulatory Information

Canadian regulations

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. CANADIAN REGULATIONS: This product is registered under the Pest Control Product Act of Canada. It is a violation of Canadian Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status

Controlled

WHMIS classification

D2A - Other Toxic Effects-VERY TOXIC
E - Corrosive

WHMIS labeling



International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information

References

ACGIH®: American Conference of Governmental Industrial Hygienists
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
EPA: Environmental Protection Agency
FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act
IARC: International Agency for Research on Cancer
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Agency
SARA: Superfund Amendments and Reauthorization Act
TSCA: Toxic Substances Control Act
DOT: Department of Transportation
IMDG: International Maritime Dangerous Goods
IATA: International Air Transport Association

Recommended restrictions

This is a Restricted Use Pesticide and is for use by licensed applicators only.
Keep out of the Reach of Children!

HMIS® ratings

Health: 3
Flammability: 1
Physical hazard: 0

NFPA ratings

Health: 3
Flammability: 1
Instability: 0

Disclaimer

AMVAC Chemical Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

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Prepared by

Not available.

This data sheet contains changes from the previous version in section(s):

Product and Company Identification: Synonyms
HazReg Data: International Inventories