Vanderbilt Chemicals, LLC
A Wholly Owned Subsidiary of R.T. Vanderbilt Holding Company, Inc.

SAFETY DATA SHEET

GHS
United States
English (US)

Section 1. Identification

Product identifier VANLUBE® 972M

Product code 53340

Other means of identification Not available.

Product type Liquid.

Material uses Lubricant Additive

Supplier/Manufacturer

Vanderbilt Chemicals, LLC
30 Winfield Street
Norwalk, CT 06855

1-203-853-1400

Emergency telephone number

Chemtrec: 1-800-424-9300
Outside US: +1-703-527-3887

Section 2. Hazard(s) identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1B

GHS label elements

Hazard pictograms

Signal word Danger

Hazard statements

May cause an allergic skin reaction.
Causes serious eye damage.

Precautionary statements

Prevention Wear protective gloves. Wear eye or face protection: Recommended: splash goggles. Avoid breathing vapor. Contaminated work clothing must not be allowed out of the workplace.

Response IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Storage Not applicable.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazard(s) identification

Hazards not otherwise classified None known.

Section 3. Composition and ingredient information

Substance/mixture Mixture

Other means of identification Not available.

Ingredient name	CAS number	% by weight
butoxytriglycol	-	40 - 50
1,3,4-thiadiazole dimer derivative	-	14 - 18
polyethylene glycol	25322-68-3	10 - 20
dithiobis-1,3,4-thiadiazole derivative	-	6 - 13

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

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact May cause an allergic skin reaction.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact Adverse symptoms may include the following:
pain
watering
redness

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments No specific treatment.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides

Special protective actions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark Hydrogen sulfide gas may be released at high temperatures. Emits toxic fumes when heated.

Remark(s) Hydrogen sulfide gas may be released at high temperatures. Emits toxic fumes when heated.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
polyethylene glycol	**OARS WEEL (United States)** TWA 8 hours: 10 mg/m³. Form: Aerosol.

Appropriate engineering controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead. Recommended: splash goggles

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: lab coat

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls and personal protection

Respiratory protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Personal protective equipment (Pictograms)

Section 9. Physical and chemical properties

Appearance

Physical state Liquid.

Color Amber.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point Not available.

Boiling point Not available.

Flash point Closed cup: 148°C (298.4°F) [ASTM D6450]

Burning time Not applicable.

Burning rate Not applicable.

Evaporation rate Not available.

Flammability (solid, gas) Hydrogen sulfide gas may be released at high temperatures. Emits toxic fumes when heated.

Lower and upper explosive (flammable) limits Not available.

Vapor pressure Not available.

Vapor density Not available.

Density 1.226 g/cm³ [25°C (77°F)]

Relative density 1.2

Solubility(ies)

Media	Result
cold water	Not soluble

Solubility in water Not available.

Partition coefficient: n-octanol/water Not applicable.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

SADT Not available.

Viscosity Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): Not available.

Section 10. Stability and reactivity

Reactivity No specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid No specific data.

Incompatible materials No specific data.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
butoxytriglycol	LD50 Oral	Rat	5300 mg/kg	-
1,3,4-thiadiazole dimer derivative	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2500 mg/kg	-
polyethylene glycol	LD50 Oral	Rat	27500 mg/kg	-
dithiobis-1,3,4-thiadiazole derivative	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
butoxytriglycol	Eyes - Severe irritant	Rabbit	-	50 milligrams	-
1,3,4-thiadiazole dimer derivative	Eyes - Mild irritant	Rabbit	-	-	-
polyethylene glycol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Conclusion/Summary

Skin dithiobis-1,3,4-thiadiazole derivative: Non-irritating to the skin. (Rabbit)
1,3,4-thiadiazole dimer derivative: Non-irritating to the skin. (Rabbit)

Eyes dithiobis-1,3,4-thiadiazole derivative: Non-irritating to the eyes. (Rabbit)

Sensitization

Section 11. Toxicological information

Product/ingredient name	Route of exposure	Species	Result
1,3,4-thiadiazole dimer derivative	skin	Mouse	Sensitizing
dithiobis-1,3,4-thiadiazole derivative	skin	Mouse	Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
1,3,4-thiadiazole dimer derivative	OECD 471	Experiment: In vitro Subject: Bacteria	Negative
	OECD 473	Experiment: In vitro Subject: Mammalian-Human	Negative
dithiobis-1,3,4-thiadiazole derivative	OECD 476	Experiment: In vitro Subject: Mammalian-Animal	Positive
	OECD 471	Experiment: In vitro Subject: Bacteria	Negative
	OECD 487	Experiment: In vitro Subject: Mammalian-Animal	Negative

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
dithiobis-1,3,4-thiadiazole derivative	-	-	-	Rat	Oral: 300 mg/kg	47 days

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact May cause an allergic skin reaction.

Section 11. Toxicological information

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact Adverse symptoms may include the following:
pain
watering
redness

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
1,3,4-thiadiazole dimer derivative	Sub-acute NOAEL Oral	Rat	150 mg/kg	28 days
dithiobis-1,3,4-thiadiazole derivative	Sub-acute NOAEL Oral	Rat	1000 mg/kg	14 days

General Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	20911.05 mg/kg
Dermal	10191.29 mg/kg

Other information Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
butoxytriglycol	Acute EC50 62.5 mg/l	Algae	72 hours
	Acute EC50 >500 mg/l	Daphnia	48 hours
	Acute LC50 2200 to 4600 mg/l	Fish	96 hours
1,3,4-thiadiazole dimer derivative	Acute EC50 14 mg/l	Algae	72 hours
	Acute EC50 18 mg/l	Daphnia	48 hours
	Acute LC50 >100 mg/l	Fish	96 hours
	Acute NOEC 10 mg/l	Algae	72 hours
	Acute NOEC 0.56 mg/l	Daphnia	48 hours
	Acute NOEC 100 mg/l	Fish	96 hours
dithiobis-1,3,4-thiadiazole derivative	Acute EC10 9.4 mg/l	Algae	72 hours
	Acute EC10 3.1 mg/l	Micro-organism	3 hours
	Acute EC50 20 mg/l	Algae	72 hours
	Acute EC50 3 mg/l	Daphnia	48 hours
	Acute EC50 >454 mg/l	Fish	96 hours
	Acute NOEC 1 mg/l	Micro-organism	3 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
butoxytriglycol	OECD 301D	85 % - Readily - 28 days	-	-
1,3,4-thiadiazole dimer derivative	OECD 301B	41 % - Not readily - 28 days	-	-
dithiobis-1,3,4-thiadiazole derivative	OECD 301B	0 % - Not readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
butoxytriglycol	-	-	Readily
1,3,4-thiadiazole dimer derivative	-	-	Not readily
dithiobis-1,3,4-thiadiazole derivative	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
butoxytriglycol	0.51	-	Low
polyethylene glycol	-	3.2	Low

Mobility in soil

Soil/Water partition coefficient Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

Section 15. Regulatory information

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	Listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

Section 15. Regulatory information

SARA 304 RQ Not applicable.

SARA 311/312

Classification SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1B

Composition/information on ingredients

Name	%	Classification
butoxytriglycol	40 - 50	SERIOUS EYE DAMAGE - Category 1
1,3,4-thiadiazole dimer derivative	14 - 18	SKIN SENSITIZATION - Category 1B
dithiobis-1,3,4-thiadiazole derivative	6 - 13	SKIN SENSITIZATION - Category 1B

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	butoxytriglycol	-	40 - 50
Supplier notification	butoxytriglycol	-	40 - 50

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts None of the components are listed.
New York None of the components are listed.
New Jersey The following components are listed: GLYCOL ETHERS
Pennsylvania The following components are listed: GLYCOL ETHERS
California Prop. 65 None of the components are listed.

Inventory list

Australia All components are listed or exempted.
Canada All components are listed or exempted.
China All components are listed or exempted.
Japan At least one component is not listed.
New Zealand At least one component is not listed.
Philippines At least one component is not listed.
Republic of Korea At least one component is not listed.
Taiwan All components are listed or exempted.
United States All components are active or exempted.

Section 16. Any other relevant information

Hazardous Material Information System (U.S.A.)

Health	/	2
Flammability		1
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

History

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Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	Not available.
Information contact	**Vanderbilt Global Services, LLC** **Corporate Risk Management** **1-203-295-2143**

Visit www.vanderbiltchemicals.com for more information.

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