

SAFETY DATA SHEET

NUSOL ALUMAX

Section 1. Identification

GHS product identifier : NUSOL ALUMAX
Other means of identification : Not available.
Product type : Liquid
Product code : 27023F0000
SDS # : 1028

Relevant identified uses of the substance or mixture and uses advised against

Product use: For professional use only. Industrial applications: Metal working fluids

Supplier's details : Lozier Oil Company
1 Sunny St.
Farmington, IL 61531
Tel: 309-245-4846
Fax: 309-245-4888

Emergency phone number : Chemtrec: 1-800-424-9300 (US & Canada)
+1 703-527-3887 (International)

Section 2. Hazard 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 : EYE IRRITATION – Category 2A

Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 23.8%
Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 23.8%
Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 23.8%

GHS Hazard Symbols :



Signal Word : Warning

Hazard Statements : Causes serious eye irritation.

Precautionary Statements
Prevention

: Wear eye or face protection. Wash hand thoroughly after handling

Response : 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 attention.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available

Ingredient name	%	CAS number
N,N'-methylenebismorpholine	<3	5625-90-1
Alcohols, C8-10, ethoxylated propoxylated	≤3	68603-25-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

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

Section 4. Fire-aid measures

Description of necessary measures

Eye Contact : 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. If irritation persists, get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention if adverse health effects persist or are severe. 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 : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention if adverse health effects persist or are severe. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
Pain or irritation
Watering
Redness
- Inhalation** : No specific data.
- Skin contact** : No specific data
- Ingestion** : No specific data

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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section11)

Section 5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent 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
Phosphorus 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.

Special protect 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.

Section 6. Accidental release measures

Personal cautions, 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 breath vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on 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 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. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry 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: 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 or emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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 occupations 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.

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, way 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/personal protection

Control parameters

Occupational exposure limits

Ingredient Name	Exposure limits
N,N'-methylenebismorpholine	None.
Alcohols, C8-10, ethoxylated propoxylated	None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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 measure, such as personal protective equipment:

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking or using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. 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.
- 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 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.
- 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.
- 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.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid [Opaque.]
- Color** : White.
- Odor** : Mild.
- pH** : 9.3 to 10.2
- Melting point** : -1.1°C (30°F)
- Boiling point** : 100°C (212°F)
- Flash point** : Closed cup: Not applicable. [Product does not sustain combustion.]
- Evaporation Rate** : Not available.
- Flammability (solid, gas)** : Non-flammable in the presence of the following materials or conditions: open flames, sparks, and static discharge
- Upper flammability or explosive limits** : Not available
- Lower flammability or explosive limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Density** : 1.01 to 1.025 g/cm³
- Solubility** : Forms emulsion
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available
- Viscosity** : Kinematic (40°C (104°F)): 0.0292cm²/s (2.92 cSt)

VOC : 150.8 g/L
VOC Method : ASTM E 1868

Section 10. Stability and reactivity

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

Chemical stability : This 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
N,N'-methylenebismorpholine	LC50 Inhalation Dusts and mists	Rat	2.6 to 10.4 mg/l	4 hours
	LD50 Dermal	Rabbit	1674 mg/kg	-
	LD50 Oral	Rat	500 to 2000 mg/kg	-

Conclusion/summary : No known significant effects or critical hazards

Irritation/Corrosion

Chemical Name	Result	Species	Score	Exposure	Observation
Alcohols, C8-10, ethoxylated propoxylated	Eyes – severe irritant	Rabbit	-	24 hours 100 microliters	-

Conclusion/summary

Skin : No known significant effects or critical hazards.

Eyes : Causes eye irritation.

Respiratory : Repeated or prolonged exposure to spray or mist may produce respiratory tract irritation.

Sensitization

Conclusion/summary

Skin : No specific data is available in our database regarding the skin sensitizing properties of this product. Sensitization is not suspected for humans.

Respiratory : Sensitization not suspected for humans.

Mutagenicity

Conclusion/Summary

There are no data available on the mixture itself. Mutagenicity not suspected for humans.

Carcinogenicity

Conclusion/Summary

There are no data available on the mixture itself. Carcinogenicity not suspected for humans.

Reproductive Toxicity
Conclusion/Summary

There are no data available on the mixture itself. Not considered to be dangerous to humans.

Teratogenicity
Conclusion/Summary

There are no data available on the mixture itself. Teratogenicity not suspected for humans.

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

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
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 or irritation
Watering
Redness
Inhalation : No specific data
Skin contact : No specific data
Ingestion : No specific data

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

Conclusion/Summary : No known significant effects or critical hazards.
General : No known significant effects or critical hazards.
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	19197.5 mg/kg
Inhalation (dusts and mists)	57.59 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
N,N'-methylenebismorpholine	EC50 4.4 mg/l	Algae	72 hours
	EC50 24 mg/l	Daphnia	48 hours
	LC 50 > 100 mg/l	Fish – Rainbow trout	4 days
	Chronic NOEC 5 mg/l	Daphnia	21 days

Conclusion/Summary : There are no data available on the mixture itself.

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
N,N'-methylenebismorpholine	-	93% - Readily – 28 days	-	-

Conclusion/Summary : This product has not been tested for biodegradation. Expected to be biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
N,N'-methylenebismorpholine	-	-	Readily

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (Koc) : 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

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S Federal regulations : **TSCA 4(a) proposed test rules:** sodium 4(or 5)-methyl-1H-benzotriazolide
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 307: zinc chloride
Clean Water Act (CWA) 311: Formaldehyde, solution; propylene oxide; zinc chloride

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 1 (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Ethylene oxide: oxirane	<0.1	Yes.	-	-	-	-
Propylene oxide	≤0.1	Yes.	10000	1444.3	100	14.4
Formaldehyde	<0.1	Yes.	500	73.9	100	14.8

SARA 304 RQ : 101010101 lbs / 45858585.9 kg [11906198.3 gal / 45069863.3 L]

SARA 311/312

Classification : EYE IRRITATION – Category 2A

Composition/information on ingredients

Name	%	Classification
N,N'-methylenebismorpholine	<3	ACUTE TOXICITY (oral) – Category 4 ACUTE TOXICITY (inhalation) – Category 4 SKIN CORROSION – Category 1B SERIOUS EYE DAMAGE – Category 1
Alcohols, C8-10, ethoxylated propoxylated	≤3	SKIN IRRITATION – Category 2 EYE IRRITATION – Category 2A

SARA313

Component	Product name	CAS number	%
Form R – Reporting Requirements	No listed substance		
Supplier notification	No listed substance		

State regulations

- Massachusetts** : None of the components are listed.
New York : None of the components are listed
New Jersey : None of the components are listed
Pennsylvania : The following components are listed: PROPANOL, OXYBIS-
California Prop. 65



WARNING: This product can expose you to chemicals including ethylene oxide; oxirane, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including 1,4-Dioxane, Propylene oxide, Formaldehyde, which are known to the State of California to cause cancer. For more information go to www.P5Warnings.ca.gov.

Ingredient name	Concentration (%)	No significant risk level [‘-‘ (Dash Symbol) means no Safe Harbor level established]	Maximum acceptable dosage level [‘-‘ (Dash Symbol) means no Safe Harbor level established]
1,4-Dioxane	0.00034125 – 0.00053925	30 ug/day [No significant risk level]	-
Ethylene oxide	0.00008625 – 0.00028425	-	-
Propylene oxide	0 – 0.000198	-	-
Formaldehyde	0.00006	40 ug/day [No significant risk level]	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A,B,C,E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory List

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

Section 16. Other information

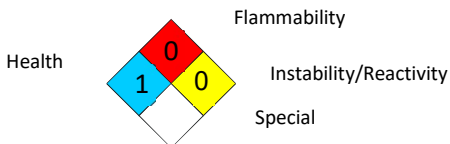
Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		0
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.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
EYE IRRITATION – Category 2A	Calculation Method

History

Date of issue/Date of revision : 4/17/2019

Date of previous issue : 6/14/2018

Version : 1.11

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 Not available.

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.