



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 2838**

COMPANY IDENTIFICATION :
Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

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NFPA 704M/HMIS RATING

HEALTH : 3 / 3 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER : 0
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Glutaraldehyde	111-30-8	15.0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

KEEP OUT OF REACH OF CHILDREN. Corrosive. Causes irreversible eye damage. Causes skin irritation. Harmful if inhaled. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic skin reactions to some individuals. Causes asthmatic signs and symptoms in hyper-reactive individuals. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Wear goggles, protective clothing, and rubber gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Protect product from freezing. Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage. Vapors can cause watering of the eyes.

SKIN CONTACT :
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Prolonged or widespread contact may result in the absorption of potentially harmful amounts of



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material. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Contact may cause staining.

INGESTION :

Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

INHALATION :

Irritating, in high concentrations, to the eyes, nose, throat and lungs. Inhalation of product mist or vapors may cause respiratory allergy.

SYMPTOMS OF EXPOSURE :

Acute :

A review of available data does not identify any symptoms from exposure not previously mentioned.

Chronic :

A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :

A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :

No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :

PROMPT ACTION IS ESSENTIAL IN CASE OF CONTACT. Immediately flush eye with water for at least 15 minutes while holding eyelids open. Get immediate medical attention.

SKIN CONTACT :

Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If reflexive vomiting occurs, rinse mouth and repeat administration of water. Get medical attention.

INHALATION :

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Get immediate medical attention.

IF ON SKIN: Wash with plenty of soap and water. Get medical attention.

IF INHALED: Remove to fresh air. If breathing is difficult, administer oxygen. If symptoms persist, call a physician.

IF SWALLOWED: DO NOT INDUCE VOMITING. Do not give anything to drink. Seek medical advice with urgency.



MATERIAL SAFETY DATA SHEET

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EMERGENCY TELEPHONE NUMBER(S)

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NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :

Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :

Restrict access to area as appropriate until clean-up operations are complete. Ensure clean-up is conducted by trained personnel only. Ventilate spill area if possible. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :

SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Dilute the glutaraldehyde to 5% or less with water. Add sodium bisulfite (2-3 parts by weight per part glutaraldehyde). This will typically reduce the glutaraldehyde concentration to 2 ppm or less in 5 minutes at room temperature. The remaining solution can be disposed of via appropriate means. Wash site of spillage thoroughly with water. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :

Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

STORAGE CONDITIONS :

Store the containers tightly closed. Store separately from oxidizers. Store in suitable labelled containers.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

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SUITABLE CONSTRUCTION MATERIAL :

Stainless steel, Polyethylene

UNSUITABLE CONSTRUCTION MATERIAL :

Steel, Galvanised metals, Aluminum, Tin, Zinc

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :

Exposure guidelines have not been established for this product. Available exposure limits for the substance(s) are shown below.

ACGIH/TLV :

Substance(s)

Glutaraldehyde

CEILING: 0.05 ppm , 0.2 mg/m3 0.05 ppm , 0.2 mg/m3

OSHA/PEL :

Substance(s)

Glutaraldehyde

CEILING: 0.2 ppm , 0.8 mg/m3

ENGINEERING MEASURES :

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :

If significant mists, vapors or aerosols are generated an approved respirator is recommended. A dust, mist, fume cartridge may be used. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :

Impervious gloves, Rubber gloves, Nitrile gloves, Butyl gloves

SKIN PROTECTION :

Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. A full slicker suit is recommended if gross exposure is possible.

EYE PROTECTION :

Wear a face shield with chemical splash goggles.

HYGIENE RECOMMENDATIONS :

Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

HUMAN EXPOSURE CHARACTERIZATION :

Based on our recommended product application and personal protective equipment, the potential human exposure is: Low



MATERIAL SAFETY DATA SHEET

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EMERGENCY TELEPHONE NUMBER(S)

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9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	Sharp, Aldehyde
SPECIFIC GRAVITY	1.04 @ 68 °F / 20 °C
DENSITY	8.7 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	3.1 - 4.5
FREEZING POINT	20.3 °F / -6.5 °C
BOILING POINT	213 °F / 100.5 °C
VAPOR PRESSURE	16 mm Hg @ 68 °F / 20 °C
VAPOR DENSITY	0.7
VOC CONTENT	15. % Calculated

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Keep at temperatures above < -6.5 °C

Keep at temperature not exceeding 37.8 °C

MATERIALS TO AVOID :

Strong acids Strong Bases Contact with these may cause a heat-generating reaction which is not expected to be violent. Oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

The following results are for the active components.

ACUTE ORAL TOXICITY :

Species	LD50	Test Descriptor
Rat	1,540 mg/kg	Similar Product Glutaraldehyde
Rat	1.54-1.87 ml/Kg	25% Active Ingredient Glutaraldehyde



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

Rating : Harmful

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	2,128 mg/kg	Similar Product
Rating : Non-Hazardous		

ACUTE INHALATION TOXICITY :

Species	LC50	Test Descriptor
Rat	20.4 mg/L (4 hrs)	Similar Product Glutaraldehyde
Rating : Non-Hazardous		

PRIMARY SKIN IRRITATION : At 10% or greater, glutaraldehyde solutions may cause moderate to severe irritation, with possible necrosis after prolonged contact.

SENSITIZATION :

Levels of greater than 0.2% of glutaraldehyde produced allergic contact dermatitis in human studies.

CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: High

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product along with results on the active substances.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	12 mg/l	Active Substance (Glutaraldehyde)
Bluegill Sunfish	96 hrs	11 mg/l	Active Substance (Glutaraldehyde)
Fathead Minnow	96 hrs	6 mg/l	Active Substance
Sheepshead Minnow	96 hrs	32 mg/l	Active Substance
Fathead Minnow	96 hrs	21.6 mg/l	Product
Bluegill Sunfish	96 hrs	37.6 mg/l	
Sheepshead Minnow	96 hrs	128 mg/l	Product
Rainbow Trout	96 hrs	48 mg/l	Product
Coho Salmon	96 hrs	12 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48.00 hrs	5 mg/l		Active Substance (Glutaraldehyde)

**MATERIAL SAFETY DATA SHEET**

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

Green Crab	96 hrs	465 mg/l		Active Substance (Glutaraldehyde)
Grass Shrimp	96 hrs	41 mg/l		Active Substance (Glutaraldehyde)
Mysid Shrimp (Mysidopsis bahia)	48 hrs	7.1 mg/l		Active Substance (Glutaraldehyde)
Daphnia magna	48 hrs	20 mg/l	8.4 mg/l	Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	28.4 mg/l		Product
Shore Crab	96 hrs	1,860 mg/l		Product
Grass Shrimp	96 hrs	164 mg/l		Product
American Oyster	48 hrs	2.20 mg/l		
Blue Mussel	120 hrs	0.8 mg/l		Product
Acartia tonsa	48 hrs		0.45 mg/l	Product

AQUATIC PLANT RESULTS :

Species	Exposure	EC50/LC50	Test Descriptor
Marine Algae (Skeletonema costatum)	72 hrs	2.44 mg/l	Product
Algae (Scenedesmus subspicatus)	72 hrs	3.4 mg/l	Product

AQUATIC MICROORGANISM RESULTS :

Species	Exposure	EC50/LC50	Test Descriptor
Sewage Microorganisms	96 hrs	34 mg/l	Active Substance (Glutaraldehyde)

CHRONIC FISH RESULTS :

Species	Exposure	NOEC / LOEC	End Point	Test Descriptor
Fathead Minnow	28 Days	1.4 mg/l / 2.9 mg/l		Active Substance

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Daphnia magna	3 Brood	4.25 mg/l /	Reproduction	

AVIAN RESULTS :

Species	Exposure	LC50	Test Descriptor
Bobwhite Quail	8.00 Days	> 5,000 ppm	50% Active Ingredient
Mallard Duck	8.00 Days	5,000 ppm	50% Active Ingredient

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : 349,000 mg/l

The organic portion of this preparation is expected to be readily biodegradable.

MOBILITY :

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM , provided by the US EPA. The model assumes a steady state condition between the total input

Nalco Company 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000For additional copies of an MSDS visit www.nalco.com and request access



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

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and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models. If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL

This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Moderate

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Low

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law.

Do not cut or weld on or near metal containers. Metal Containers or Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures approved by state and local authorities. Plastic Containers: May be incinerated, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Metal Containers: Must not be incinerated.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING
TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :
Technical Name(s) :

AVIATION REGULATED LIQUID, N.O.S.
GLUTARALDEHYDE



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

UN/ID No : UN 3334
Hazard Class - Primary : 9
Packing Group : N/A
IATA Cargo Packing Instructions : 906
IATA Cargo Aircraft Limit : 220 L (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :

Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Glutaraldehyde : Corrosive, Sensitizer

CERCLA/SUPERFUND, 40 CFR 117, 302 :

Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :

This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

X	Immediate (Acute) Health Hazard
X	Delayed (Chronic) Health Hazard
-	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :

This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :

This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.300 Slimicides

Limitations: no more than required to produce intended technical effect.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 464-693-1706
In all cases follow instructions on the product label.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
None of the substances are specifically listed in the regulation.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
None of the substances are specifically listed in the regulation.

CALIFORNIA PROPOSITION 65 :
This product does not contain substances which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS :
None of the substances are specifically listed in the regulation.

STATE RIGHT TO KNOW LAWS :
This product is a registered biocide and is exempt from State Right to Know Labelling Laws.

Glutaraldehyde

111-30-8

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION :
Pesticide controlled products are not regulated under WHMIS.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

INTERNATIONAL CHEMICAL CONTROL LAWS

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Ministry of International Trade & Industry List (MITI).

KOREA

All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

THE PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2838

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight# (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department

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