



# MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 7338 LIQUID

Emergency Telephone Number

Medical (800) 462-5378 (24 hours)

(800) I-M-ALERT

## SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALCO 7338 LIQUID

DESCRIPTION: An aqueous solution of glutaraldehyde

NFPA 704M/HMIS RATING: 3/3 HEALTH 1/1 FLAMMABILITY 0/0 REACTIVITY 0 OTHER  
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

## SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX. %
Glutaraldehyde	111-30-8	40-70

## SECTION 3 PRECAUTIONARY LABEL INFORMATION

DANGER! Corrosive. Causes irreversible eye damage. Causes skin burns. Harmful if inhaled. May be fatal if swallowed. Harmful if absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Causes asthmatic signs and symptoms in hyper-reactive individuals. Do not get in eyes, on skin or 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.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

## SECTION 4 FIRST AID INFORMATION

EYES:	Immediately flush for at least 15 minutes while holding eyelids open. Call a physician at once.
SKIN:	Immediately flush with water for at least 15 minutes. For a large splash, flood body under a shower. Call a physician at once.
INGESTION:	Do not induce vomiting. Do not give anything to drink. Seek medical advice with urgency.
INHALATION:	Remove to fresh air. Treat symptoms. Call a physician at once.

NOTE TO PHYSICIAN: Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.



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## SECTION 4 FIRST AID INFORMATION

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CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed.

## SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin, Inhalation

EYE CONTACT: Corrosive to the eyes with possible permanent damage depending on the length of exposure and on the first aid action given.

SKIN CONTACT: Can cause moderate to severe skin irritation. Depending on the length of exposure and on the first aid action given, prolonged contact may be corrosive to skin. Can cause allergic contact dermatitis in susceptible individuals. Can be harmful if absorbed.

INGESTION: Can be harmful or fatal.

INHALATION: Can cause severe respiratory tract irritation.

SYMPTOMS OF EXPOSURE: 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.

## SECTION 6 TOXICOLOGY INFORMATION

TOXICITY STUDIES: Acute toxicity studies have been conducted on various concentrations of glutaraldehyde. The results are shown below. (A.I. refers to active ingredient basis.)

### ACUTE ORAL TOXICITY (ALBINO RATS):

LD<sub>50</sub> for 50% solution = 1.3 ml/kg (733 mg/kg A.I.)  
LD<sub>50</sub> for 45% solution = 1.2 ml/kg (605 mg/kg A.I.)  
LD<sub>50</sub> for 25% solution = 1.54-1.87 ml/kg (409-497 mg/kg A.I.)  
LD<sub>50</sub> for 10% solution = 1.07-1.62 ml/kg (111-168 mg/kg A.I.)

### ACUTE DERMAL TOXICITY (ALBINO RABBITS):

LD<sub>50</sub> for 50% solution = 1.59-2.54 ml/kg (897-1432 mg/kg A.I.)  
LD<sub>50</sub> for 45% solution = 2.00-2.71 ml/kg (1004-1360 mg/kg A.I.)  
LD<sub>50</sub> for 25% solution = 8.0-12.80 ml/kg (2128-3045 mg/kg A.I.)





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## SECTION 6 TOXICOLOGY INFORMATION

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COMMENTS: A major determinant of the acute percutaneous toxicity of glutaraldehyde solution is concentration. Cumulative toxicity is also possible by repeated dermal contact with 25-50% solution of glutaraldehyde.

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

DOT CORROSIVITY TEST: Aqueous solutions up to, and including, 45% do not produce corrosive lesions when tested under DOT conditions, but at 50% two of six animals developed local necrosis in 4 hours or less.

SKIN SENSITIZATION: At levels of 0.2% and lower no sensitization occurred in human studies. Higher levels produced allergic contact dermatitis. Cross reaction with formaldehyde or from lower concentrations of glutaraldehyde does not occur.

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS): Severely irritating  
COMMENTS: At levels of 0.2% and below of glutaraldehyde no eye irritation was noted. Levels above 0.2% of glutaraldehyde produced moderate to severe irritation and corneal injury.

ACUTE INHALATION TOXICITY (ALBINO RATS): LC = Greater than 2.5 L/minute (saturated vapor for 6-8 hours produced irritant effects, but resulted in no deaths.)

COMMENTS: Examination of all sacrificed animals at the end of the study showed no abnormalities.

OTHER TOXICITY RESULTS: Laboratory studies have shown that glutaraldehyde is not teratogenic, and several studies have shown the material not to be a mutagen.

Doses of 25 and 50 mg/kg given by gavage to pregnant rats produced decreases in maternal body weight. There were no other indications of maternal toxicity nor were there evidence of fetotoxicity or external, visceral or skeletal abnormalities. Mice (CD-1 strain) given 100 mg/kg by gavage showed fetotoxicity as evidenced by decreased body weight. At lower doses, there was no evidence of fetotoxicity or skeletal abnormalities. No evidence of teratogenic effects were noted in either species.

Mutagenicity in vitro tests of Chinese hamster ovary, sister chromatid exchange and unscheduled DNA synthesis did not produce dose-related responses. Oral



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## SECTION 6 TOXICOLOGY INFORMATION

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doses of 30 and 60 mg/kg to mice showed no effect in the dominant lethal assay. In all five strains of Salmonella, with and without metabolic activation by S 9 liver homogenate, no mutagenic response was noted.

Glutaraldehyde incorporated into the diet of rats up to 1.6 g/kg for seven days resulted in no deaths. An eleven week drinking water study of glutaraldehyde at up to 0.5% showed no effect.

Preliminary histopathological findings in the 24-month sacrifice of a combined oncogenicity/chronic study in Fischer 344 rats given glutaraldehyde in drinking water showed an increase in the incidence of the spontaneously occurring large granular cell lymphocytic leukemia (LGL) at all dosages (50, 250, 1000 ppm) compared with the controls only for the female rats. Male rats had the same incidence as controls at all levels of exposures. The significance of this observation to humans remains to be determined.

HUMAN HAZARD CHARACTERIZATION: Based on our hazard characterization, the potential human hazard is: HIGH.

## SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Clear	FORM: Liquid	ODOR: Characteristic aldehyde
DENSITY:	9.3 lbs/gal.	
SOLUBILITY IN WATER:	Completely	
SPECIFIC GRAVITY:	1.12 @ 68 Degrees F	ASTM D-1298
pH (NEAT) =	3.1-4.5	ASTM E-70
VISCOSITY:	13.6 cps @ 68 Degrees F	ASTM D-2983
FREEZE POINT:	1.4 Degrees F/-17 Degrees C	ASTM D-1177
BOILING POINT:	213 Degrees F @ 760 mm Hg	ASTM D-86
FLASH POINT:	None (PMCC)	ASTM D-93
VAPOR PRESSURE:	16 mm Hg @ 68 Degrees F	ASTM D-323
EVAPORATION RATE:		
(Butyl acetate = 1)	0.99	ASTM D1901

NOTE: These physical properties are typical values for this product.

## SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: None (PMCC) ASTM D-93

EXTINGUISHING MEDIA: This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use water to cool containers exposed to fire.





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## SECTION 8 FIRE AND EXPLOSION INFORMATION

( CONTINUED )

UNUSUAL FIRE AND EXPLOSIVE HAZARD: Vapors are irritating.

## SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contamination with strong acids and bases. Contact with these may cause a heat-generating reaction which is not expected to be violent.

STORAGE: Avoid storage at temperatures above 100 Degrees F. Storage stability is dependent on pH and temperature. Optimum stability when stored at pH of 3.7 - 4.5 and 25 - 37 Degrees C.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO<sub>2</sub> may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

## SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: Respiratory protection is not normally needed since the volatility and toxicity are low. If significant mists are generated, use either a chemical cartridge respirator with a dust/mist prefilter or supplied air.

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a positive pressure, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended. Additionally, local exhaust ventilation is recommended where vapors, mists or aerosols may be released.

PROTECTIVE EQUIPMENT: Wear impermeable gloves, boots, apron, and a face shield with chemical splash goggles. Examples of impermeable gloves available on the market are neoprene, nitrile, PVC, natural rubber, viton, and butyl (compatibility studies have not been performed. A full slicker suit is recommended if gross exposure is possible.

The availability of an eye wash fountain and safety shower is recommended.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

## SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR



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## SECTION 11 SPILL AND DISPOSAL INFORMATION

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TELEPHONE NUMBER (800) I-M-ALERT or (800) 462-5378.

### SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.

For large indoor spills, evacuate employees and ventilate area. Those responsible for control and recovery should wear the protective equipment specified in Section 10.

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under 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.

As a non-hazardous liquid waste, it should be solidified with stabilizing agents (such as sand, fly ash, or cement) so that no free liquid remains before disposal to an industrial waste landfill. A non-hazardous liquid waste can also be deep-well injected in accordance with local, state, and federal regulations.

## SECTION 12 ENVIRONMENTAL INFORMATION

AQUATIC DATA: Aquatic toxicity studies have been performed on various concentrations of glutaraldehyde solutions with results as follows.

### Bluegill sunfish:

96-hour static acute LC<sub>50</sub> for 50% solution = 22.4 ppm  
96-hour static acute LC<sub>50</sub> for 25% solution = 37.6 ppm  
96-hour NOEL for 25 and 50% solutions = 10 ppm

### Rainbow trout:

96-hour static acute LC<sub>50</sub> for 50% solution = 23.7 ppm  
96-hour static acute LC<sub>50</sub> for 25% solution = 42.1 ppm  
96-hour NOEL for 50% solution = 18 ppm  
96-hour NOEL for 25% solution = 32 ppm

### Daphnia magna:





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## SECTION 12 ENVIRONMENTAL INFORMATION

( CONTINUED )

48-hour static acute LC<sub>50</sub> for 50% solution = 11.5 ppm  
48-hour static acute LC<sub>50</sub> for 25% solution = 16.9 ppm  
48-hour NOEL for 25 and 50% solutions = 5 ppm

Data for 25% solutions using other species:

48-hour static acute LC<sub>50</sub> in Oyster larvae = 2.1 ppm  
96-hour static acute LC<sub>50</sub> in Green crabs = 465 ppm  
96-hour static acute LC<sub>50</sub> in Grass shrimp = 41 ppm

AVIAN DATA: Wildlife toxicity studies have been performed on 25 and 50% solutions of glutaraldehyde with results as follows.

8-day dietary LC<sub>50</sub> to Bobwhite Quail = 10,000 ppm  
8-day dietary LC<sub>50</sub> to Mallard Duck = 10,000 ppm  
Acute oral LD<sub>50</sub> to Mallard Duck = 933 mg/kg for 50% solution  
Acute oral LD<sub>50</sub> to Mallard Duck = 1631 mg/kg for 25% solution

DEGRADATION: In the standard BOD test, glutaraldehyde was degraded at greater than 50% in less than 5 days.

AQUATIC DATA: Results below are based on the active ingredient.

96 hour static acute LC<sub>50</sub> to sewage microorganisms = 34 ppm

96 hour no observed effect concentration is 10 ppm based on no mortality or abnormal effects.

If released into the environment, see CERCLA in Section 14.

ENVIRONMENTAL HAZARD CHARACTERIZATION: Based on our Hazard Characterization, the potential environmental hazard is: MODERATE.

## SECTION 13 TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES : CORROSIVE LIQUID, ACIDIC,  
ORGANIC, N.O.S.

UN/ID NO : UN 3265  
HAZARD CLASS - PRIMARY : 8 - CORROSIVE  
PACKING GROUP : II



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## SECTION 13 TRANSPORTATION INFORMATION

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IMDG PAGE NO : 8147-1  
IATA PACKING INSTRUCTION : CARGO: 812  
IATA CARGO AIRCRAFT LIMIT : 30 L (MAX NET QUANTITY PER PACKAGE)  
FLASH POINT : NONE  
HAZARDOUS COMPONENT(S) : GLUTARALDEHYDE  
RQ LBS (PER PACKAGE) : NONE  
RQ COMPONENT(S) : NONE

## SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

### FEDERAL REGULATIONS:

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:

Based on our hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.

Glutaraldehyde - Corrosive, sensitizer

Glutaraldehyde = Ceiling 0.2 ppm, 0.82 mg/m<sup>3</sup> ACGIH/TLV

Glutaraldehyde = Ceiling 0.2 ppm, 0.8 mg/m<sup>3</sup> OSHA/PEL

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 ingredients 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 EPA hazard categories:

XX Immediate (acute) health hazard  
XX Delayed (chronic) health hazard  
-- Fire hazard  
-- Sudden release of pressure hazard  
-- Reactive hazard





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## SECTION 14 REGULATORY INFORMATION

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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 ingredients 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.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA):

EPA Reg. No. 10352-22-1706. This product is registered for use as a microorganism control chemical used in industrial recirculating cooling water tower systems and used in air washer systems. In all cases follow instructions on the product label.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:  
Consult Section 11 for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15  
(formerly Sec. 307), 40 CFR 116 (formerly Sec. 311):  
None of the ingredients are specifically listed.

CLEAN AIR ACT, Sec. 111 (40 CFR 60), Sec. 112 (40 CFR 61, 1990 Amendments),  
Sec. 611 (40 CFR 82, CLASS I and II Ozone depleting substances):  
This product does not contain ingredients covered by the Clean Air Act.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product does not contain any chemicals which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS:

This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:

Regulated in those states using the TLV for glutaraldehyde as a criteria for listing.

INTERNATIONAL REGULATIONS:



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## SECTION 14 REGULATORY INFORMATION

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This product is a registered biocide and is exempt from WHMIS under The House of Commons of Canada Bill C-70.

## SECTION 15 ADDITIONAL INFORMATION

None

## SECTION 16 USER'S RESPONSIBILITY

Our Risk Characterization is being determined.

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.

## SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. Department of Health and Human Services, Public Health Service, PB 33-135855, 1983.

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## SECTION 17 BIBLIOGRAPHY

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THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, American Conference of Governmental Industrial Hygienists, OH.

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