SAFETY DATA SHEET

PRODUCT

NALCO® 77352NA

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® 77352NA**

COMPANY IDENTIFICATION :

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

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

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

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)
Magnesium Nitrate	10377-60-3	1.0 - 5.0
2-Methyl-4-Isothiazolin-3-one	2682-20-4	0.1 - 1.0
5-Chloro-2-Methyl-4-Isothiazolin-3-one	26172-55-4	1.0 - 5.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS. MAY CAUSE ALLERGIC SKIN REACTION. HARMFUL IF INHALED, HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN. Very toxic to aquatic organisms.
Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Avoid breathing vapor or mist. Avoid contamination of food. Do not take internally. Wash thoroughly after handling.
Not flammable or combustible. May evolve HCl under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

INGESTION :
Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Harmful if swallowed.

INHALATION :
Not a likely route of exposure. May cause irritation of mucous membranes.

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.

4. FIRST AID MEASURES

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF ON SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth. Call a poison control center or doctor for treatment advice

IF SWALLOWED: Call a poison control center or doctor immediately for advice. Do not induce vomiting unless told by a poison control center or doctor. Have person sip a glass of water if able to swallow.

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

5. FIRE FIGHTING MEASURES

FLASH POINT : Not applicable

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

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve HCl under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) 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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. 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: Dike and absorb with inert material (e.g. dry earth, sand), shovel all contaminated solids into a pail or drum and then treat with enough deactivation solution to wet the solids thoroughly. Let these containers stand open for 48 hours to prevent pressure build up and then seal for disposal. Equipment containing residues should be decontaminated before carrying out maintenance or repair work or using for other service. Contaminated surfaces should be swabbed with deactivation solution, wait for the reaction to subside and rinse thoroughly with clean water. DEACTIVATION SOLUTION - Estimate volume of remaining spilled material on the floor and prepare 10 times as much deactivation solution as follows. Prepare fresh by mixing 5% sodium hypochlorite (household bleach) and 5% sodium bicarbonate or potassium bicarbonate away from the immediate area of the spill. The solution can be prepared by adding household bleach to the 3-quart fill mark on the 1 gallon plastic container containing 1/3 of a lb. (150 grams) of sodium bicarbonate. Put on the appropriate personal protection equipment and close the container securely and shake well for 1 minute. The materials and equipment for preparing solutions should be kept available for use in areas where spills may occur. 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 :
Very toxic to aquatic organisms., Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

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.

Country/Source	Substance(s)	Category:	ppm	mg/m3
	2-Methyl-4-Isothiazolin-3-one	Manufacturer's Recommendation/TWA		1.5
		Manufacturer's		4.5

5-Chloro-2-Methyl-4-Isothiazolin-3-one	Recommendation/STEL Manufacturer's Recommendation/TWA Manufacturer's Recommendation/STEL	0.076 0.23

ENGINEERING MEASURES :
General ventilation is recommended.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. A suitable filter material depends on the amount and type of chemicals being handled.

HAND PROTECTION :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled, but we have positive experience under light handling conditions using gloves made from PVC Gloves should be replaced immediately if signs of degradation are observed. Breakthrough time not determined as preparation, consult PPE manufacturers.

SKIN PROTECTION :
When handling this product, the use of a chemical resistant suit and rubber boots is recommended.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Clear Light yellow
ODOR	Pungent

SPECIFIC GRAVITY	1.02 @ 60 °F / 15.5 °C
DENSITY	8.5 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	2.0 - 4.0
VISCOSITY	3 cps @ 77 °F / 25 °C
VAPOR PRESSURE	No data available.
VOC CONTENT	1.5 % 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 :
None known

MATERIALS TO AVOID :
None known

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: 3,310 mg/kg
Test Descriptor: Product

ACUTE DERMAL TOXICITY :
Species: Rabbit
LD50: > 5,000 mg/kg
Test Descriptor: Product

ACUTE INHALATION TOXICITY :
Species: Rat
LD50: 0.33 mg/l (4 hrs)
Test Descriptor: Product

SENSITIZATION :
Repeated or prolonged contact may cause skin sensitization.

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).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the active components.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	0.28 mg/l	Active Substance
Rainbow Trout	96 hrs	0.19 mg/l	Active Substance

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	0.16 mg/l		Active Substance

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 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.

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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

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 :	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical Name(s) :	5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE
UN/ID No :	UN 3265
Hazard Class - Primary :	8
Packing Group :	II
Flash Point :	Not applicable

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical Name(s) :	5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE
UN/ID No :	UN 3265
Hazard Class - Primary :	8
Packing Group :	II
IATA Cargo Packing Instructions :	812
IATA Cargo Aircraft Limit :	30 L (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical Name(s) :	5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE
UN/ID No :	UN 3265
Hazard Class - Primary :	8
Packing Group :	II

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

Magnesium Nitrate : Eye irritant
2-Methyl-4-Isothiazolin-3-one : Corrosive, Sensitizer

5-Chloro-2-Methyl-4-Isothiazolin-3-one : 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 contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

Hazardous Substance(s)	CAS NO	% (w/w)
Magnesium Nitrate	10377-60-3	1.0 - 5.0

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 140974
This product is acceptable for treating boilers, steam lines, and/or cooling systems where neither the treated water nor the steam produced may contact edible products in and around food processing areas, excluding such use in areas where meat and poultry are processed (G10).

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 707-133-1706

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 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Magnesium Salt	Proprietary

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 :
E - Corrosive Material, D2B - Materials Causing Other Toxic Effects - Toxic Material

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.

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

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 Existing and New Chemical Substances list (ENCS).

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

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

16. OTHER INFORMATION

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.

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
Date issued : 07/31/2009
Version Number : 1.2

SAFETY DATA SHEET

PRODUCT

3D TRASAR® 3DT198

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT198**

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

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

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

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)
Sodium Tolyltriazole	64665-57-2	30.0 - 60.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
Corrosive. May cause tissue damage. Harmful if swallowed.
Do not get in eyes, on skin or on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available.
Wear a face shield. Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
Corrosive; causes permanent skin damage.

INGESTION :
Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Harmful if swallowed.

INHALATION :
Not a likely route of exposure. Elevated temperatures or mechanical action may form vapors, mists or fumes which may be irritating to the eyes, nose, throat and lungs.

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

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. Use a mild soap if available. For a large splash, flood body under a shower. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

INGESTION :
Get immediate medical attention. DO NOT INDUCE VOMITING. If conscious, washout mouth and give water to drink.

INHALATION :
Remove to fresh air, treat symptomatically. Get immediate medical attention.

NOTE TO PHYSICIAN :
Probable mucosal damage may contraindicate the use of gastric lavage. 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 : Not flammable

EXTINGUISHING MEDIA :
Not expected to burn. Water mist may be used to cool closed containers. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) 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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. 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. Clean contaminated surfaces with water or aqueous cleaning agents. 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. Do not breathe vapors/gases/dust. Avoid generating aerosols and mists. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Do not mix with acids.

STORAGE CONDITIONS :
Protect product from freezing. Store the containers tightly closed. Store separately from acids. Store in suitable labeled containers.

SUITABLE CONSTRUCTION MATERIAL :
Stainless Steel 304, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

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

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. 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 :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

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 :
Use good work and personal hygiene practices to avoid exposure. 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. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light Amber
ODOR	Characteristic

SPECIFIC GRAVITY	1.19 - 1.21
DENSITY	10 lb/gal
SOLUBILITY IN WATER	Miscible
pH (100 %)	12
VISCOSITY	55 cps @ 61 °F / 16 °C
FREEZING POINT	18 - 23.00 °F / -7.8 - -5 °C
BOILING POINT	222 °F / 106 °C
VAPOR PRESSURE	18.8 mm Hg Same as water
OCTANOL/WATER COEFFICIENT (log Kow)	-1.20

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 :
Freezing temperatures.

MATERIALS TO AVOID :
Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :

Species:	Rat
LD50:	640 mg/kg
Test Descriptor:	Product

ACUTE DERMAL TOXICITY :

Species:	Rabbit
LD50:	> 2,000 mg/kg
Test Descriptor:	Product

SENSITIZATION :
This product is not expected to be a sensitizer.

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.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	191.2 mg/l	Product
Rainbow Trout	96 hrs	23.7 mg/l	Product
Inland Silverside	96 hrs	93.2 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	245.7 mg/l		Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	89.8 mg/l		Product
Acartia tonsa	48 hrs	605 mg/l		Product

AQUATIC PLANT RESULTS :

Species	Exposure	EC50/LC50	Test Descriptor
Marine Algae (Skeletonema costatum)	72 hrs	114 mg/l	Product

AQUATIC MICROORGANISM RESULTS :

Species	Exposure	EC50/LC50	Test Descriptor
Pseudomonas putida		500 mg/l	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 270,000 mg/l

Chemical Oxygen Demand (COD) : 750,000 mg/l

The organic portion of this preparation is expected to be poorly 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 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%	10 - 30%	70 - 90%

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

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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

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 :	CAUSTIC ALKALI LIQUID, N.O.S.
Technical Name(s) :	SODIUM TOLYLTRIAZOLE
UN/ID No :	UN 1719
Hazard Class - Primary :	8
Packing Group :	II
Flash Point :	Not flammable

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CAUSTIC ALKALI LIQUID, N.O.S.
Technical Name(s) :	SODIUM TOLYLTRIAZOLE
UN/ID No :	UN 1719
Hazard Class - Primary :	8
Packing Group :	II

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CAUSTIC ALKALI LIQUID, N.O.S.
Technical Name(s) :	SODIUM TOLYLTRIAZOLE
UN/ID No :	UN 1719

Hazard Class - Primary :	8
Packing Group :	II

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

Sodium Tolyltriazole : Corrosive, HARMFUL

CERCLA/SUPERFUND, 40 CFR 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
-	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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

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 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods.

Limitation: For use only as a corrosion inhibitor at the bronze couch roll at a maximum concentration of 5 ppm as product in the spray flow.

This product has been certified as KOSHER/PAREVE for year-round use EXCEPT FOR THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Sodium Hydroxide	Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Sodium Tolyltriazole	64665-57-2
Sodium Hydroxide	1310-73-2

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

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

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

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 Existing and New Chemical Substances list (ENCS).

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

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

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

16. OTHER INFORMATION

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.

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
Date issued : 03/10/2011
Version Number : 1.6

SAFETY DATA SHEET

PRODUCT

NALCO® H150M

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® H150M**

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

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

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER : -
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Hazardous Substance(s)	CAS NO	% (w/w)
n-Alkyl (5% C12, 60% C14, 30% C16, 5% C18) dimethyl benzyl ammonium chlorides	68391-01-5	10.0 - 30.0
(C12-C14 Alkyl)-Dimethyl-Ethylbenzyl-Ammonium Chloride		10.0 - 30.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
CORROSIVE. Causes irreversible eye damage and skin burns. Do not get in eyes, on skin, or on clothing. Wear protective eye wear (goggles, safety glasses), protective clothing, and protective gloves (chemical or rubber). May be fatal if swallowed, absorbed through the skin, or inhaled. Do not breathe vapor. Wear a respirator (see label). Wash thoroughly with soap and water after handling and before eating, drinking and using tobacco. Remove contaminated clothing and wash before reuse.
Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve HCl under fire conditions. May evolve ammonia under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
Corrosive; causes permanent skin damage. Harmful if absorbed through skin.

INGESTION :
Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Harmful if swallowed.

INHALATION :
Elevated temperatures or mechanical action may form vapors, mists or fumes which may be irritating to the eyes, nose, throat and lungs. Harmful if inhaled.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes.

IF SWALLOWED: Call a Poison Control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or ambulances, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice

NOTE TO PHYSICIAN :
Probable mucosal damage may contraindicate the use of gastric lavage. 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 : > 200 F/ > 93.3 °C

EXTINGUISHING MEDIA :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve HCl under fire conditions. May evolve ammonia 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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. 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. Clean contaminated surfaces with water or aqueous cleaning agents. 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 :
This pesticide is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters, unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Do not use, store, spill or pour near heat, sparks or open flame.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed. Store separately from oxidizers.

SUITABLE CONSTRUCTION MATERIAL :
Shipping and long term storage compatibility with construction materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

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

RESPIRATORY PROTECTION :
No exposure limits have been assigned to this product or its components. Nalco recommend the use of a full face filter mask or air supplied breathing apparatus. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Multi-contaminant cartridge. with a Particulate pre-filter. 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 :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled, but we have positive experience under light handling conditions using gloves made from PVC . Gloves should be replaced immediately if signs of degradation are observed. Breakthrough time not determined as preparation, consult PPE manufacturers. Neoprene gloves Viton# gloves

SKIN PROTECTION :
When handling this product, the use of overalls, a chemical resistant apron and rubber boots is recommended. A full slicker suit is recommended if gross exposure is possible.

EYE PROTECTION :
Wear a face shield with chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. 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. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Clear Light yellow
ODOR	Somewhat sweet
SPECIFIC GRAVITY	0.96 @ 77.0 °F / 25.0 °C
DENSITY	7.9 lb/gal
SOLUBILITY IN WATER	Complete

pH (10 %)	6.5 - 8.3
FREEZING POINT	14.0 °F / -10.0 °C
VOC CONTENT	0.0 % 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 :
Avoid extremes of temperature.

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Contact with reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) may generate heat, fires, explosions and toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen, HCl, ammonia

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :

Species:	Rat
LD50:	250 mg/kg
Test Descriptor:	Product

ACUTE DERMAL TOXICITY :

Species:	Rabbit
LD50:	3,400 mg/kg
Test Descriptor:	Product

ACUTE INHALATION TOXICITY :

Species:	Rat
LC50:	86 mg/l (4 hrs)
Test Descriptor:	Product

PRIMARY SKIN IRRITATION :

Species: Rabbit
Draize Score: /8.0
Test Descriptor:
Remarks: Severely irritating

PRIMARY EYE IRRITATION :
Species: Rabbit
Draize Score: /110.0
Test Descriptor:
Remarks: Severely irritating

SENSITIZATION :
This product is not expected to be a sensitizer.

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).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the active components.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	0.272 mg/l	Active Substance

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Ceriodaphnia dubia	48 hrs	0.051 mg/l		Active Substance

CHRONIC FISH RESULTS :

Species	Exposure	NOEC / LOEC	End Point	Test Descriptor
Fathead Minnow	7 Days	0.048 mg/l / 0.096 mg/l	Growth	Active Substance

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Ceriodaphnia dubia	3 Brood	0.019 mg/l / 0.038 mg/l	Reproduction	Active Substance

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 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%	30 - 50%

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

BIOACCUMULATION POTENTIAL
Component substances have a potential to bioaccumulate.

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.

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

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 :	CORROSIVE LIQUID, N.O.S.
Technical Name(s) :	QUATERNARY AMMONIUM COMPOUND
UN/ID No :	UN 1760
Hazard Class - Primary :	8
Packing Group :	II
Flash Point :	> 200 F/ > 93.3 °C

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, N.O.S.
Technical Name(s) :	QUATERNARY AMMONIUM COMPOUND
UN/ID No :	UN 1760
Hazard Class - Primary :	8
Packing Group :	II

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, N.O.S.
Technical Name(s) :	QUATERNARY AMMONIUM COMPOUND
UN/ID No :	UN 1760
Hazard Class - Primary :	8
Packing Group :	II
*Marine Pollutant :	Quaternary ammonium compound

*Note: This product is regulated as a Marine Pollutant when shipped by Rail, Highway (in bulk quantities), or Air (if no other hazard class applies), and when shipped by water in all quantities.

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

n-Alkyl (5% C12, 60% C14, 30% C16, 5% C18) dimethyl benzyl ammonium chlorides : Corrosive
(C12-C14 Alkyl)-Dimethyl-Ethylbenzyl-Ammonium Chloride : Corrosive

CERCLA/SUPERFUND, 40 CFR 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
-	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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 6836-235-1706

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 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
This product contains the following substances which require warning under California Proposition 65. Additional components may be unintentionally present at trace levels.

Substance(s)	Concentration	EFFECTS
• Benzyl Chloride • Dimethylnitrosoamine • Propylene Oxide	<= .01 % <= .0001 % <= .001 %	Causes Cancer
• Benzene	<= .02 %	Causes Cancer, Causes Birth Defects, Causes Reproductive Harm
• Toluene	<= .03 %	Causes Birth Defects, Causes Reproductive Harm

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

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

INTERNATIONAL CHEMICAL CONTROL LAWS :

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

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

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

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

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

16. OTHER INFORMATION

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.

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
Date issued : 02/24/2011
Version Number : 1.7

SAFETY DATA SHEET

PRODUCT

NALCO 1315

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 1315**

APPLICATION : DETOXIFICATION AGENT

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

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

NFPA 704M/HMIS RATING
HEALTH : 0 / 1* FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

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)
Bentonite	1302-78-9	5.0 - 10.0
Quartz	14808-60-7	0.1 - 1.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact. Inhalation of crystalline silica can cause silicosis. This material or some of its substance(s) has been shown to cause cancer in laboratory animals.
Do not get in eyes, on skin, on clothing. Do not take internally. Wear suitable protective clothing. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Protect product from freezing.
Not flammable or combustible.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS :
Prolonged inhalation of product can increase lung injury in persons with emphysema, asthma, or other lung disorders.

HUMAN HEALTH HAZARDS - CHRONIC :
Contains crystalline silica (quartz or cristobalite). The International Agency for Research on Cancer (IARC) has evaluated crystalline silica (inhaled in the form of quartz or cristobalite from occupational sources) and found it to be a human carcinogen (Group 1) based on sufficient animal data and sufficent human evidence. The National Toxicology Program (NTP) has evaluated crystalline silica and found it may be reasonably anticipated to be a human carcinogen. Overexposure to the respirable dust (less than or equal to 5 microns in size) may lead to silicosis, which is a progressive and irreversible lung disease.

4. FIRST AID MEASURES

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

SKIN CONTACT :
Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

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

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 : > 212 °F / > 100 °C (PMCC)

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

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible.

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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

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. Clean contaminated surfaces with water or aqueous cleaning agents. 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 :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed. Protect product from freezing.

SUITABLE CONSTRUCTION MATERIAL :
Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product contains amorphous, colloidal or fumed silica. Should the product become dried or misted such that inhalation of the material is possible, standard hygiene practices should be utilized to ensure that exposure to respirable particles is within the regulated limits.

Substance(s)	Category:	ppm	mg/m3	Non-Standard Unit
Inhalable (Total Dust) Nuisance Particulates (Inhalable particles.)	ACGIH/TWA		10	
Inhalable (Total Dust) Nuisance Particulates (Respirable particles.)	ACGIH/TWA		3	
Inhalable (Total Dust) Nuisance Particulates (Respirable fraction.)	OSHA Z1/PEL		5	
Inhalable (Total Dust) Nuisance Particulates (Total dust.)	OSHA Z1/PEL		15	

Inhalable (Total Dust) Nuisance Particulates (Respirable fraction.)	Z3/TWA		15 MPPCF
Inhalable (Total Dust) Nuisance Particulates (Total dust.)	Z3/TWA		50 MPPCF
Inhalable (Total Dust) Nuisance Particulates (Respirable fraction.)	Z3/TWA	5	
Inhalable (Total Dust) Nuisance Particulates (Total dust.)	Z3/TWA	15	
Silica, Crystalline Quartz, Respirable Dust (Respirable fraction.)	ACGIH/TWA	0.025	
Silica, Crystalline Quartz, Respirable Dust (Respirable.)	Z3/TWA		2.4 MPPCF
	Z3/TWA	0.1	
Silica, Crystalline Quartz, Respirable Dust (Total dust.)	Z3/TWA	0.3	

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

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. 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 :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE Liquid

APPEARANCE Green Tan

ODOR	None
SPECIFIC GRAVITY	1.04 @ 60 °F / 15.6 °C
DENSITY	8.66 lb/gal
SOLUBILITY IN WATER	Dispersible
pH (100 %)	8.3
BOILING POINT	212 °F / 100 °C

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 :
Freezing temperatures.

MATERIALS TO AVOID :
None known

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: None known

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
Contains crystalline silica (quartz or cristobalite). The International Agency for Research on Cancer (IARC) has evaluated crystalline silica (inhaled in the form of quartz or cristobalite from occupational sources) and found it to be a human carcinogen (Group 1) based on sufficient animal data and sufficent human evidence. The National Toxicology Program (NTP) has evaluated crystalline silica and found it may be reasonably anticipated to be a human carcinogen. Overexposure to the respirable dust (less than or equal to 5 microns in size) may lead to silicosis, which is a progressive and irreversible lung disease.

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, unless otherwise indicated.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	19,000 mg/l	Active Substance (Bentonite)
Fathead Minnow	96 hrs	> 10,000 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	> 10,000 mg/l		Product

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 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%	10 - 30%	70 - 90%

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

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

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 : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

Bentonite : Exposure Limit - Compound Class
Quartz : Cancer suspect agent (refer to Section 3)

CERCLA/SUPERFUND, 40 CFR 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:

-	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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
This product contains the following substances which require warning under California Proposition 65. Additional components may be unintentionally present at trace levels.

Substance(s)	Concentration	EFFECTS
• Quartz • Cristobalite	<= 1 % <= .1 %	Causes Cancer

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Quartz 14808-60-7

INTERNATIONAL CHEMICAL CONTROL LAWS :

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.

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

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.

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

Prepared By : Product Safety Department
Date issued : 01/06/2011
Version Number : 2.3

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT120**

APPLICATION : COOLING WATER TREATMENT

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

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

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER : 0
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. May cause gastrointestinal irritation.

INHALATION :
Not a likely route of exposure. No adverse effects expected.

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.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice.

INGESTION :
Get medical attention. Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink.

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

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 : Not applicable

EXTINGUISHING MEDIA :
Water, Carbon dioxide, Dry powder, Foam
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible.

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. Clean contaminated surfaces with water or aqueous cleaning agents. 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 :
Do not contaminate surface water., Prevent material from entering sewers or waterways., If drains, streams, soil or sewers become contaminated, notify local authority.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

UNSUITABLE CONSTRUCTION MATERIAL :
Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Multi-contaminant cartridge. with a Particulate pre-filter. 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 :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled, but we have positive experience under light handling conditions using gloves made from PVC Gloves should be replaced immediately if signs of degradation are observed. Breakthrough time not determined as preparation, consult PPE manufacturers.

SKIN PROTECTION :
See general advice.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Consider the provision in the work area of a safety shower and eyewash. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Clear Yellow
ODOR	Neutral

SPECIFIC GRAVITY	1.113 - 1.149
SOLUBILITY IN WATER	Complete
pH (100 %)	2.4 - 3.6
VISCOSITY	39.93 - 42.69 cst
POUR POINT	28.4 °F / -2.0 °C
VOC CONTENT	0.0 % 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 :
Extremes of temperature

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Bases Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. SO2 may react with vapors from neutralizing amines and may produce a visible cloud of amine salt particles.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

The following results are for the product, unless otherwise indicated.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: 5,000 mg/kg
Test Descriptor: Similar Product

ACUTE DERMAL TOXICITY :
Species: Rabbit
LD50: > 2,000 mg/kg
Test Descriptor: Similar Product

SENSITIZATION :
This product is not expected to be a sensitizer.

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).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product, unless otherwise indicated.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	> 5,000 mg/l	Similar Product
Rainbow Trout	96 hrs	> 8,000 mg/l	Product

Inland Silverside	96 hrs	3,736 mg/l	Similar Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	1,339 mg/l		Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	3,750 mg/l		Similar Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 120,000 mg/l

Chemical Oxygen Demand (COD) : 300,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	175 mg/l	Product

The organic portion of this preparation is expected to be poorly 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 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%	10 - 30%	70 - 90%

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:
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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

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 : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 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 that this product is not hazardous under 29 CFR 1910.1200.

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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 141583
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Sodium Bisulfite • Sulfuric Acid	Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

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

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

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 Existing and New Chemical Substances list (ENCS).

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

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines 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.

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 : SHE Department
Date issued : 03/28/2011
Version Number : 1.14

SAFETY DATA SHEET

1. Identification

Product identifier **SULPHURIC ACID**

Other means of identification

SDS number 920044

CAS number 7664-93-9

Synonyms Dihydrogen Sulfate; Oil of vitriol; Vitriol Brown Oil; Acide sulfurique; H2SO4; 60 Deg Technical; 66 Deg Technical; 93% Technical; 1.835 Electrolyte; 98 % Technical; 99 % Technical; 100 % Technical.

Recommended use Industrial use. Water treatment chemical. Manufacture of pulp, paper and paper products. Fertilizer.

Recommended restrictions -

Manufacturer/Importer/Supplier/Distributor information

Manufacturer NorFalco LLC, 330 Madison Avenue, New York, New York, 10017, USA
Glencore Canada Corporation, d.b.a NorFalco Sales 100 King W., Toronto, Ontario, Canada, M5X 1E3.
Noranda Income Limited Partnership (CEZinc), Salaberry-de-Valleyfield, Quebec, Canada J6T 6L4.
Glencore Canada Corporation (Horne Smelter) Rouyn-Noranda, Quebec, Canada, J9X 5B6
Glencore Canada Corporation (Sudbury Integrated Nickel Operations) Falconbridge, Ontario, Canada, POM 1SO.

Website www.norfalco.com

Contact Point General Office : 1-416-775-1400

E-mail address NorfalcoTechnicalService@glencore.ca

Emergency Telephone Glencore 24/24 7/7 : 1-760-476-3962 (333261)

Transportation Emergency Telephone USA: 1-800-424-9300 CHEMTREC

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1

OSHA defined hazards Not classified.

This SDS adheres to the regulatory requirements of the US OSHA Hazard Communication Standard, 29CFR 1910.1200.

Label elements

Signal word Danger

Hazard statement Causes severe skin burns and eye damage.

Precautionary statement

Prevention Do not breathe mist/vapors. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Sulfuric Acid		7664-93-9	77-100

Composition comments All concentrations are in percent by weight. For more detailed chemical composition, refer to the certificate of analysis.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. For minor skin contact, avoid spreading material on unaffected skin. Thoroughly wash (or discard) clothing and shoes before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Causes digestive tract burns.
Indication of immediate medical attention and special treatment needed	Keep the affected person warm and at rest. Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Foam. Powder. Carbon dioxide (CO2). Water fog.
Unsuitable extinguishing media	Do not use water because of violent reaction.
Specific hazards arising from the chemical	Not flammable, but reacts with most metals to form flammable hydrogen gas. The product reacts with water and will generate heat. Contact with certain metals liberates flammable gas. During fire, gases hazardous to health may be formed. Sulfur Oxides (SOx).
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Cool containers exposed to heat with water spray and remove container, if no risk is involved. Do not allow run-off from firefighting to enter drains or water courses.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Material may react violently with water. Contact with moisture or water may generate sufficient heat to ignite nearby combustible materials. Containers can burst violently when heated, due to excess pressure build-up.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Ventilate closed spaces before entering them. Do not breathe mist/vapors. Do not get in eyes, on skin or on clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Be aware of potential for surfaces to become slippery. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up

Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. This product is miscible in water. Prevent entry into waterways, sewer, basements or confined areas. Clean up in accordance with all applicable regulations.

Large Spills: Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labeled container. Neutralize spilled material with crushed limestone, soda ash or lime. Retain and dispose of contaminated wash water. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling

Use only outdoors or in a well-ventilated area. Use work methods which minimize mist production. In case of inadequate ventilation, use respiratory protection. Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Wash thoroughly after handling. Never pour water into acid/base. Dilute by slowly pouring the product into water while stirring. Never add water to this product. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

May be corrosive to metals. Store in corrosive resistant container with a resistant inner liner. Store in a place accessible by authorized persons only. Store locked up. Store in tightly closed container. Store in a cool, dry place out of direct sunlight. Do not store in unlabelled containers. Store away from incompatible materials (see Section 10 of the SDS). Never allow product to get in contact with water during storage. Keep only in the original container. 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. Keep away from combustible material. Keep away from food, drink and animal feedingstuffs.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Sulfuric Acid (CAS 7664-93-9)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values (TLV)

Material	Type	Value	Form
Sulfuric Acid (CAS 7664-93-9)	TWA	0.2 mg/m3	Thoracic fraction.

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Material	Type	Value
Sulfuric Acid (CAS 7664-93-9)	IDLH	15 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Sulfuric Acid (CAS 7664-93-9)	TWA	1 mg/m3

Biological limit values

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

Appropriate engineering controls	Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and mists. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Neoprene, butyl rubber, nitrile or Viton gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.
Skin protection	
Other	Do not get this material in contact with skin. Wear appropriate chemical resistant clothing. Where splashing is possible, full chemically resistant protective clothing (e.g.,acid suit) and boots are required. Regular protective clothing with high visibility according to ANSI/ISEA 107-2015: American National Standard for High-Visibility Safety Apparel and Accessories, Class 2 is recommended.
Respiratory protection	Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. When using, do not eat, drink or smoke. Follow up on any medical surveillance requirements.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Oily liquid. Clear to slightly turbid.
Color	Colorless to gray.
Odor	Odorless.
Odor threshold	Not determined.
pH	< 1 (1% soln/water)
Melting point/freezing point	> -31 - < 52 °F (> -35 - < 11.11 °C)
Initial boiling point and boiling range	> 379 - < 621 °F (> 192.78 - < 327.22 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Butyl Acetate = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	< 0.6 mm Hg (100°F/38°C) < 0.3 mm Hg (77°F/25°C)
Vapor density	3.4 (Air = 1)
Relative density	> 1.76 - < 1.84
Solubility(ies)	
Solubility (water)	Miscible
Partition coefficient (n-octanol/water)	Not applicable. -2.2
Auto-ignition temperature	Not applicable.
Decomposition temperature	644 °F (340 °C)
Viscosity	13.6 mm²/s (25 °C / 77 °F)

Other information

Dynamic viscosity	22.5 cP (20 °C / 68 °F)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	15 % (Estimated)

10. Stability and reactivity

Reactivity	Reacts violently with strong alkaline substances. This product may react with reducing agents. May be corrosive to metals.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	May be corrosive to metals. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reacts violently with water and/or organic solvents with the generation of heat.
Conditions to avoid	Excessive heat. Moisture. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials. Do not mix with other chemicals. Water.
Incompatible materials	Water. Never add water to this product. Bases. Strong oxidizing agents. Strong reducing agents. Carbon steel. Metals. Alkalis. Organic material.
Hazardous decomposition products	Sulfuric acid decomposes at 340°C into sulfur trioxide and water.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Corrosive. Inhalation produces damaging effects on the mucous membranes and upper respiratory tract. Inhalation of vapors may cause lung oedema.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Causes digestive tract burns. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity	May be harmful if swallowed. Vapors are corrosive. After some hours, injured persons may develop serious shortness of breath and lung edema.

Product	Species	Test Results
Sulfuric Acid (CAS 7664-93-9)		
Acute		
Inhalation		
Mist		
LC50	Rat	0.375 mg/l, 4 hours
Oral		
LD50	Rat	2140 mg/kg

Skin corrosion/irritation	Causes severe skin burns.
Serious eye damage/eye irritation	Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Test data conclusive but not sufficient for classification.
Carcinogenicity	Exposure to strong inorganic acid mists containing sulfuric acid has been classified as carcinogenic to humans. The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sulfuric Acid (CAS 7664-93-9) 1 Carcinogenic to humans.

NTP Report on Carcinogens

Sulfuric Acid (CAS 7664-93-9) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity Test data conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Test data conclusive but not sufficient for classification.

Aspiration hazard Not classified.

Chronic effects Sulfuric acid fumes: Prolonged, repeated exposure to acid fumes/mists may cause chronic bronchitis, irritation of skin, mucous membranes and gastrointestinal tract and erosion of the teeth.

Further information Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure.

12. Ecological information

Ecotoxicity Harmful to aquatic life.

Product		Species	Test Results
Sulfuric Acid (CAS 7664-93-9)			
Aquatic			
Algae	EC50	Pseudokirchneriella subcapitata	> 100 mg/l, 72 hours
Crustacea	EC50	Daphnia magna	> 100 mg/l, 48 hours
Fish	LC50	Lepomis macrochirus	16 - 28 mg/l, 96 hours

Persistence and degradability The product is not biodegradable.

Bioaccumulative potential Not relevant for inorganic substances.

Partition coefficient n-octanol / water (log Kow)

Sulfuric Acid (CAS 7664-93-9) -2.2

Mobility in soil The product is water soluble and naturally present in soil as sulfate ions.

Mobility in general The product is water soluble and may spread in water systems.

Other adverse effects The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH ≤2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

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

14. Transport information

DOT

UN number UN1830

UN proper shipping name Sulfuric acid

Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	A3, A7, B3, B83, B84, IB2, N34, T8, TP2, TP12
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

DOT BULK

BULK

UN number	UN1830
UN proper shipping name	Sulfuric acid
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	A3, A7, B3, B83, B84, IB2, N34, T8, TP2, TP12
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1830
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	8L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1830
UN proper shipping name	SULPHURIC ACID
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

This product is a liquid and when transported in bulk is covered under MARPOL 73/78 Annex II.
This product is listed in the IBC Code.
Ship type: 3
Pollution category: Y

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sulfuric Acid (CAS 7664-93-9) Listed.

SARA 304 Emergency release notification

Sulfuric acid (aerosol forms only) (CAS 7664-93-9) 1000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) This substance is on the TSCA 8(b) inventory and is designated “active”.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Sulfuric Acid	7664-93-9	1000	1000		

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Sulfuric Acid	7664-93-9	77-100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Sulfuric Acid (CAS 7664-93-9)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Sulfuric Acid (CAS 7664-93-9) 6552

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Sulfuric Acid (CAS 7664-93-9) 20 %WV

DEA Exempt Chemical Mixtures Code Number

Sulfuric Acid (CAS 7664-93-9) 6552

Food and Drug Administration (FDA)
Total food additive
Direct food additive
GRAS food additive

US state regulations

US. Massachusetts RTK - Substance List

Sulfuric Acid (CAS 7664-93-9)

US. New Jersey Worker and Community Right-to-Know Act

Sulfuric Acid (CAS 7664-93-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Sulfuric Acid (CAS 7664-93-9)

US. Rhode Island RTK

Sulfuric Acid (CAS 7664-93-9)

California Proposition 65

WARNING: This product can expose you to Strong inorganic acid mists containing sulfuric acid, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Strong inorganic acid mists containing sulfuric acid Listed: March 14, 2003

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Sulfuric Acid (CAS 7664-93-9)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

16. Other information, including date of preparation or last revision

Issue date 20-January-2017

Revision date 08-June-2023

Version # 03

HMIS® ratings
Health: 3
Flammability: 0
Physical hazard: 0
Personal protection: B

List of abbreviations
LD50: Lethal Dose, 50%.
LC50: Lethal Concentration, 50%.
EC50: Effective Concentration, 50%.
PEL: Permissible Exposure Limit.
TWA: Time weighted average.

References
IUCLID
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
HSDB® - Hazardous Substances Data Bank

Disclaimer
This Safety Data Sheet was compiled from data and information that, to the best of our knowledge, is considered accurate at the date of publication in regards to the subject materials identified herein. This Safety Data Sheet does not relate to the use of such materials in combination with other materials or processes. The information provided in this Safety Data Sheet is given without any express or implied guarantee or warranty with respect to its completeness or ongoing accuracy. NorFalco LLC and its affiliates disclaim any liability for damages arising out of or related to the information provided herein or any person's use of the material. It is not possible to identify all potential hazards that may be associated with all possible uses of a particular material and it is the user's sole responsibility to determine and verify the appropriate and lawful precautions necessary for the safe handling and use of this material for that user's specific application.

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

NALCO® 8158

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	NALCO® 8158
Other means of identification	:	Not applicable.
Recommended use	:	WATER CLARIFICATION AID COAGULANT, FLOCCULANT
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630)305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	03/30/2018

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals	:	Category 1
Serious eye damage	:	Category 1

GHS Label element

Hazard pictograms :

Signal Word	:	Danger
Hazard Statements	:	May be corrosive to metals. Causes serious eye damage.
Precautionary Statements	:	**Prevention:** Keep only in original container. Wear eye protection/face protection. **Response:** 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/ physician. Absorb spillage to prevent material damage. **Storage:** Store in corrosive resistant stainless steel container with a resistant inner liner.
Other hazards	:	None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration: (%)
Aluminum Hydroxychloride	1327-41-9	30 - 60

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
In case of skin contact	:	Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.
Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	:	Treat symptomatically.
Most important symptoms and effects, both acute and delayed	:	See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	None known.
Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Hydrogen chloride
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate

certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling : Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.

Conditions for safe storage : Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.

Suitable material : Keep in properly labelled containers.

Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Product is corrosive to aluminum. Aluminum should not be used for feed, storage, or transportation systems.

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Aluminum Hydroxychloride	1327-41-9	TWA	2 mg/m3 (Aluminium)	NIOSH REL

Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection : Safety goggles
Face-shield

Hand protection : Wear protective gloves.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin protection : Wear suitable protective clothing.

Respiratory protection : No personal respiratory protective equipment normally required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any

exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Colour	:	light yellow
Odour	:	odourless
Flash point	:	, Method: ASTM D 93, Pensky-Martens closed cup, Not applicable.
pH	:	2.3,(100 %), Method: ASTM E 70
Odour Threshold	:	no data available
Melting point/freezing point	:	FREEZING POINT: -12 °C
Initial boiling point and boiling range	:	102 °C
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	similar to water
Relative vapour density	:	no data available
Relative density	:	1.21, (20 °C), ASTM D-1298
Density	:	10.1 lb/gal
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	14 mPa.s (20 °C), Method: ASTM D 2983
Viscosity, kinematic	:	no data available
Molecular weight	:	no data available
VOC	:	0 %, 0 g/l, EPA Method 24

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Extremes of temperature

Incompatible materials	:	Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas. Mineral Acids
Hazardous decomposition products	:	Decomposition products may include the following materials: Oxides of aluminum Hydrogen chloride

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Causes serious eye damage.
Skin	:	Health injuries are not known or expected under normal use.
Ingestion	:	Health injuries are not known or expected under normal use.
Inhalation	:	Health injuries are not known or expected under normal use.
Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	Redness, Pain, Corrosion
Skin contact	:	No symptoms known or expected.
Ingestion	:	No symptoms known or expected.
Inhalation	:	No symptoms known or expected.

Toxicity

Product

Acute oral toxicity	:	LD50 rat: Test substance: Similar Product Acute toxicity estimate: > 5,000 mg/kg
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	LD50 rabbit: >2 g/kg Test substance: Similar Product
Skin corrosion/irritation	:	Result: 0.9 Method: Draize Test Test substance: Similar Product

Serious eye damage/eye irritation	:	Result: 12.7 Method: Draize Test Test substance: Similar Product
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects : This product has no known ecotoxicological effects.

Product

Toxicity to fish : LC50 Oncorhynchus mykiss (rainbow trout): 300 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Pimephales promelas (fathead minnow): 360 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Leuciscus idus (Golden orfe): 750 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Oncorhynchus mykiss (rainbow trout): 56 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Pimephales promelas (fathead minnow): 180 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 Daphnia magna (Water flea): > 1,000 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Daphnia magna (Water flea): 1,000 mg/l
Exposure time: 48 hrs
Test substance: Product

Components

Toxicity to algae : Aluminum Hydroxychloride
LC50 : 14 mg/l
Exposure time: 72 h

Persistence and degradability

Total Organic Carbon (TOC) : 1,080 mg/l

Chemical Oxygen Demand (COD): 1,660 mg/l

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: : D002

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Technical name(s) : ALUMINUM CHLORIDE HYDROXIDE SULPHATE
UN/ID No. : UN 3264
Transport hazard class(es) : 8
Packing group : III

Air transport (IATA)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

Technical name(s)	:	ALUMINUM CHLORIDE HYDROXIDE SULPHATE
UN/ID No.	:	UN 3264
Transport hazard class(es)	:	8
Packing group	:	III

Sea transport (IMDG/IMO)

Proper shipping name	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Technical name(s)	:	ALUMINUM CHLORIDE HYDROXIDE SULPHATE
UN/ID No.	:	UN 3264
Transport hazard class(es)	:	8
Packing group	:	III

Section: 15. REGULATORY INFORMATION

TSCA list : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

Canadian Domestic Substances List (DSL)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Taiwan Chemical Substance Inventory

All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

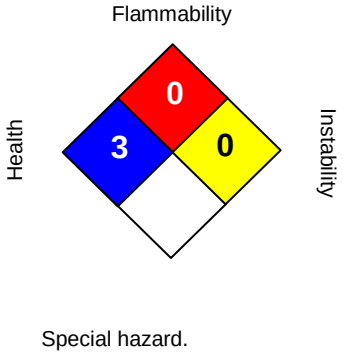
Korea. Korean Existing Chemicals Inventory (KECI)

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

Section: 16. OTHER INFORMATION

NALCO® 8158

NFPA:



Special hazard.

HMIS III:

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date	:	03/30/2018
Version Number	:	1.1
Prepared By	:	Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an SDS visit www.nalco.com and request access.

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

NALCLEAR™ 7744

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	NALCLEAR™ 7744
Other means of identification	:	Not applicable.
Recommended use	:	FLOCCULANT
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630) 305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	10/31/2024

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Precautionary Statements : **Prevention:**
Wash hands thoroughly after handling.
Response:
Get medical advice/ attention if you feel unwell.
Storage:
Store in accordance with local regulations.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration: (%)
Petroleum distillates, hydrotreated light	64742-47-8	1 - 5
Sulfuric Acid	7664-93-9	0.1 - 1

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse with plenty of water. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Get medical attention if symptoms occur.

Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	:	Treat symptomatically.
Most important symptoms and effects, both acute and delayed	:	See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	None known.
Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Wash hands thoroughly after handling.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers. Protect product from freezing.

Suitable material : Keep in properly labelled containers.

Unsuitable material : not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Petroleum distillates, hydrotreated light	64742-47-8	TWA (Mist)	5 mg/m3	OSHA Z1
		TWA	200 mg/m3 (as total hydrocarbon vapor)	ACGIH
		TWA (Mist)	5 mg/m3	NIOSH REL
		STEL (Mist)	10 mg/m3	NIOSH REL
Sulfuric Acid	7664-93-9	TWA (Thoracic particulate matter)	0.2 mg/m3	ACGIH
		TWA	1 mg/m3	NIOSH REL
		TWA	1 mg/m3	OSHA Z1

Engineering measures : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Eye protection : Safety glasses

Hand protection : Wear protective gloves.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin protection : Wear suitable protective clothing.

Respiratory protection : No personal respiratory protective equipment normally required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid

Colour : off-white

Odour : hydrocarbon-like

Flash point : 93.3 °C, Method: ASTM D 93, Pensky-Martens closed cup, minimum

pH	:	3.6 - 5.0,(100 %), Method: ASTM E 70
Odour Threshold	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable.
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	no data available
Relative vapour density	:	no data available
Relative density	:	1.04, (25 °C),
Density	:	1.04 g/cm3 , 8.4 - 8.7 lb/gal
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Molecular weight	:	no data available
VOC	:	0 %, 0 g/l, EPA Method 24

Section: 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Freezing temperatures.
Incompatible materials	:	None known
Hazardous decomposition products	:	In the event of fire, see Section 5

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of	:	Inhalation, Eye contact, Skin contact, Ingestion

exposure

Potential Health Effects

Eyes	:	Health injuries are not known or expected under normal use.
Skin	:	Health injuries are not known or expected under normal use.
Ingestion	:	Health injuries are not known or expected under normal use.
Inhalation	:	Health injuries are not known or expected under normal use.
Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	No symptoms known or expected.
Skin contact	:	No symptoms known or expected.
Ingestion	:	No symptoms known or expected.
Inhalation	:	No symptoms known or expected.

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available

Carcinogenicity

IARC — No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Group 1: Carcinogenic to humans

Sulfuric Acid	7664-93-9

OSHA — No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP — No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Known to be human carcinogen

Sulfuric Acid	7664-93-9

Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Toxicity

Environmental Effects : Harmful to aquatic life.

Product

Toxicity to fish : LC50 Pimephales promelas (fathead minnow): 1,768 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Pimephales promelas (fathead minnow): 1,250 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Inland Silverside: 52.5 mg/l
Exposure time: 96 hrs
Test substance: Similar (more concentrated) Product

NOEC Inland Silverside: 6.25 mg/l
Exposure time: 96 hrs
Test substance: Similar (more concentrated) Product

LC50 Rainbow Trout: 8,800 mg/l
Exposure time: 96 hrs
Test substance: Similar Product

NOEC Rainbow Trout: 3,600 mg/l
Exposure time: 96 hrs
Test substance: Similar Product

Toxicity to daphnia and other aquatic invertebrates : EC50 Ceriodaphnia dubia: 16.3 mg/l
Exposure time: 48 hrs
Test substance: Product

LC50 Ceriodaphnia dubia: 28.2 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Ceriodaphnia dubia: 9.4 mg/l
Exposure time: 48 hrs
Test substance: Product

LC50 Daphnia magna: 410 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

EC50 Daphnia magna: 190 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

NOEC Daphnia magna: 80 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

Components

Toxicity to algae : Petroleum distillates, hydrotreated light
EC50 Pseudokirchneriella subcapitata (green algae): > 1,000 mg/l
Exposure time: 72 h

Components

Toxicity to fish (Chronic toxicity) : Petroleum distillates, hydrotreated light
NOEC: 0.173 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)

Components

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Petroleum distillates, hydrotreated light
NOEC: 1.22 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

Persistence and degradability

Total Organic Carbon (TOC) : 57,660 mg/l

Chemical Oxygen Demand (COD): 76,980 mg/l

Biochemical Oxygen Demand (BOD):

Incubation Period	Value	Test Descriptor
	6,100 mg/l	Product

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 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 : <5%
Water : 30 - 50%
Soil : 50 - 70%

Bioaccumulative potential

no data available

Other information

no data available

Section: 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.

Disposal methods	:	Do not contaminate storm water drains, natural waterways or soil with chemical or used container. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of contents/container in accordance with local regulations. Dispose of wastes in an approved waste disposal facility.
Disposal considerations	:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This product does not contain a RQ substance, or this product contains a substance with a RQ, however the calculated RQ exceeds the reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards	:	No SARA Hazards
SARA 302	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65
⚠ **WARNING:** Cancer - www.P65Warnings.ca.gov

Sulfuric Acid	7664-93-9

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory
On or in compliance with the active portion of the TSCA inventory

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)
All substances in this product comply with the Australian Industrial Chemicals Introduction Scheme (AICIS)

Canadian Domestic Substances List (DSL)
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Japan. ENCS - Existing and New Chemical Substances Inventory
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

Korea. Korean Existing Chemicals Inventory (KECI)
On the Korea Existing Chemicals Inventory.

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

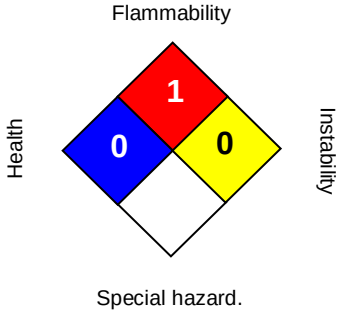
China Inventory of Existing Chemical Substances
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

Taiwan Chemical Substance Inventory
All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

Section: 16. OTHER INFORMATION

NALCLEAR™ 7744

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date	:	10/31/2024
Version Number	:	2.0
Prepared By	:	Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an SDS visit www.ecolab.com/sds and request access.

86 North Hackensack Avenue,
Kearny, NJ 07032-4673
Tel. 973 568-0700
Fax. 973 589-4866
www.kuehnecompany.com

Sodium Hypochlorite Concentrated

This SDS follows the GHS format

SDS Number	KCC - HYPO - 100
SDS Date	September 5, 2023
24 Hour Emergency Phone Number	973 589-0700 | 551 200-2751 **CHEMTREC** 800 424-9300

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	Hypochlorite Solution
Chemical Name	Sodium Hypochlorite
CAS Number	7681-52-9
Common Names	Chlorine Bleach, Soda Bleach
Chemical Formula	NaOCl
Manufacturer	Kuehne Chemical Company Inc. 86 North Hackensack Avenue South Kearny NJ 07032-4673 973 589-0700

SECTION 2 - HAZARD IDENTIFICATION

Symbol

Signal Word Danger

Corrosive to Metals	Category 1
Skin Corrosion	Category 1
Serious Eye Damage	Category 1
Target Organ Toxicity	Category 1 - Causes damage to respiratory system

Hazard Statements

H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H400 - Very toxic to aquatic life

HMIS HAZARD RATINGS

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	2
PERSONAL PROTECTION	

Based on Nat'l Paint & Coating Association HMIS System

NFPA HAZARD RATINGS

Chemical not listed. Ratings based on NFPA guidelines

Effects of Overexposure

Acute *Inhalation* | Inhalation of mists, vapors or sprays is irritating to the respiratory system, may cause throat pain and couch, sever respiratory tract irritation and pulmonary edema.

Eyes | May cause severe irritation, burns, and/or corrosion, vision impairment, corneal damage and blurred vision.

Skin | May cause severe irritation and burns or dermatitis. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin to regenerate at site of contact.

Ingestion | May cause gastrointestinal tract pain and inflammation, burns and perforation of the esophagus or stomach or injury to liver, kidneys or central nervous system.

Chronic Repeated inhalation exposure may cause impairment of lung function and permanent lung damage. Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

Note Corrosive and strongly irritating to the eyes, skin, and respiratory tract. Inhalation of fumes may cause pulmonary edema. Ingestion may cause burns to the mouth and digestive tract, and abdominal distress.

Appearance Colorless to light yellow-green liquid.

Routes of Entry Inhalation, Eye Contact, Skin, Ingestion

Cancer Information This product has not been listed as carcinogenic by the following agencies: IARC, NTP, or OSH.

Mutagenicity Sodium hypochlorite has tested positive in in-vitro test systems and negative in invivo test systems. These results are consistent with other germicides.

Medical Conditions Aggravated by Exposure Asthma, Heart disease, Respiratory disorder

SECTION 3 - COMPOSITION, INFORMATION OR INGREDIENTS

CAS Number	Name	Common Names
7732-18-5	Water	Water

Percentage

VOL	68 - 74
WT	78 - 80

Exposure Limits

PEL	Not Established
TLV	Not Established
STEL	Not Established
IDLH	Not Established

CAS Number
7681-52-9

Name
Hypochlorous Acid, Sodium Salt

Common Names
Sodium Hypochlorite

Percentage
VOL 25 - 30
WT 20 - 22

Exposure Limits
PEL N/A
TLV N/A
STEL 2 mg/m3 (US WEEL)
IDLH Not Established

Listed On
- EINECS inventory, or in compliance with inventory
- TSCA inventory
- AICS inventory, or in compliance with inventory
- DSL list
- ENCS inventory, or in compliance with inventory
- KECI inventory, or in compliance with inventory
- PICCS inventory, or in compliance with inventory
- IECSC inventory, or in compliance with inventory
- NZIoC inventory, or in compliance with inventory

CAS Number
1310-73-2

Name
Sodium Hydroxide (NaOH)

Common Names
Caustic Soda, Lye

Percentage
VOL 1
WT 1

Exposure Limits
PEL 2 mg/m3
TLV 2 mg/m3
STEL 2 mg/m3
IDLH 10 mg/m3

Listed On
- The TSCA Inventory, or in compliance with inventory
- PA Requirement - 3% or greater
- NJ Requirement - 1% or greater
- This product has not been listed as carcinogenic by the following agencies: IARC, NTP, or OSHA

CAS Number	Name	Common Names
7647-14-5	Sodium Chloride (NaCl)	Salt

Percentage
VOL >1
WT >1

Exposure Limits

PEL	Not Established
TLV	Not Established
STEL	Not Established
IDLH	Not Established

CAS Number	Name	Common Names
497-19-8	Carbonic Acid Disodium Salt	

Percentage
VOL >1
WT >1

Exposure Limits

PEL	Not Established
TLV	Not Established
STEL	Not Established
IDLH	Not Established

SECTION 4 - FIRST AID MEASURES

Inhalation Remove to fresh air. If breathing is difficult, have qualified person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

Eyes Immediately flush eyes with plenty of water for at least 15 minutes. **SEEK MEDICAL ATTENTION IMMEDIATELY**.

Skin Flush thoroughly with cool water under shower for at least 15 minutes while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. Continue to flush until medical attention arrives. **SEEK MEDICAL ATTENTION IMMEDIATELY**.

Ingestion Do not induce vomiting. Rinse mouth and give water or milk if the person is conscious. If vomiting occurs, keep airway clear and give more milk or water. **SEEK MEDICAL ATTENTION IMMEDIATELY**.

SECTION 5 - FIRE-FIGHTING MEASURES

Flash Point	N/A
Auto-Ignition Temperature	N/A
Flammable Limits in Air - % by Volume - Upper	N/A
Flammable Limits in Air - % by Volume - Lower	N/A
Sensitivity to Mechanical Impact	Not Sensitive
Sensitivity to Static Discharge	Not Sensitive

Extinguishing Media

Use water spray, foam, dry powder, or carbon dioxide or agents suitable for materials in surrounding fire. Do not use Mono Ammonium Phosphate (MAP) type extinguishers directly on this product.

Fire Fighting Procedures

Use self-contained breathing apparatus and full protective equipment. Acid contamination will produce very irritating fumes similar to chlorine.

Fire and Explosion Hazard

Sodium Hypochlorite or its solutions decompose when heated. Decomposition products may cause containers to rupture or explode. Vigorous reaction is possible with organic materials or oxidizing agents and may result in fire. May release toxic gases.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled

Do not allow spilled material to enter sewers or streams. Flush with water to dilute as much as possible and pump into polyethylene containers for disposal. Avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb Sodium Hypochlorite Solution.

Ventilation Requirements

Provide good general room ventilation plus local exhaust at points of emission.

SECTION 7 - HANDLING AND STORAGE

Handling Precautions

Do not store adjacent to chemicals that may react if spillage occurs. Comply with DOT regulations when shipped. If closed containers become heated, vent to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohols or ethers.

Do Not Reuse Containers

Product residues may remain in containers. All labeled precautions must be observed. Dispose of container in a manner meeting government regulations.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific Personal Protective Equipment

Respiratory	NIOSH/MSHA approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Acid gas cartridges may be required if decomposition products are present. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator
Eyes	Wear chemical safety goggles plus full face shield to protect against splashing when appropriate.
Gloves	Wear impervious gloves such as rubber, neoprene or vinyl.
Other	Wear impervious protective clothing including rubber safety shoes. Eye wash facility and emergency shower should be in close proximity.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colorless to light yellow-green

Odor Pungent chlorine like odor

Physical State Liquid

pH 12 @ 100 g/L

Vapor Pressure

Temperature °F	mm Hg	PSIA
48.2	3.7	0.071
60.8	8.0	0.15
68.0	12.1	0.23
89.6	31.1	0.60
118.4	100.0	1.93

Boiling Point @ 760 mm Hg Decomposes above 110°C (230°F)

Freezing / Melting Point

Weight %	Freezing Point °F
10	7
12	- 3
14	- 14

Solubility in Water 100% (by weight)

Specific Gravity 1.155 - 1.410 $H_2O = 1$

Odor Threshold (ppm) 0.9 ppm approximate

SECTION 10 - STABILITY AND REACTIVITY

Conditions Contributing to Instability Strong Oxidizer, stability decreases with concentration, heat, light, decrease in pH and contamination by metals.

Incompatibility Avoid contamination with heavy metals, reducing agents, organics, ether, ammonia, and acids.

Reacts With Organics, ammonia and acids

Hazardous Decomposition Products Acid fumes, Hydrogen chloride and Chlorine.

Hazardous Polymerization Material is not known to polymerize.

SECTION 11 - TOXICOLOGICAL INFORMATION

CAS Number	Name	Common Names
7681-52-9	Sodium Hypochlorite	Bleach

Acute Oral LD_{50}	(rat)	8,200 mg/kg
Primary Skin Irritation LD_{50}	(rabbit)	>10,000 mg/kg

The toxicity and corrosivity of Sodium Hypochlorite is a function of concentration. Industrial grades of higher concentrations than household bleach are more toxic and corrosive.

SECTION 12 - ECOLOGICAL INFORMATION

Aquatic Ecotox Data | Fish

LC_{50} (96 hr)	Pimephales Promelas (Fathead Minnow)	1.40 mg/L
EC_{50} (48 hr)	Daphnia Magna (Water Flea)	0.035 mg/L

Biodegradation This material is inorganic and not subject to biodegradation.

Persistence This material is believed not to persist in the environment.

Bioconcentration This material is not expected to bioconcentrate in organisms.

This material is harmful to fish, invertebrates, amphibians, and plants.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method
Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep on alkaline side and dilute with copious amounts of water. Main end product is salt water. Comply with all applicable government regulations.

Product Disposal
Product should be completely removed from containers. Material that cannot be used or chemically reprocessed should be disposed of in a manner meeting applicable governmental regulations.

SECTION 14 - TRANSPORT INFORMATION

DOT Proper Shipping Name	Hypochlorite Solutions
DOT Hazard Class	8
DOT ID Number	UN1791
DOT Packing Group	II
DOT Hazardous Substance	RQ 100# (Sodium Hypochlorite)
DOT Marine Pollutant	N/A
Additional Description	N/A

SECTION 15 - REGULATORY INFORMATION

U.S. Federal Regulations
Section 311 of The Clean Water Act lists this product as a hazardous substance, which If discharged to water, may require immediate response to mitigate danger to public health and welfare. Spills of 100 pounds or more must be reported to the National Response Center at the following number: 1-800-424-8802.

Material is contained on a composite list as required under 101 (14) of CERCLA.

Sodium Hypochlorite Solution is regulated by the USEPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as a pesticide product.

Sodium Hypochlorite Solution produced by Kuehne Chemical Company Inc. is registered with the USEPA under Registration Number 35317-20001, 35317-4 and 35317-13.

OSHA — This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US).

TSCA
Toxic Substances Control Act — This product is not subject to export notification.

CERCLA and SARA/Title III

Hazard Categories

Corrosive to Metal
Oxidizer
Acute Toxicity
Respiratory or Skin Sensitization
Serious Eye Damage or Irritation
Skin Corrosion or Irritation

This product is registered with the USEPA as a pesticide as required under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Other Standards

NSF Certification — This product has been classified as an approved drinking water treatment chemical under ANSI/NSF Standard 60.

USDA Approvals — B-1, D-2, L-1, Q-4 & Fruit and Vegetable washing compounds.

SECTION 16 - OTHER INFORMATION

Prepared By
Kuehne Company's Health, Safety, Environmental & Security Department, Revision D – 5 September 2023. For additional non-emergency health, safety or environmental information, telephone: 973 589-0700 or write to:

Kuehne Chemical Company, Inc.
86 N. Hackensack Avenue
South Kearny, New Jersey 07032-4673

SDS Legend

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstracts Service Registry Number
CEILING	Ceiling Limit (15 Minutes)
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit (OSHA)
STEL	Short Term Exposure Limit (15 Minutes)
TLV	Threshold Limit Value (ACGIH)
TWA	Time Weighted Average (8 Hours)

IMPORTANT

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations.

The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE.

This information is not intended to be all-inclusive as to the manner and conditions of handling and storage. Other factors may involve other or use additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any federal, state or local laws, rules, regulations or ordinances.

No warranty of any kind is given or implied and Kuehne Chemical Company, Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein

This Safety Data Sheet (SDS) covers the following materials: Sodium Hypochlorite - Liquid: Concentrated

REFERENCES

American National Standard, Z400.1-1993
Chlorine Institute Pamphlet 96 (Sodium Hypochlorite Manual), Edition 5, September 2017
National Institute for Occupational Safety and Health, US Dept. of Health & Human Services, Cincinnati, June, 1994.
Supplier's Safety Data Sheets.
Windholz, Martha, Ed, The Merck Index, 11th ed., Merck and Co, Inc., Rahway, New Jersey, 1989.

Ingredients

Active Ingredient | Sodium Hypochlorite (NaOCl)	10 - 20 %	(by weight)
Other Ingredients	80 - 90 %	
Total	100 %	

KEEP OUT OF REACH OF CHILDREN

DANGER

Category 1

Symbol

Signal Word Danger

Hazard Statements
May be corrosive to metals
Causes severe skin burns and eye damage
Very toxic to aquatic life

FIRST AID

IF INHALED Move to fresh air. If person is not breathing, call 911 or an ambulance then give artificial respiration, preferably month-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

IF IN EYES Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue to rinse eye. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN Probable mucosal damage may contraindicate the use of gastric lavage.

HOT LINE NUMBER 1 800 POISON-1

Have product container or label with you when calling a poison control center or doctor or going for treatment.

PRECAUTIONARY STATEMENTS
HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

DANGER Corrosive. Causes irreversible eye and skin damage. Do not get in eyes, on skin or on clothing. Harmful if absorbed through the skin. Applicators or other handlers must wear coveralls over long sleeve shirt and long pants, socks and rubber boots, face shield or goggles and rubber gloves when handling this product. Wash thoroughly with soap and water after handling before eating, drinking, chewing gum, using tobacco or using the toilet. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated. Remove and wash contaminated clothing before reuse.

Environmental Hazards This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Physical and Chemical Hazards STRONG OXIDIZING AGENT. Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs and mucous membranes.

DIRECTION FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Re-formulators and Re-packagers of this product must obtain their own registrations from the United States Environmental Protection Agency (USEPA).

For manufacturing use in the formation of end-use Products

NOTE This product degrades with age. Use a Chlorine test kit and increase dosage as necessary, to obtain the required level of available Chlorine.

For specific use directions, see KUEHNE Circular for each particular application.

CIRCULAR NUMBER K586A Sanitizers of hard non-porous surfaces (stainless steel tops)

CIRCULAR NUMBER K586B Commercial laundry sanitizers

CIRCULAR NUMBER K586C Agricultural uses

CIRCULAR NUMBER K586D	Disinfection of human drinking water
CIRCULAR NUMBER K586E	Disinfection of hard non-porous surfaces (sealed tile, fiberglass, glass, stainless steel)
CIRCULAR NUMBER K586F	Sewage, wastewater and effluent control
CIRCULAR NUMBER K586G	Cooling tower & evaporative condenser water systems
CIRCULAR NUMBER K586H	Sanitizer of porous food contact surfaces (wooden butcher blocks)
CIRCULAR NUMBER K586I	Sanitizer of porous non-food contact surfaces (tile walls, concrete floors)
CIRCULAR NUMBER K586J	Disinfectant of swimming pool water, spa/hot tubs, hydrotherapy pools)

STORAGE AND DISPOSAL

Store this product in a cool dry area away from direct sunlight and heat to prevent deterioration. In case of a spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

Large storage containers should be rinsed thoroughly with water and returned to manufacturer for reconditioning. Large storage containers should be thoroughly rinsed with water before reuse.

IN CASE OF

FIRE Use self-contained breathing apparatus and full protective equipment. Use water spray, foam, dry chemical or C02. Fire may liberate toxic gases.

SPILL OR LEAKAGE Get protective equipment. Contain spill and pump into marked container for reclamation for disposal. Avoid discharges to sewers and streams. Spills of 100 pounds or more must be reported to the National Response Center at the following number:

1 800 424-8802

State and local regulations may have additional reporting requirements, check with the proper state and local authorities. Wear neoprene or rubber gloves.

IN CASE OF CHEMICAL EMERGENCIES

24 HOUR EMERGENCY PHONE 973 589-0700

Univar USA Inc Safety Data Sheet

SDS No:	
Version No:	009 2015-01-12
Order No:	

3075 Highland Pkwy, Ste 200, Downers Grove, IL 60515
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION

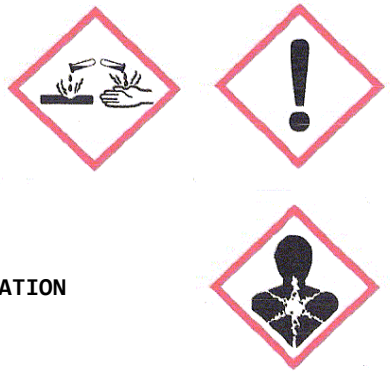
SDS DATE: 01/09/2015
REPLACES: 07/18/2014

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION
SDS NUMBER: CDS-2115
COMPANY IDENTITY: Univar
COMPANY ADDRESS: 17425 NE Union Hill Road
COMPANY CITY: Redmond, WA 98052
COMPANY PHONE: 1-425-889-3400
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)



SECTION 2. HAZARDS IDENTIFICATION

WARNING!

2.1 HAZARD STATEMENTS:
H100s = General, H200s = Physical, H300s = Health, H400s = Environmental

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

2.2 PRECAUTIONARY STATEMENTS:
P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P262	Do not get in eyes, on skin, or on clothing.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Water	7732-18-5	231-791-2	58-73
Sodium Bisulfite	7631-90-5	-	27-42

Trace components: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

SECTION 4. FIRST AID MEASURES

4.1 GENERAL ADVICE:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

4.2 EYE CONTACT:
If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

4.3 SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

4.4 INHALATION:
After high vapor exposure, remove to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. 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. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention. 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.

4.5 SWALLOWING:
If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

4.6 NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation).

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to physician or health professional with victim.

SECTION 5. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES
Isolate from oxidizers, acids, and extreme heat.

5.2 EXTINGUISHING MEDIA
Use appropriate extinguishing media for surrounding fire.

5.3 SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters
& cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

5.4 UNUSUAL EXPLOSION AND FIRE PROCEDURES
Noncombustible.
Thermal decomposition produces toxic fumes.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

6.2 PERSONAL PROTECTIVE EQUIPMENT
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves (triple-gloves (rubber gloves and nitrile gloves, over latex gloves), goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

6.4 CONTAINMENT AND CLEAN-UP MEASURES:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING
Isolate from oxidizers, heat, & open flame. Use only with adequate ventilation. Avoid breathing of vapor or spray mist. Avoid contact with skin & eyes. Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.
Empty container very hazardous! Continue all label precautions!

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Isolate from acids, strong oxidants. Do not store above 49 C/120 F.
Keep container tightly closed & upright when not in use to prevent leakage.

7.3 NONBULK: CONTAINERS:
Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

SECTION 7. HANDLING AND STORAGE (CONTINUED)

7.4 BULK CONTAINERS:
All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:
Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:
Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:
Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-5	231-791-2	None Known	None Known
Sodium Bisulfite	7631-90-5	-	None Known	None Known

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS
Airborne concentrations should be kept to lowest levels possible. If vapor, dust or mist is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations, after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown. Maintain airborne contaminant concentrations below exposure limits. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For particulates, a particulate respirator (NIOSH Type N95 or better filters) may be worn. If oil particles (such as: lubricants, cutting fluids, glycerine, and so on) are present, use a NIOSH Type R or P filter. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS
Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxilliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Necessary
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE 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 or dusts. If contact is possible, chemical splash goggles should be worn, when a higher degree of protection is necessary, use splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:
Use gloves chemically resistant to this material. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitril") or ("NBR"), Polyvinyl chloride ("PVC") or "vinyl"), Viton. 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:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using toilet facilities and at the end of the working period. Provide readily accessible eye wash stations & safety showers. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

BODY PROTECTION:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers. Wash at end of each shift & before eating, smoking or using the toilet. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Straw Yellow
ODOR:	Sharp, Pungent
ODOR THRESHOLD:	Not Available
pH (Neutrality):	4.1 - 4.6
BOILING RANGE (IBP,50%,Dry Point):	> 100 C / > 212 F
FLASH POINT (TEST METHOD):	Not Applicable
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	9
VAPOR DENSITY (air=1):	0.670
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	1.320
POUNDS/GALLON:	10.996
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available
VOCs (>0.044 Lbs/Sq In) :	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
TOTAL VOC'S (TVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	0.0 Wt% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.0

* Using California Air Resources Board (CARB) Rule 310.

SECTION 10. STABILITY & REACTIVITY

10.1 STABILITY
Stable under normal conditions.

10.2 CONDITIONS TO AVOID
Gradually oxidizes to sodium sulfate on exposure to air. Temperatures at or near boiling point causes evolution of toxic and corrosive sulfur dioxide.

10.3 MATERIALS TO AVOID
Mineral acids, oxidizing agents. Contact with acid liberates irritating sulfur dioxide gas. Corrosive to steel, carbon steel, and other common materials of construction at ambient temperatures.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS
Sodium Oxide & Hydroxide, Sulfur Dioxide from heating.

10.5 HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.11 EYE & SKIN CONTACT:
CORROSIVE! Causes severe skin burns.
Causes severe eye damage.
Wash thoroughly after handling.

11.12 INHALATION:
Mist irritating to respiratory tract.

11.13 SWALLOWING:
Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
None Known.

11.3 CHRONIC HAZARDS

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

11.32 IRRITANCY OF PRODUCT: This product is irritating to contaminated tissue.

11.33 SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer.

11.34 MUTAGENICITY: This product is not reported to produce mutagenic effects in humans.

11.35 EMBRYOTOXICITY: This product is not reported to produce embryotoxic effects in humans.

11/36 TERATOGENICITY: This product is not reported to produce teratogenic effects in humans.

11.37REPRODUCTIVE TOXICITY: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (such as: within the eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MAMMALIAN TOXICITY INFORMATION

LD50 (Oral): 820 mg/kg (Mouse)

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION

SDS DATE: 01/09/2015
REPLACES: 07/18/2014

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:
No aquatic environmental information is available on this product.

12.4 MOBILITY IN SOIL
Mobility of this material has not been determined.

12.5 DEGRADABILITY
This product is completely biodegradable.

12.6 ACCUMULATION
Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. 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 and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE USED CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.Processing, use or contamination may change the waste management options. Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies. Deactivating Chemicals: Soda Ash, Lime or Limestone. EPA Waste Number: D002.

SECTION 14. TRANSPORT INFORMATION

DOT/TDG SHIP NAME:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III
DRUM LABEL:	Corrosive (8)
IATA / ICAO:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III
IMO / IMDG:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III

EMERGENCY RESPONSE GUIDEBOOK NUMBER: 154

SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health, Reactivity

All components of this product are on the TSCA list.
SARA Title III Section 313 Supplier Notification
This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be

included in all MSDSs that are copied and distributed for this material.

EPA CLEAN WATER ACT
Sodium Bisulfite is listed as a hazardous substance which, if discharged to the water, may require immediate response to mitigate dangers to human healt and the environment.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
Sodium Bisulfite	7631-90-5	-	27-42	(311,312)	5000

SECTION 15. REGULATORY INFORMATION (CONTINUED)

15.2 STATE REGULATIONS:
CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS)G
Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC),
Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
D2B: Irritating to skin / eyes.
E: Corrosive

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

14.5 SDS DATE: 07/18/2014

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:
HEALTH (NFPA): 2, HEALTH (HMIS): 2, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

Univar USA Inc Safety Data Sheet

For Additional Information contact SDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. (”Univar”) expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Safety Data Sheet
CAUSTIC SODA

Version 1.3 Revision Date: 06/21/2024

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CAUSTIC SODA

Recommended use of the chemical and restrictions on use

Recommended use : Industrial chemical
Restrictions on use : None known.

Manufacturer or supplier's details

Company : Univar Solutions USA
Address 3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)

Emergency telephone number:
Transport North America: CHEMTREC (1-800-424-9300)
CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1

Skin corrosion : Category 1A

Serious eye damage : Category 1

Specific target organ toxicity - single exposure : Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H370 Causes damage to organs.

Precautionary statements : **Prevention:**
P234 Keep only in original container.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 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/ doctor.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
Storage:
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
1310-73-2	Sodium hydroxide	90 - 100
497-19-8	Sodium carbonate	0 - 5
7647-14-5	Sodium chloride (NaCl)	0 - 5

Any Concentration shown as a range is due to batch variation.

Synonyms : CAUSTIC SODA BEADS; CAUSTIC SODA FLAKES; CAUSTIC SODA PELLETS; SODIUM HYDROXIDE**,**

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
Oxygen or artificial respiration if needed.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

		If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. Take victim immediately to hospital.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do not induce vomiting without medical advice. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Notes to physician	:	Treat symptomatically

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use an extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire-fighting	:	Do not allow run-off from fire fighting to enter drains or water courses. Heat generated when contacted with water may raise the temperature of combustible materials to above their autoignition temperature thereby causing combustion. In emergency situations, water and/or water-based foam can be used; the amount should be large enough to overcome heat and acid build-up. The use of water should be based on a careful evaluation by a knowledgeable person.
Hazardous combustion products	:	Sodium oxides
Specific extinguishing methods	:	Use water spray to cool unopened containers.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Avoid dust formation. Avoid breathing dust.

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Neutralise with acid. Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	Avoid formation of respirable particles. Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1310-73-2	Sodium hydroxide	C	2 mg/m3	ACGIH
		C	2 mg/m3	NIOSH REL
		TWA	2 mg/m3	OSHA Z-1
		C	2 mg/m3	OSHA P0
		C	2 mg/m3	CAL PEL

Personal protective equipment

Respiratory protection	:	No personal respiratory protective equipment normally required. In the case of dust or aerosol formation use respirator with an approved filter.

Hand protection

Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water

		Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Dust impervious protective suit Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	pellets
Colour	:	colourless, white
Odour	:	odourless
Odour Threshold	:	No data available
pH	:	13 @ 0.5 %
Freezing Point (Melting point/freezing point)	:	323 °C (613 °F)
Boiling Point (Boiling point/boiling range)	:	1,388 °C (2,530 °F)
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	< 0.001 mmHg @ 20 °C (68 °F)
Relative vapour density	:	No data available
Relative density	:	2.13 @ 25 °C (77 °F)
Density	:	No data available
Solubility(ies)		
Water solubility	:	1,110 g/l completely soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Exothermic reaction with acids.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Gives off hydrogen by reaction with metals. Heat is generated when mixed with water. Spattering and boiling can result. A reaction accompanied by large heat release occurs when

the product is mixed with acids. Heat generated may be sufficient to cause vigorous boiling creating a hazard due to splashing or splattering of hot material.

Conditions to avoid	:	Heat Exposure to moisture
Incompatible materials	:	Alkalis Formaldehyde Metals Nitriles Organic materials phosphorus Reducing agents Strong acids Strong oxidizing agents water Zinc
Hazardous decomposition products	:	Sodium oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Assessment: The substance or mixture has no acute oral toxicity
Acute dermal toxicity	:	Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Components:

1310-73-2:
Species: Rabbit
Result: Causes severe burns.

Serious eye damage/eye irritation

Components:

1310-73-2:
Species: Rabbit
Result: Risk of serious damage to eyes.

497-19-8:
Species: Rabbit
Result: Irritating to eyes.

Germ cell mutagenicity

Components:

7647-14-5:

Genotoxicity in vitro	:	Test Type: Mammalian cell gene mutation assay Species: mouse lymphoma cells Metabolic activation: Without metabolic activation Result: positive

Carcinogenicity

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure

Product:

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

Aspiration toxicity

Product:

Corrosive to the respiratory tract.

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

1310-73-2:

Toxicity to fish	:	LC50 (Gambusia affinis (Mosquito fish)): 125 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia): 40.38 mg/l Exposure time: 48 h Test Type: Immobilization

7647-14-5:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 5,840 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 874 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae	:	EC50 (Nitzschia linearis): 2,430 mg/l Exposure time: 120 h Test Type: static test

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):
UN1823, Sodium hydroxide, solid, 8, II

IATA (International Air Transport Association):
UN1823, Sodium hydroxide, solid, 8, II

IMDG (International Maritime Dangerous Goods):
UN1823, SODIUM HYDROXIDE, SOLID, 8, II

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sodium hydroxide	1310-73-2	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

1310-73-2 Sodium hydroxide

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

1310-73-2 Sodium hydroxide

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

1310-73-2 Sodium hydroxide

Pennsylvania Right To Know

1310-73-2 Sodium hydroxide

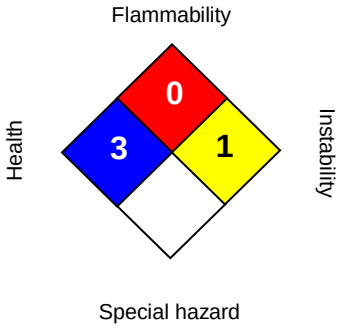
California Prop 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	Not in compliance with the inventory
NZIoC	:	not determined
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

SECTION16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3/
FLAMMABILITY	0
PHYSICAL HAZARD	4

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 06/21/2024

Material number:
16161483, 16195110, 16187854, 16181036, 16058121, 16161482, 16058120, 770038,

123912, 104219, 102821, 171903, 128713, 102701, 70909, 102197, 54074, 85745, 102215, 85812, 70037, 102697, 86334, 52987, 102130, 122166, 504307, 20143, 54468, 550293, 104369, 75486, 71803, 56947, 16161484, 16147083, 16137075, 16144738, 16161485, 16155800, 16154572, 16154395, 16153167, 16147084, 16143736, 16137714, 556610, 56305, 16151687, 16152292, 16142055, 16138329, 16138328, 16041698, 613716, 16170625, 16162065, 16156828

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: CITRIC ACID, SOLUTION

SDS DATE: 12/05/2013
REPLACES: 07/22/2013

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: CITRIC ACID, SOLUTION
SDS NUMBER: CDS-2171
COMPANY IDENTITY: Univar
COMPANY ADDRESS: 17425 NE Union Hill Road
COMPANY CITY: Redmond, WA 98052
COMPANY PHONE: 1-425-889-3400
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

WARNING!

HAZARD STATEMENTS:
H100s = General, H200s = Physical, H300s = Health, H400s = Environmental
H315 Causes skin irritation.
H320 Causes eye irritation.

PRECAUTIONARY STATEMENTS:
P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Water	7732-18-5	231-791-2	55-65
Citric Acid	77-92-9	-	45-50

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

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SECTION 4. FIRST AID MEASURES

GENERAL ADVICE:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

EYE CONTACT:
If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention.

SWALLOWING:
If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation).

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSION PREVENTIVE MEASURES
Isolate from strong oxidizers, extreme heat and open flame.

EXTINGUISHING MEDIA
Use appropriate extinguishing media.

SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

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SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

UNUSUAL EXPLOSION AND FIRE PROCEDURES
Reacts with most metals producing hydrogen which is extremely flammable & may explode. Applying to hot surfaces requires special precautions. Closed containers may explode if exposed to extreme heat.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

PERSONAL PROTECTIVE EQUIPMENT
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves (triple-gloves (rubber gloves and nitrile gloves, over latex gloves), goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

CONTAINMENT AND CLEAN-UP MEASURES:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

HANDLING
Use only with adequate ventilation. Do not get in eyes, on skin or clothing.
Wear OSHA Standard full face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

STORAGE
Isolate from strong oxidants. Do not store above 49 C/120 F.
Keep container tightly closed & upright when not in use to prevent leakage.
Reacts with most metals producing hydrogen which is extremely flammable & may explode.
Wear full face shield, gloves & full protective clothing when opening or handling.
When empty, drain completely, replace bungs securely.

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SECTION 7. HANDLING AND STORAGE (CONTINUED)

NONBULK: CONTAINERS:
Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

BULK CONTAINERS:
All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

TANK CAR SHIPMENTS:
Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:
Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-5	231-791-2	None Known	None Known
Citric Acid	77-92-9	-	None Known	None Known

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

RESPIRATORY EXPOSURE CONTROLS
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

VENTILATION
LOCAL EXHAUST: Necessary
MECHANICAL (GENERAL): Acceptable
SPECIAL: None
OTHER: None
Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTIONS:
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers.
Wash at end of each workshift & before eating, smoking or using the toilet.
Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

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SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	None
ODOR THRESHOLD:	Not Available
pH (Neutrality):	< 2.0
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	100 100 100* C/212 212 212* F(*=End Point)
FLASH POINT (TEST METHOD):	Not Applicable
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	17.5
VAPOR DENSITY (air=1):	0.670
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	1.240
POUNDS/GALLON:	10.329
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available
VOCs (>0.044 Lbs/Sq In) :	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
TOTAL VOC'S (TVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	0.0 Wt% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.0

* Using CARB (California Air Resources Board Rules).

SECTION 10. STABILITY & REACTIVITY

STABILITY
Stable but Reacts with most metals producing hydrogen which is extremely flammable & may explode.

CONDITIONS TO AVOID
Isolate from extreme heat and open flame

MATERIALS TO AVOID
Isolate from alkalis.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon Oxides from heating.

HAZARDOUS POLYMERIZATION
Will not occur.

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SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE HAZARDS

EYE & SKIN CONTACT:
Severe irritation to skin, defatting.
Severe irritation to eyes, redness, tearing, blurred vision.
Wash thoroughly after handling.

INHALATION:
May be irritating to the respiratory system.

SWALLOWING:
May be irritating to the digestive system.

SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED:
None Known.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

IRRITANCY OF PRODUCT: This product is irritating to contaminated tissue.
SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer.
MUTAGENICITY: This product is not reported to produce mutagenic effects in humans.
EMBRYOTOXICITY: This product is not reported to produce embryotoxic effects in humans.
TERATOGENICITY: This product is not reported to produce teratogenic effects in humans.
REPRODUCTIVE TOXICITY: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (such as: within the eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MAMMALIAN TOXICITY INFORMATION

No mammalian information is available on this product.

COMPANY IDENTITY: Univar
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REPLACES: 07/22/2013

SECTION 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

EFFECT OF MATERIAL ON AQUATIC LIFE:
No aquatic environmental information is available on this product.

MOBILITY IN SOIL
Mobility of this material has not been determined.

DEGRADABILITY
This product is completely biodegradable.

ACCUMULATION
Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal.
ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES. EPA CHARACTERISTIC: D002

SECTION 14. TRANSPORT INFORMATION

DOT/TDG SHIP NAME: Not Regulated
DRUM LABEL: None
IATA / ICAO: Not Regulated
IMO / IMDG: Not Regulated
EMERGENCY RESPONSE GUIDEBOOK NUMBER: None

SECTION 15. REGULATORY INFORMATION

EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health
All components of this product are on the TSCA list.
This material contains no known products restricted under SARA Title III, Section 313 in amounts greater or equal to 1%.

STATE REGULATIONS:
CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS)G
Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC),
Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

COMPANY IDENTITY: Univar
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SECTION 15. REGULATORY INFORMATION (CONTINUED)

CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
D2B: Irritating to skin / eyes.
E: Corrosive Material.

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:
HEALTH (NFPA): 1, HEALTH (HMIS): 1, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING
See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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GE Power & Water
Water & Process Technologies

Now Veolia

SAFETY DATA SHEET

HYPERSPERSE* MDC714

1. Product and Company Identification

Material name	**HYPERSPERSE MDC714**
Version #	2.0
Revision date	Dec-08-2014
Supersedes date	Jul-26-2012
Chemical description	Phosphonate in water
CAS #	Mixture
Product application	Membrane Deposit Control Agent

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazards Identification

Emergency overview Health injuries are not known or expected under normal use. May cause slight irritation to the skin. May cause slight irritation to the eyes.

Potential health effects

Eyes	May cause slight irritation to the eyes.
Skin	May cause slight irritation to the skin.
Inhalation	May cause irritation to the upper respiratory tract.
Ingestion	May cause slight gastrointestinal irritation.

Medical conditions aggravated by exposure None known.

3. Composition / Information on Ingredients

Hazardous components	**CAS #**	**Percent**
Disodium phosphonate	13708-85-5	2.5 - 10
Sodium chloride	7647-14-5	1 - 2.5

Non-hazardous components	**CAS #**
Water	7732-18-5
[Nitrilotris(methylene)]trisphosphonic acid, sodium salt	20592-85-2

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately.
Skin contact	Wash off with soap and water. Get medical attention immediately. Take off contaminated clothing and wash before reuse.
Inhalation	Move to fresh air. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Get medical attention immediately.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. Get medical attention if symptoms occur.
Notes to physician	No specific antidotes are recommended.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media	Dry chemical, CO2, water spray or regular foam.

Protection of firefighters

Protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Avoid contact with spilled material. See Section 8 of the MSDS for Personal Protective Equipment.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.
Methods for cleaning up	Ventilate the area. Flush with plenty of water. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Spread sand/grit.

7. Handling and Storage

Handling	No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the MSDS for additional personal protection advice when handling this product.
Storage	Keep container tightly closed in a dry and well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Engineering controls	Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Bulk tanks should be vented externally.

Personal protective equipment

Eye / face protection	Chemical goggles are recommended.
Skin protection	Wear suitable protective clothing. Chemical resistant gloves. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Chemical resistant apron. Glove selection must take into account any solvents and other hazards present.
Respiratory protection	A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE. If air-purifying respirator use is appropriate, use organic vapor cartridges and any of the following particulate respirators: R95, R99, R100, P95, P99 or P100.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance

Physical state	Liquid
Color	Colorless to yellow
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	7.3
pH in aqueous solution	7.8 (5% SOL.)
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Boiling point	215 °F (102 °C)
Melting point/Freezing point	-8 °F (-22 °C)
Solubility (water)	100 %
Specific gravity (70°F, 21°C)	1.42
Flash point	Not applicable.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	< 1 (Ether = 1)
Viscosity	25 cps
Viscosity temperature	70 °F (21 °C)
Percent volatile	0 (Estimated)
Pour point	-3 °F (-19 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	None known.
Incompatible materials	Water reactive substance. Strong oxidizing substances.
Hazardous decomposition products	Oxides of carbon, nitrogen and phosphorus evolved in fire.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
HYPERSPERSE MDC714 (CAS Mixture)		
Acute		
Oral		
LD50	Rat	> 5000 mg/kg

Carcinogenicity

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

12. Ecological Information

Ecotoxicity

Product		Species	Test Results
HYPERSPERSE MDC714 (CAS Mixture)			
	LC50	Fathead Minnow	5098 mg/L, Static Renewal Bioassay, 96 hour
	NOEL	Fathead Minnow	2000 mg/L, Static Renewal Bioassay, 96 hour
Crustacea	LC50	Daphnia magna	1366 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	1000 mg/L, Static Renewal Bioassay, 48 hour
Other	LC50	Rainbow Trout	5464 mg/L, Static Renewal Bioassay, 96 hour
	NOEL	Rainbow Trout	4000 mg/L, Static Renewal Bioassay, 96 hour

Persistence and degradability

No data available

13. Disposal Considerations

Disposal instructions Dispose of contents/container in accordance with local/regional/national/international regulations.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

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

14. Transport Information

DOT

Not regulated as dangerous goods.

Some containers may be DOT exempt, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as a dangerous good.

15. Regulatory Information

US federal regulations

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

None listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity, lbs

None listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Formaldehyde	50-00-0	100	500 lbs		

SARA 311/312 Hazardous chemical	No

Inventory status

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

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

State regulations

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

16. Other Information

List of abbreviations	NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
HMIS® ratings	Health: 1 Flammability: 0 Physical hazard: 0 Personal protection: B
NFPA ratings	Health: 2 Flammability: 0 Instability: 0
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
This data sheet contains changes from the previous version in section(s):	Product and Company Identification: Product and Company Identification Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties Toxicological Information: Toxicological Data Ecological Information: Ecotoxicity Transport Information: Material Transportation Information HazReg Data: Europe - EU GHS: Classification
Prepared by	This MSDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

CMP#: 1100-538

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 07-JUN-2006
Supercedes: 07-JUN-2006

KLARAID IC1172

1 Identification of Product and Company

Identification of substance or preparation
KLARAID IC1172

Product Application Area
Waste treatment additive.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: 215 355-3300

2 Composition / Information On Ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation. This product is subject to the Pennsylvania and New Jersey Worker and Community Right to Know Law.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
12042-91-0	ALUMINUM CHLORHYDROXIDE Irritant (eyes)	40-70

NON-HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7732-18-5	WATER

3 Hazards Identification

****

EMERGENCY OVERVIEW

WARNING

May cause moderate irritation to the skin. Severe irritant to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard is not applicable
Odor: Mild; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; May cause moderate irritation to the skin.

ACUTE EYE EFFECTS:
Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:
Mists/aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:
May cause gastrointestinal irritation.

TARGET ORGANS:
Repeated skin contact may cause sensitization.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
May cause redness or itching of skin.

4 First Aid Measures

SKIN CONTACT:
Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:
Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:
If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:
No special instructions

5 Fire Fighting Measures

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:
dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:
elemental oxides

FLASH POINT:
> 200F > 93C P-M(CC)

6 Accidental Release Measures

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling & Storage

HANDLING:
Normal chemical handling.

STORAGE:
Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 Exposure Controls / Personal Protection

EXPOSURE LIMITS

CHEMICAL NAME

ALUMINUM CHLORHYDROXIDE
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): 2 MG/M3 - SOLUBLE SALT (AS AL).

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:
viton gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:
splash proof chemical goggles

9 Physical & Chemical Properties

Specific Grav.(70F,21C)	1.339	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	19	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-7		
Viscosity(cps 70F,21C)	45	% Solubility (water)	100.0

Odor		Mild
Appearance		Colorless To Light Yellow
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH As Is (approx.)		3.7
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability & Reactivity

STABILITY:
Stable under normal storage conditions.
HAZARDOUS POLYMERIZATION:
Will not occur.
INCOMPATIBILITIES:
May react with strong oxidizers.
DECOMPOSITION PRODUCTS:
elemental oxides
INTERNAL PUMPOUT/CLEANOUT CATEGORIES:
"B"

11 Toxicological Information

Oral LD50 RAT:	>1,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	

12 Ecological Information

AQUATIC TOXICOLOGY

Ceriodaphnia 48 Hour Static Renewal Bioassay (pH adjusted)
LC50= 750; No Effect Level= 156 mg/L
Ceriodaphnia 7 Day Chronic Bioassay
Reproduction NOEL= 1.5; Reproduction LOEC= 3.1 mg/L
Daphnia magna 48 Hour Static Screen (pH adjusted)
20% Mortality= 5000; 0% Mortality= 2500 mg/L
Fathead Minnow 7 Day Chronic Bioassay
Growth NOEL= 5; Growth LOEL= 10 mg/L
Fathead Minnow 96 Hour Static Acute Bioassay
LC50= 517; No Effect Level= 370 mg/L
Rainbow Trout 96 Hour Static Acute Bioassay
LC50= 390; No Effect Level= 210 mg/L

BIODEGRADATION
No Data Available.

13 Disposal Considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport Information

DOT HAZARD: Not Applicable
PROPER SHIPPING NAME:

DOT EMERGENCY RESPONSE GUIDE #: Not applicable
Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory Information

TSCA:
All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:
21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

USDA FOOD PLANT APPROVALS:
This product contains ingredients that have been determined as safe for use in sewage and/or drain lines. (L1)

SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other Information

NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	10-DEC-1997		** NEW **
	18-JAN-1999	15	10-DEC-1997
	04-APR-2000	12	18-JAN-1999
	30-AUG-2000	4	04-APR-2000
	01-JUN-2001	15	30-AUG-2000
	12-NOV-2002	3	01-JUN-2001
	07-JUN-2006	8	12-NOV-2002

Borax Manufacturing Grade

Safety Data Sheet

Revision Date: August 2018
Supersedes: September 2016 version

Section 1 Identification of the chemical and of the supplier

1.1 Product Identifier — Borax Decahydrate

1.2 Other means of identification

Chemical name: Sodium tetraborate decahydrate

Synonyms: EPA name: Borax Manufacturing Grade
Canada PMRA name: 20 Mule Team Borax Technical

Grades: Manufacturing Grade

1.3 Recommended use of the chemical and restrictions on use — For the formulation of insecticides/fungicides/algaecides
EPA Reg No. 1624-124
Canada PMRA PCP Reg. No. 18607

1.4 Supplier's details

Company name: **U.S. Borax Inc.**

Address: 14486 Borax Road
Boron, CA 93516-2000, USA

Supplied by in Canada
P.O. Box 8090
London, Ontario N6G 2B0 2

Telephone number: +1 (760) 762-7000

Email: rtb.ssds@riotinto.com

1.5 Emergency phone number — (1) 866 928 0789 (24-Hr Toll-free number)
(1) 215 207 0061 (24-Hr Non toll-free number)

Section 2 Hazards identification

2.1 Classification of the substance or mixture

Reproductive Toxicity Category 2
Serious Eye Damage / Eye Irritation Category 2A

2.2 GHS label elements, including pictogram or symbol, signal word, hazard and precautionary statements

Hazard pictograms

Signal word: Warning

Hazard statements:
H361: Suspected of damaging fertility or the unborn child.
H319: Causes serious eye irritation.

Precautionary statements:
P202: Do not handle until all safety precautions have been read and understood.
P280: Wear eye protection.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501: Dispose of contents/container in accordance with local regulation.

Other hazards which do not result in classification (e.g. dust explosion hazard): None

Section 3 Composition/information on ingredients

3.1 Substances

Chemical name	CAS No.	% content	See Section 8 for Occupational Exposure Limits
Sodium tetraborate decahydrate	1303-96-4	>99.4	

Section 4 First aid measures

4.1 Description of necessary first aid measures
Protection of first-aiders: No special protective clothing is required.

Inhalation: If symptoms such as nose or throat irritation are observed, remove to fresh air.

Eye contact: Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

Skin contact: No treatment necessary.

Ingestion: Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.

4.2 Most important symptoms and effects both acute and delayed: Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling (see Section 11).

4.3 Indication of any immediate medical attention and special treatment needed: Note to physicians: Supportive care only is required for adult ingestion of less than a few grams of the product. For ingestion of larger amounts, maintain fluid and electrolyte balance and maintain adequate kidney function. Gastric lavage is only recommended for heavily exposed, symptomatic patients in whom emesis has not emptied the stomach. Hemodialysis should be reserved for patients with massive acute absorption, especially for patients with compromised renal function. Boron analyses of urine or blood are only useful for verifying exposure and are not useful for evaluating severity of poisoning or as a guide in treatment[1].

Section 5 Fire-fighting measures

5.1 Suitable extinguishing media: Use extinguishing media that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: None

5.2 Special hazards arising from the chemical
None. The product is not flammable, combustible or explosive.

5.3 Special protective equipment and precautions for fire fighters:
Not applicable. The product itself is a flame retardant.

Section 6 Accidental release measures

6.1 Personal precaution, protective equipment and emergency procedures

For non-emergency personnel:
Eye protection according to ANSI Z.87.1 or other national standards.

For emergency responders:
Eye protection according to ANSI Z.87.1 or other national standards.

6.2 Environmental precautions: The product is a water-soluble white powder that may cause damage to trees or vegetation by root absorption. Avoid contamination of water bodies during clean up and disposal. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level or meets local water quality standards.

6.3 Methods and material for containment and cleaning up

Appropriate containment: Avoid spillage into water and cover drains.

Land spill: Vacuum, shovel or sweep up and place in containers for disposal in accordance with applicable local regulations.

Spillage into water: Where possible, remove any intact containers from the water.

6.4 Reference to other sections
Refer to sections 8, 12 and 13.

Section 7 Handling and storage

7.1 Precautions for safe handling
Good housekeeping procedures should be followed to minimise dust generation and accumulation. Avoid spills. Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities
No special handling precautions are required, but dry, indoor storage is recommended. To maintain package integrity and to minimise caking of the product, bags should be handled on a first-in first-out basis.

Storage temperature: Ambient
Storage pressure: Atmospheric
Special sensitivity: Moisture (Caking)

Section 8 Exposure controls/personal protection

8.1 Control parameters
Occupational exposure limit values: In the absence of a national OEL, Rio Tinto Borax recommends and applies internally an Occupational Exposure Limit (OEL) of 1 mg B/m^3. To convert product into equivalent boron (B) content, multiply by 0.113. ACGIH, which is not a regulatory agency, has established a Threshold Limit Value (TLV) for borates.

Occupational Exposure Limits:

ACGIH	2 mg/m^3	8-hr TWA OEL (mg/m^3) inhalable fraction – Borate Compounds, inorganic
ACGIH	6 mg/m^3	15 min STEL (mg/m^3) inhalable fraction – Borate Compounds, inorganic
OSHA/PEL (total dust)	15 mg/m^3	Particulate Not Otherwise Classified or Nuisance Dust
OSHA/PEL (respirable dust)	5 mg/m^3	Particulate Not Otherwise Classified or Nuisance Dust
Cal OSHA/PEL	5 mg/m^3	Particulate Not Otherwise Classified or Nuisance Dust

8.2 Appropriate engineering controls: Use local exhaust ventilation to keep airborne concentrations of dust below permissible exposure limits.

8.3 Personal protection equipment:
Eye and face protection: Eye protection according to ANSI Z.87.1 or other national standards are required.
Skin protection: Standard work gloves (cotton, canvas or leather) may be warranted if environment is excessively dusty.
Respiratory protection: Where airborne concentrations are expected to exceed exposure limits, respirators should be used.

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	White, crystalline solid
Odour	Odourless
Odour threshold:	Not applicable: odourless
pH @ 20°C:	9.3 (0.1% solution); 9.2 (1.0% solution); 9.3 (4.7% solution)
Melting point/ Freezing point:	62°C (enclosed space)
Initial boiling point and boiling range:	Not applicable
Flash point:	Not applicable: inorganic substance
Evaporation rate:	Not applicable: non-volatile
Flammability:	Non-flammable (used as a flame retardant)
Upper/lower flammability or explosive limits:	Not applicable: non-flammable
Vapour pressure:	Not applicable
Vapour density:	Not applicable
Relative density:	1.72@23°C
Solubility(ies):	Water**:** 49.74 g/L @ 20°C
Partition coefficient; n-octanol/water:	Log P_{ow} = -1.53 @ 22°C
Auto-ignition temperature:	Not applicable: not self-heating
Decomposition temperature:	Not applicable
Viscosity:	Not applicable: solid substance
Explosive properties:	Not explosive: does not contain chemical groups associated with explosive properties
Oxidising properties:	Not oxidising: does not contain chemical groups associated with oxidising properties

9.2 Other information

Molecular weight:	381.37
Formula:	$Na_2B_4O_7.10H_2O$

Section 10 Stability and reactivity

10.1 Reactivity: None known.

10.2 Chemical stability: Under normal ambient temperatures (-40°C to +40°C), the product is stable. When heated it loses water, eventually forming anhydrous borax ($Na_2B_4O_7$).

10.3 Possibility of hazardous reactions: Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.

10.4 Conditions to avoid: Avoid contact with strong reducing agents by storing according to good industrial practice.

10.5 Incompatible materials: Strong reducing agents.

10.6 Hazardous decomposition products: None.

Section 11 Toxicological Information

11.1 Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)
Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because product is poorly absorbed through intact skin. Product is *not* intended for ingestion.

(a) Acute toxicity
Method: Acute Oral Toxicity Study – U.S. EPA FIFRA Guidelines
Species: Rat
Dose: 5,150 – 6,000 mg/kg of body weight
Routes of Exposure: Oral
Results: Low acute oral toxicity. LD_{50} in rats is 5,560 mg/kg of body weight.

Method: Acute Dermal Toxicity Study – U.S. EPA FIFRA Guidelines
Species: Rabbit
Dose: 2,000 mg/kg bw
Routes of Exposure: Dermal
Results: Low acute dermal toxicity; LD_{50} in rabbits is > 2,000 mg/kg of body weight. Poorly absorbed through intact skin. Based on the available data, the classification criteria are not met.

Method: Acute Inhalation Toxicity Study – OECD Guideline 403
Species: Rat
Dose: 2.03 mg/L
Routes of Exposure: Inhalation
Results: Low acute inhalation toxicity. LC_{50} in rats is > 2.0 mg/l (or g/m^3). Based on the available data, the classification criteria are not met.

(b) Skin corrosion / irritation:
Method: Primary Dermal Irritation Study – U.S. EPA FIFRA Guidelines
Species: New Zealand White Rabbit
Dose: 0.5 g moistened with saline
Routes of Exposure: Dermal
Results: No skin irritation. Mean Primary Irritation Score: 0. Based on the available data, the classification criteria are not met.

(c) Serious eye damage / irritation:
Method: Eye Irritation Study – similar to OECD Guideline 405
Species: New Zealand White Rabbit
Dose: 0.077g
Routes of Exposure: Eye
Results: Irritating, fully reversible in 14 days.
Classification: Eye Irritation Category 2A (Hazard statement: H319: Causes serious eye irritation.)
Many years of occupational exposure indicate no adverse effects on human eye.

(d) Respiratory or skin sensitisation:
Method: Buehler Test – OECD Guideline 406
Species: Guinea Pig
Dose: 0.4 g
Routes of Exposure: Dermal
Results: Not a skin sensitiser. No respiratory sensitisation studies have been conducted. There are no data to suggest that disodium tetraborates are respiratory sensitisers. Based on the available data, the classification criteria are not met.

(e) Germ cell mutagenicity:
Method: Several in vitro mutagenicity studies have been carried out on boric acid including gene mutation in mammalian cells, unscheduled DNA synthesis, chromosomal aberration and sister chromatid exchange in mammalian cells.
Species: L5178Y mouse lymphoma, V79 Chinese hamster cells, C3H/10T1/2 cells, hepatocytes, Chinese hamster ovary (CHO cells).
Dose: 1.0 - 10.0 mg/ml (1000 -10000 ppm) boric acid
Routes of Exposure: *in vitro*
Results: Not mutagenic (based on boric acid). Based on the available data, the classification criteria are not met.

(f) Carcinogenicity:
Method: OECD 451 equivalent.
Species: B6C3F1 mice
Dose: 446 ; 1150 mg boric acid/kg bw/day
Routes of Exposure: Oral feeding study
Results: No evidence of carcinogenicity (based on boric acid). Based on the available data, the classification criteria are not met.

(g) Reproductive toxicity:
Method: Three-generation feeding study, similar to OECD 416 Two-Generation Study
Species: Rat
Dose: 0; 34 (5.9); 100 (17.5); and 336 (58.5) mg boric acid (mg B)/kg bw/day; and 0; 50 (5.9); 155 (17.5); and 518 (58.5) mg borax (mg B)/kg bw/day
Routes of Exposure: Oral feeding study
Results: NOAEL in rats for effects on fertility in males is 100 mg boric acid/kg bw and 155 mg sodium tetraborate decahydrate/kg bw; equivalent to 17.5 mg B/kg bw.

Method: Prenatal Developmental Toxicity Study - OECD Guideline 414
Species: Rat
Dose: 0; 19 (3.3); 36 (6.3); 55 (9.6); 76 (13.3) and 143 (25) mg boric acid (mg B)/kg bw.
Routes of Exposure: Oral feeding study
Results: NOAEL in rats for developmental effects on the foetus including foetal weight loss and minor skeletal variations is 55 mg boric acid/kg bw or 9.6 mg B/kg; equivalent to 85 mg disodium tetraborate pentahydrate/kg bw.
Classification: Reproductive Toxicity Category 2 (Hazard statement: H361: Suspected of damaging fertility or the unborn child.)

Method: Occupational studies of evaluating sensitive sperm parameters in highly exposed borate workers. Epidemiological studies evaluating high environmental exposures to boron and developmental effects in humans have been conducted.
Species: Human
Dose: A subset of workers was exposed to 125 mg B/day.
Routes of Exposure: Combined oral ingestion and inhalation
Results: No adverse fertility effects in male workers. Epidemiological studies of human developmental effects have shown an absence of effects in exposed borate workers and populations living in areas with high environmental levels of boron.

(h) STOT-single exposure:
Method: Standard Test Method for Estimating Sensory Irritancy of Airborne Chemicals - ASTM E981-04 (2004)
Species: Mouse
Dose: 186 – 1704 mg/m^3
Routes of Exposure: Inhalation
Results: The maximum exposure of 1704 mg/m^3 resulted in a reduced respiratory rate of 33%, graded as moderate irritation. The lowest exposure tested of 186 mg/m^3 sodium tetraborate pentahydrate resulted in a reduced respiration rate of 11%, graded as no irritation. Based on the available data, the classification criteria are not met.

Method: Sensory irritation in human volunteers
Species: Human
Dose: 5 - 40 mg/m^3
Routes of Exposure: Inhalation
Results: A NOAEL for irritation from sodium tetraborate pentahydrate of 10 mg/m^3 among male and female human volunteers under controlled laboratory conditions. At 10 mg/m^3 increased nasal secretion was observed, but occurred in the absence of other irritating effects at a concentration below that considered irritating by volunteers and was not seen in a subsequent study.

(i) STOT-repeated exposure:
Method: Chronic toxicity study of boric acid and disodium tetraborate decahydrate, similar to OECD 452
Species: Rat
Dose: 0; 33 (5.9); 100 (17.5); 334 (58.5) mg boric acid (B)/kg bw per day (nominal in diet); and 0; 52 (5.9); 155 (17.5); 516 (58.5) mg borax (B)/kg/day (nominal in diet)
Routes of Exposure: Oral feeding study
Results: A NOAEL of 17.5 mg B/kg bw/day equivalent to 118 mg sodium tetraborate pentahydrate/kg bw/day was determined in a chronic feeding study (2 years) in rats and is based on testes effects. Other effects (kidney, haemopoietic system) are regarded only at even higher dose levels. Based on the available data, the classification criteria are not met.

(j) Aspiration hazard: Physical form of solid powder indicates no aspiration hazard potential.

11.2 Symptoms related to the physical, and chemical and toxicological characteristics:
At high concentrations irritation of nose, throat and eye may be observed. Products are *not* intended for ingestion. Small amounts (e.g. a teaspoonful) swallowed accidentally are not likely to cause effects. Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure:
Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures

to boric acid and sodium borate dust. Human epidemiological studies indicate no effect on fertility in occupational populations with chronic exposures to borate dust and indicate no effect to a general population with high exposures to borates in the environment.

11.4 Numerical measures of toxicity (such as acute toxicity)
None. This product is a substance.

Section 12 Ecological information

12.1 Ecotoxicity (aquatic and terrestrial, where available)
Note that the data values are expressed as boron equivalents. To convert to this product divide the boron equivalent by 0.113. Studies judged to be unreliable or with insufficient information to evaluate are not included.

Freshwater
Chronic studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Algal	4	10 mg B/L (*Chlorella pyrenoidosa*) to 50 mg B/L (*Anacystis nidulans*)	3, 4
Higher plants	3	4.0 mg B/L (*Phragmites australis*) to 60 mg B/L (*Lemna minor*)	5, 6
Invertebrate and protozoan	7	5.7 mg B/L (*Daphnia magna*) to 32 mg B/L (*Chironomus riparius*)	7, 8
Fish	6	2.9 mg B/L (*Micropterus salmoides*) to 17 mg B/L (*Carassius auratus*)	9
Amphibian	2	29 mg B/L (*Rana pipiens*) to 41 mg B/L (*Bufo fowleri*)	9

Results[2]: Based on the complete data set of 22 species, the HC_5 value of the species sensitivity distribution is 4.05 mg B/L.

Acute studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Algal	2	10 mg B/L (*Chlorella pyrenoidosa*) to 28 mg B/L (*Selenastrum capricornutum*)	3, 10
Invertebrate and protozoan	9	113 mg B/L (*Ceriodaphnia dubia*) to 1376 mg B/L (*Chironomus decorus*)	11, 12
Fish	7	80 mg B/L (*Pimephales promelas*) to 627 mg B/L (*Onchorhynchus tschawytscha*)	11, 13
Amphibian	2	86 mg B/L (*Rana pipiens*) to 104 mg B/L (*Bufo fowleri*)	9

Results[2]: Based on the complete data set from 46 studies with 20 species, the HC_5 value of the species sensitivity distribution is 27.3 mg B/L

Classification: Based on the acute data for freshwater species, this substance is not classified as hazardous to the environment.

Marine and Estuarine Data
Chronic studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Algal	19	5 mg B/L (*Emiliana huxleyi*) to >100 mg B/L (*Agmenellum quadruplicatum, Anacystis marina, Thallassiorsira pseudonana*)	4

Results: No data are available for invertebrate or vertebrate species. The results from the freshwater data set are recommended as applicable to marine and estuarine species.

Acute studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Invertebrate	3	45 mg B/L (*Litopenaeus vannamei*) to 83 mg B/L (*Americamysis bahia*)	14, 15
Fish	2	74 mg B/L (*Limanda limanda*) to 600 mg B/L (*Oncorhynchus tschawytscha*)	13, 16

No data are available for algal species.

Sediment

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Invertebrate	1	82.4 mg B/kg sediment dw (*Chironomus riparius*)	17, 18

Results: Although limited, the data suggest that sediment organisms are within range of toxicity of aquatic organisms. In addition, the substance will not partition to the sediment, so a sediment/water partitioning approach is justified.

Sewage Treatment Plants (STP)

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Activated sludge	NA	>17.5 mg B/L to 100 mg B/L	19
Microbes	3	10 mg B/L (*Opercularia bimarginata*) to 20 mg B/L (*Paramecium caudatum*)	20

Terrestrial Data
Chronic studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Plant	28	7.2 mg B/kg dw (*Zea mays*) to 56 mg B/kg dw (*Allium cepa*)	21, 22
Invertebrates	9	15.4 mg B/kg dw (*Folsomia candida*) to 87 mg B/kg dw (*Caenorhabditis elegans*)	23, 24
Soil micro	3	12 mg B/kg dw (nitrogen mineralization and nitrification test) to 420 mg B/kg dw (soil nitrogen transformation test)	25, 26

Results[2]: Based on the complete data set, the HC_5 value of the species sensitivity distribution is 10.8 mg B/kg dw.

Phytotoxicity: Boron is an essential micronutrient for healthy growth of plants. It can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.

12.2 Persistence and Degradability
Biodegradation is not an applicable endpoint since the product is an inorganic substance.

12.3 Bioaccummulative potential
This product will undergo hydrolysis in water to form undissociated boric acid. Boric acid will not biomagnify through the foodchain. Octanol/Water partition coefficient: Log P_{ow} = -0.7570 @ 25°C (based on boric acid)[27].

12.4 Mobility in soil
The product is soluble in water and is leachable through normal soil. Adsorption to soils or sediments is insignificant.

12.5 Other adverse effects
None

Section 13 Disposal considerations

13.1 Disposal methods

Product packaging should be recycled where possible.
Local authorities should be consulted about any specific local requirements

Such product should, if possible, be used for an appropriate application.

Section 14 Transport information

Transport Classification for Road (ADR/DOT/TDG) / Rail (RID); Inland waterways (ADN); Sea (IMDG); Air (ICAO/IATA)

14.1	**UN Number:**	Not Regulated
14.2	**UN Proper Shipping Name:**	Not Regulated
14.3	**Transport hazard class(es):**	Not Regulated
14.4	**Packing Group:**	Not Regulated
14.5	**Environmental Hazards (e.g. marine pollutant)**	Not Regulated
14.6	**Special precautions for user:**	Not Regulated
14.7	**Transport in bulk according to Annex II of Marpol 73/78 and the IBC code:**	Not Regulated

Section 15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Clean Air Act (Montreal Protocol) - Substances that deplete the ozone layer: Not manufactured with and does not contain any Class I or Class II ozone depleting substances.

NPRI (Canada): This product is not listed on the Canadian National Pollutant Release Inventory.

Regulation (EC) No 689/2008 - Export and Import of Dangerous Chemicals: Not listed.

National Regulations: Ensure all national/local regulations are observed.

U.S. EPA RCRA: This product is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act (RCRA) or regulations (40 CFR 261 *et seq*).

US EPA FIFRA & Canada PMRA PCPA: This product is a pesticide registered by the Environmental Protection Agency (EPA Reg. No 1624-124) and Canada Pest Management Regulatory Agency (PCP Reg No. 18607) and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals.

Following is the hazard information as required on the EPA pesticide label:

DANGER
Causes severe eye irritation.
Harmful if swallowed.
Do not get in eyes, on skin or on clothing.
Wear goggles or face shield (safety glasses) and rubber gloves when handling.
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Remove and wash contaminated clothing before use.

Following is the hazard information as required on the PMRA pesticide label:

PRECAUTIONS: PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. May be harmful if swallowed. Avoid breathing the dust and contact with skin, eyes, and clothing. Wash thoroughly after handling and before eating, drinking or smoking. Do not contaminate food, feed or any body of water. This product carelessly spilled or applied to cropland or growing plants, including trees and shrubs, may kill or seriously retard plant growth.

Superfund: CERCLA/SARA. This product is not listed under CERCLA (Comprehensive Environmental Response Compensation and Liability Act) or its 1986 amendments, SARA (Superfund Amendments and Reauthorization Act),

including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65, Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355, or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

Safe Drinking Water Act (SDWA): This product is not regulated under the SDWA, 42 USC 300g-1, 40 CFR 141 *et seq*. Consult state and local regulations for possible water quality advisories regarding boron compounds.

Clean Water Act (CWA) (Federal Water Pollution Control Act): 33 USC 1251 *et seq*.
a) This product is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314.
b) It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129.
c) It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

IARC: The International Agency for Research on Cancer (IARC) (a unit of the World Health Organization) does not list or categorize this product as a carcinogen.

NTP Biennial Report on Carcinogens: This product is not listed.

OSHA carcinogen: This product is not listed.

California Proposition 65: This product is not listed on the Proposition 65 list of carcinogens or reproductive toxicants.

Chemical inventory listing: The listing is sometimes under the Inventory number of the anhydrous form of this inorganic salt.

U.S. EPA TSCA Inventory:	1330-43-4
Canada DSL:	1330-43-4
EINECS:	215-540-4
Australia AICS:	1330-43-4
China IECSC:	1330-43-4
Japanese METI & ISHL:	(1)-69
New Zealand NZIoC:	1330-43-4
Philippines PICCS:	1330-43-4
South Korea KECI:	KE-03483

Section 16 Other information

16.1 Date of revision: August 2018

16.2 Revision Details: Removed Acute Cat 5 classification from Section 11 as LD50 does not meet criteria.

16.3 References:

1. Litovitz T L, Norman S A, Veltri J C, Annual Report of the American Association of Poison Control Centers Data Collection System. Am. J. Emerg. Med. (1986), 4, 427-458
2. Chemical Safety Report “Disodium Tetraborate, Anhydrous” December 2010, updated 2012 http://apps.echa.europa.eu/registered/registered-sub.aspx#search
3. Fernandez et al. (1984) Phyton (Buenos Aires) 44: 125-133.
4. Antia and Cheng (1975) J Fish Res Bd Can 32: 2487-2494.
5. Bergman, Bruchlos, Marks (1995) Tenside Surf Det 32: 229-237.
6. Wang (1986) Environ Poll (Ser B) 11: 1-14.
7. Gersich and Milazzo (1990) Arch. Environ. Contam. Toxicol. 19: 72-76.
8. Hooftman, van Dongelen-Sevenhuijsen and de Haan (2000). Unpublished report no. V99.1146 to Borax Europe Limited.
9. Dyer (2001) Chemosphere 44: 369-376.
10. Hansveit and Oldersma (2000) Unpublished report no: V99-157 to Borax Europe Limited.
11. Soucek, Dickinson, Major (2010) Unpublished report to REACH Consortium for Borates.
12. Maier and Knight (1991) Arch. Environ. Contam. Toxicol. 20, 282 – 287.
13. Hamilton and Buhl (1990) Arch. Environ. Contam. Toxicol. 19, 366-373.
14. Li, et al. (2007) Aquaculture 278, 175-178.
15. Pillard et al. (2002) Environ Toxicol Chem, 21, 2131-2137.
16. Taylor et al. (1985) Aquat Toxicol, 7, 135-144.
17. Gerke, A (2011a). Unpublished report to REACH Consortium for Borates.
18. Gerke, A (2011b). Unpublished report to REACH Consortium for Borates.
19. Hanstveit and Schoonmade (2000). Unpublished report no.: V99.156 to Borax Europe Limited.
20. Guhl (2000) SÖFW-Journal 126: 17-24.
21. Hosseini et al. (2007) J Plant Nutrition, 30, 773-781.
22. Aquaterra Environmental (1998) Unpublished report to Environment Canada, Environmental Technology Centre.
23. Becker-van Slooten, Campiche, Tarradellas (2003). Unpublished report to Environment Canada, Environmental

Technology Centre.
24. Moser and Becker (2009) Unpublished report to REACH Consortium for Borates.
25. Van Laer, Salaets, Smolders (2010) Unpublished report to REACH Consortium for Borates.
26. Förster and Becker (2009) Unpublished report to REACH Consortium for Borates.
27. Cordia et al. (2003) Unpublished report no: PML 2002-C42r to Borax Europe, Ltd.

For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Toxicology, 6th Edition Vol. I, (2012) Chap. 23, 'Boron'. Culver, BD & Hubbard SA (1995) Inorganic Boron Health Effects in Humans: An Aid to Risk Assessment and Clinical Judgment. Trace Elements in Experimental Medicine 9(4):175-184.

16.4 Abbreviations and acronyms:

EC: Effect concentration
GHS: Global Harmonised System for classification and labelling of chemicals
LC: Lethal Concentration
LD: Lethal Dose
STOT: Specific Target Organ Toxicity
LOEC: Lowest Observed Effect Concentration
NA: Not applicable.
NOAEL: No observed adverse effect level
NOEC: No Observed Effect Concentration
STP: Sewage Treatment Plant

Precautionary Phrases:
DANGER
Keep out of reach of children.
Not for food or drug use.

National Fire Protection Assoc. (NFPA) classification:
Health 1
Flammability 0
Reactivity 0

Hazardous Materials Information Systems (HMIS):
Red: (Flammability) 0
Yellow: (Reactivity) 0
Blue: (Acute Health) 1*
*Chronic Effects

Disclaimer:

SAFETY DATA SHEET

according to regulation (EG) Nr. 1907/2006

Date of issue: 09.10.2013 Revision date: 18.04.2024 Version: 4.1

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifiers

Product name:	$LiOH*H_2O$ (Li-7 labelled)
CAS-No. (Li-7 enriched):	76576-68-6
CAS-No. (natural enrichment):	1310-66-3
CAS No. (LiOH anhydrous):	1310-65-2
EC No. (LiOH natural enrichment):	215-183-4
Index-No. (natural enrichment):	not available
REACH Registration no. (LiOH):	01-2119560576-31-0010

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

Identified uses:	Neutralization medium, pH-value regulation in power plants

1.3 Details of the supplier of the safety data sheet

Supplier:	NUKEM Isotopes GmbH, Rodenbacher Straße 47, 63755 Alzenau, Germany
Telephone:	+49 (0)6023 9474-804
Email:	Christian.Schuch@nukemisotopes.de

1.4 Emergency telephone number

24 hr. Emergency Telephone:	**+1-703-253-4254** (Contract No.: CCN669821)

2. HAZARDS INDICATION

2.1 Classification of the substance or mixture

Classification according to regulation (EC) No. 1272/2008

Acute toxicity, Category 4, H302

Skin Corrosion, Category 1B, H314

Eye damage, Category 1, H318

For the full text of the H-phrases mentioned in this section, see section 2.2.

2.2 Label elements

Labeling according to regulation (EG) No. 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard Pictograms:

GHS 05 GHS 07

Signal word:
Danger

Hazard statements:

H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary Statements (Prevention):

P260	Do not breathe dust/fume/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.

P405	Store locked up.
P501	Dispose of contents/ container to the official regulations.

Supplemental Hazard Statement - EUH-phrases:

2.3 Other hazards

Information pertaining to special dangers for human and environment:

All chemicals are potentially dangerous. They should only be handled by specially trained personnel.

Results of PBT- und vPvB-assessment:

PBT / vPvB: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Chemical characterization

Substance

CAS No. (Li-7 enriched):	76576-68-6
CAS-No. (natural enrichment):	1310-66-3
EC No. (natural enrichment):	215-183-4
Index No.:	not available
Formula:	$^{7}LiOH*H_2O$
Molar mass [g/mol]:	42 (depending on the enrichment)

4. FIRST AID MEASURES

4.1 Description of first aid measures

General information:

First Aider: Pay attention to self-protection! Remove any clothing soiled by the product

Inhalation exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice immediately. Call a physician.

Dermal exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Oral exposure

If swallowed, wash out mouth with water provided person is conscious. Do not induce vomiting. Call a physician immediately

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion. blindness. coughing. breathing difficulty.

Additional known symptoms and effects are described section 2.2 and/or section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing agents

Dry chemical, CO_2, water spray or regular foam. Substance is incombustible. Select firefighting measures according to the surrounding conditions. If the combustible substances allow it use dry extinguishing media. Else use large amounts of water and take care of resulting strong alkaline solutions which can react with light metals under generation of hydrogen.

Unsuitable extinguishing media

There are no extinguishing agent restrictions for this substance

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Corrosive lithium hydroxide dust

5.3 Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for firefighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency. Do not breathe smoke, gases or vapors generated.

5.4 Additional information

No further information available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment

Depending on the risk, wear a tight, long apron and boots or suitable chemical protection suit. The protection clothing should be alkali resistant.

Emergency procedures

Avoid formation of dust. Do not breathe dust. Avoid contact with the eyes and skin. Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Evacuate area

For emergency responders

Topical effects on eyes: Severe, painful conjunctival irritation symptoms until turbidity and ulceration of the cornea; time-dependent progressive etching -> perforation and damage to the iris

Topical effects on skin: severe pain; erythema -> blistering -> erosion -> ulceration -> penetrating swelling and liquefaction of affected tissues

Topical effects on digestive organs: Initial redness, then swelling of contaminated mucous membranes of lips, tongue, palate and throat, followed by glassy, dirty grey-brown coatings. Severe pain in the oral cavity, in the stomach area, intensive difficulty swallowing, vomiting are typical signs. Danger of perforation!

6.2 Environmental precautions

Do not allow to enter sewers/ground water or penetrate the soil.

6.3 Methods and material for containment and cleaning up

For containment/cleaning up

Pick up mechanically. Dispose of the material collected according to regulations. Use neutralizing agent carefully. Ensure adequate ventilation.

Other information

No further information available.

6.4 Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures

Advice on safe handling

Handle and open container with care. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at place where dust is formed. Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. If dust is formed, wear respiratory mask with dust filter!

Fire preventions

Substance is incombustible.

Environmental precautions

WGK 1 (GERMAN WATER HAZARD CLASS) - low hazard to waters. Do not allow to enter waters, waste water, or soil. Inform the responsible authorities when very large quantities get into water, drainage, sewer, or the ground.

Advice on general occupational hygiene

Foods, beverages and other articles of consumption must not be consumed at the work areas. Suitable areas are to be designated for these purposes. Avoid contact with skin. In case of contact wash skin. Avoid contact with eyes. In case of contact, rinse the affected eye(s). Avoid inhalation of dust. Avoid contact with clothing. Contaminated clothes must be exchanged and cleaned carefully. Before a break it might be necessary to change clothes. Provide washrooms with showers and if possible rooms with separate storage for street clothing and work clothing. The skin must be washed with soap and water before breaks and at the end of work. Apply fatty skin-care products after washing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep container tightly sealed. Store in cool place (15-25 °C). Product is air (CO_2) and moisture sensible.

Packaging materials

Polyethylene. Do not store direct in aluminum, tin or zinc containers (without plastic cover).

Requirements for storage rooms and vessels

Store away from foodstuffs.

Storage class

Storage class 6.1 D (Not combustible, acutely toxic Cat. 3 or chronic effecting substances).

Materials to avoid

Aluminum, tin or zinc

Further information on storage conditions

Only substances of the same storage class should be stored together.

7.3 Specific end use(s)

Recommendations

Keep in locked storage or only make accessible to specialists or their authorized assistants.

Specific end uses

No further relevant information available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Occupational exposure limits

Not available.

Technical instruction on air quality control (TA LUFT / GESTIS)

The emissions of dust in the exhaust gas are not allowed to exceed the following values:

Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m³.

DNEL/DMEL and PNEC-Values:

Workers - Hazard via inhalation route

Long term exposure (inhalation)

DNEL (Derived No Effect Level) Value: 10 mg/m³

Acute/short term exposure

DNEL (Derived No Effect Level) Value: 30 mg/m³

Workers - Hazard via dermal route

Long term exposure (inhalation)

DNEL (Derived No Effect Level) Value: 41,35 mg/kg body weight/day

Acute/short term exposure

DNEL (Derived No Effect Level) Value: 100 mg/m³

Workers - Hazard for the eyes

Hazard assessment conclusion: medium hazard

8.2 Exposure controls

Appropriate engineering controls:

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Individual protection measures, such as personal protective equipment

Body protection

Depending on the risk, wear a tight, long apron and boots or suitable chemical protection suit.

The protection clothing should be alkali resistant.

Respiratory protection

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear. Respiratory protection: Particle filter P3, color code white. Use insulating device for

concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

Eye protection

Sufficient eye protection must be worn. Wear chemical safety goggles. If the face is at risk a protective shield must also be worn.

Hand protection

Use protective gloves. The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed, then stored in a well ventilated location. Pay attention to skin care. Skin protection cremes do not protect sufficiently against the substance. Textile or leather gloves are completely unsuitable.

The following information is valid for aqueous, saturated solutions of the substance and the following materials are suitable for protective gloves (Permeation time ≥ 8 hours):

Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)

Polychloroprene - CR (0,5 mm); Nitrile rubber/Nitrile latex - NBR (0,35 mm); Butyl rubber - Butyl (0,5 mm); Fluorocarbon rubber - FKM (0,4 mm); Polyvinyl chloride - PVC (0,5 mm)

Environmental exposure control

Avoid discharge into the environment.

9. PHYSICAL/CHEMICAL PROPERTIES

General Information

Appearance:	Form: Powder
	Color: White
Odor:	Odorless
Odor threshold:	No information available
pH-value (50 g/l) at 50 °C:	ca. 12
Melting point/Melting range:	471°C
Boiling point/Boiling range:	The substance decomposes when heated
Flash point:	No information available
Flammability (solid, gaseous):	No information available
Ignition temperature:	No information available
Decomposition temperature:	924 °C (> 100°C release of crystalline water)
Self-igniting:	No information available
Danger of explosion:	No information available
Explosion limits:	Lower: No information available
	Upper: No information available
Oxidizing properties:	No information available
Vapor pressure:	No information available
Density at 20 °C:	1,51 g/cm³
Bulk density:	No information available
Evaporation rate:	No information available
Solubility in / Miscibility with water at 20 °C:	109 g/l

10. STABILITY AND REACTIVITY

10.1 Reactivity

See section 10.3

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

Absorbing CO_2. Humidity. No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Strong reaction possible with: Acids

10.4 Conditions to avoid

Contact with moisture and acids.

10.5 Incompatible materials

Aluminum, lead, tin, zinc. Acids. Strong oxidizing agents

10.6 Hazardous decomposition products

In case of fire:

See section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD/LC50 values relevant for classification for Lithium Hydroxide:

- Oral LD50: 210 mg/kg (rat) (ECHA, reg. dossier)
- Inhalative LC50/4h, dust: > 3.41 mg/L (rat) (ECHA, reg. dossier)

LD/LC50 values relevant for classification for Lithium Hydroxide Monohydrate:

- Oral LD50: 368 mg/kg (rat) (ECHA, reg. dossier)
- Inhalative LC50/4h, dust: > 6.15 mg/L (rat) (ECHA, reg. dossier)

Primary irritant effect

After swallowing

Burns in the mouth. Burns in the throat. Risk of perforation. Burns in the gastrointestinal tract

After inhalation

Burns of the mucous membrane, cough, shortness of breath, pulmonary oedema

After skin contact

Strong caustic effect on skin and mucous membranes

After eye contact

Burns, risk of blindness

11.2 Additional toxicological information

Systemic effects

CNS-disorders (Central nervous system). Spasms. Irritation.

Further information

The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Toxicity

In a 96-h acute toxicity test in Zebrafish (Danio rerio) the 96h LC50 for lithium hydroxide monohydrate based on mortality was determined to be **109 mg/L**. Based on this study result, the calculated LC50 for lithium hydroxide anhydrous is 62.2 mg/L

Persistence and degradability / Bioaccumulative potential / Mobility in soil

No information available.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste Treatment methods

Product:

Must not be disposed together with household garbage. Do not allow product to reach sewage system. Reutilize if possible or contact a waste processor for recycling or safe disposal.

Uncleaned packaging (Recommendation)

Disposal according to official regulations. Packaging that may not be cleansed are to be disposed of in the same manner as the product. Wash with water to be treated before disposal.

Waste disposal key:

The European Union does not establish uniform rules for the disposal of chemical waste, which are special waste. Their treatment and elimination of the domestic legislation of each country. So, in each case, you should contact the relevant authorities, or those companies legally authorized for elimination of waste.

14. TRANSPORT INFORMATION

14.1 UN-Number

ADR/RID, IMDG, IATA:	UN2680

14.2 UN proper shipping name

ADR/RID:	LITHIUM HYDROXIDE
IMDG:	LITHIUM HYDROXIDE
IATA:	Lithium hydroxide

14.3 Transport hazard class(es)

ADR/RID, IMDG, IATA:	
Class:	8 Corrosive substances
Label:	8

14.4 Packing group

ADR/RID, IMDG, IATA:	II

14.5 Environmental hazards:

ADR/RID:	no
IMDG Marine pollutant:	no
IATA:	no

14.6 Special precautions for user Warning: Corrosive substances

Danger code (Kemler):	80
EmS:	F-A, S-B
Segregation groups:	Alkalis

14.7 Transport/Additional information

ADR:	
Limited quantities (LQ):	1 kg
Transport category:	2
Tunnel restriction code:	E
UN "Model Regulation":	UN2680, LITHIUM HYDROXIDE, 8, II

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

No information available

Chemical safety assessment

A chemical safety assessment has not been carried out

16. OTHER INFORMATION

Disclaimer

Product is supplied for research and laboratory use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. See invoice or packing slip for additional terms and conditions of sale.

Arch Chemicals, Inc.

SAFETY DATA SHEET

FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL SDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: **SCAV-OX® 35% HYDRAZINE SOLUTION**

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Arch Chemicals, Inc.
1200 Bluegrass Lakes Parkway
Alpharetta, GA 30004
United States of America

REVISION DATE:	03/03/2016
SUPERCEDES:	12/15/2011
MSDS Number:	000000024202
SYNONYMS:	
CHEMICAL FAMILY:	Aqueous solution
DESCRIPTION / USE	Chemical intermediate, Water treatment chemical
FORMULA:	None established

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral)	:	Category 3
Acute toxicity (Inhalation)	:	Category 4
Acute toxicity (Dermal)	:	Category 3
Skin corrosion	:	Category 1B
Serious eye damage	:	Category 1
Skin sensitisation	:	Sub-category 1B
Carcinogenicity	:	Category 1B

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements	:	H301 + H311 Toxic if swallowed or in contact with skin H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H332 Harmful if inhaled. H350 May cause cancer.
Precautionary statements	:	**Prevention:** P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. **Response:** P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. P305 + P351 + P338 + P310 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/doctor. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P362 Take off contaminated clothing and wash before reuse. **Storage:** P405 Store locked up. **Disposal:** P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS OR CHEMICAL NAME	CAS #	% RANGE
Hydrazine, monohydrate	7803-57-8	55

SECTION 4. FIRST AID MEASURES

General Advice: Immediate medical attention is required.

Inhalation: Move to fresh air. Keep patient warm and at rest. Give oxygen or artificial respiration if needed. Immediate medical attention is required.

Skin Contact: Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required. Wash contaminated clothing before re-use.

Eye Contact: Rinse immediately with plenty of water for at least 15 minutes. Keep eye wide open while rinsing. Immediate medical attention is required. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

Notes to Physician: Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Flammability Summary (OSHA): This material is not regulated as a hazardous material

Flammable Properties

Flash Point: does not flash

Fire / Explosion Hazards: The product is not flammable. Do not allow run-off from fire fighting to enter drains or water courses. Burning produces noxious and toxic fumes. Use water spray to cool unopened containers.

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Carbon dioxide (CO_2) Water spray Dry powder Alcohol-resistant foam

Fire Fighting Instructions: Standard procedure for chemical fires.

Upper Flammable / Explosive Limit, % in air: not determined

Lower Flammable / Explosive Limit, % in air: not determined

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations:	Evacuate personnel to safe areas.Ensure adequate ventilation.Avoid contact with the skin and the eyes.Refer to protective measures listed in sections 7 and 8.Wear protective gloves/protective clothing/eye protection/face protection.Take off contaminated clothing and shoes immediately.Wash contaminated clothing before re-use.Response to this material requires the use of a full encapsulated suit and full-face self-contained breathing apparatus.Remove all sources of ignition.Drying of this product on clothing or combustible materials may cause fire.

Spill Mitigation Procedures

Additional Spill Information :	Treat recovered material as described in the section "Disposal considerations". Hydrazine cannot be removed from leather. Such articles should be washed with water and discarded as waste.

SECTION 7. HANDLING AND STORAGE

Handling:	Avoid formation of aerosol. Avoid exposure - obtain special instructions before use. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood.
Storage:	Prevent unauthorized access. Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Use appropriate container to avoid environmental contamination.Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Protect from sunlight.
Shelf Life Limitations:	60 Months No decomposition if stored and applied as directed.
Empty Container Warning:	Dispose of as unused product., Do not re-use empty containers.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:	Apply technical measures to comply with the occupational exposure limits.Container may be opened only under exhaust ventilation hood.

Protective Equipment for Routine Use of Product

Respiratory Protection :	Wear a positive-pressure supplied-air respirator with full facepiece.

Skin Protection :	Do not wear leather gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves must be inspected prior to use. Replace when worn. Impervious gloves butyl-rubber
Eye Protection:	Wear protective gloves/ protective clothing/ eye protection/ face protection. Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Protective Clothing Type:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., Impervious clothing, Complete suit protecting against chemicals
General Protective Measures:	Self-contained breathing apparatus (EN 133) Gloves Tightly fitting safety goggles Safety shoes Protective suit

Components with workplace control parameters

Components (CAS-No.)	Value	Control parameters	Basis (Update)
Hydrazine, monohydrate (7803-57-8)		Dermal absorption possible	ACGIH (02 2014)
	TWA	0.01 ppm	ACGIH (02 2014)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	liquid
Form	liquid
Color:	colourless
Odor:	ammoniacal
Molecular Weight:	None established
pH :	10.1 - 10.7 () 10.00 g/l
Boiling Point:	228 °F (109 °C)
Melting point/range	-85 °F (-65 °C)
Density	1.0270 g/cm3
Vapor Pressure:	29.3 hPa 86 °F (30 °C)
Vapor Density:	
Viscosity:	
Solubility(ies):	completely soluble
Solubility in Water:	
Partition coefficient n-octanol/water:	

Evaporation Rate:	
Oxidizing:	None established
Volatiles, % by vol.:	
VOC Content	This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489). This product does not contain any VOC exemptions listed under the U.S. Clean Air Act Section 450.
HAP Content	

SECTION 10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under recommended storage conditions.
Conditions to Avoid:	Heat, flames and sparks., Extremes of temperature and direct sunlight., Do not allow water to evaporate.
Chemical Incompatibility:	Oxidizing agentsOrganic materials, Combustible material, Molybdenum, Manganese, Iron, Lead, Copper, Nitric acid, Heavy metals, Transition metals
Hazardous Decomposition Products:	Ammonia gas may be liberated at high temperatures., Hydrogen
Decomposition Temperature:	> 250 °C

SECTION 11. TOXICOLOGICAL INFORMATION

Product Animal Toxicity

Oral LD50 value:	LD50 Oral Toxic if swallowed. 185 mg/kg Rat
Dermal LD50 value:	LD50 Dermal Toxic in contact with skin. 420 mg/kg Rabbit
Inhalation LC50 value:	LC50 4 h Toxic by inhalation. 1.9 mg/l Rat
Skin Irritation:	Causes skin burns.
Eye Irritation:	Causes eye burns.
Skin Sensitization:	May cause sensitisation by skin contact.

Subchronic / Chronic Toxicity:

Reproductive and Developmental Toxicity:

Mutagenicity:

Carcinogenicity:

SECTION 12. ECOLOGICAL INFORMATION

Overview:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Biodegradability:	no data available
Bioaccumulative potential:	no data available

SECTION 13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary :	The product should not be allowed to enter drains, water courses or the soil.Dispose of as hazardous waste in compliance with local and national regulations.According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

SECTION 14. TRANSPORT INFORMATION

DOT

UN number	:	3293
Description of the goods	:	Hydrazine, aqueous solution
Class	:	6.1
Packing group	:	III
Labels	:	6.1
Emergency Response Guidebook Number	:	152

TDG

UN number	:	3293
Description of the goods	:	HYDRAZINE, AQUEOUS SOLUTION
Class	:	6.1
Packing group	:	III
Labels	:	6.1

IATA

UN number	:	3293
Description of the goods	:	Hydrazine, aqueous solution
Class	:	6.1
Packing group	:	III
Labels	:	6.1

Packing instruction (cargo aircraft)	:	663
Packing instruction (passenger aircraft)	:	655
Packing instruction (passenger aircraft)	:	Y642

IMDG-CODE

UN number	:	3293
Description of the goods	:	HYDRAZINE, AQUEOUS SOLUTION
Class	:	6.1
Packing group	:	III
Labels	:	6.1
EmS Number 1	:	F-A
EmS Number 2	:	S-A

Marine pollutant : yes

Other information : Refer to protective measures listed in sections 7 and 8.

Dangerous for Transport

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Hydrazine monohydrate	7803-57-8	1	2

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Hydrazine monohydrate	7803-57-8	1	2

SARA 302

The following components are subject to reporting levels established by SARA Title III, Section 302:

Hydrazine monohydrate	7803-57-8

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Hydrazine monohydrate	7803-57-8

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Hydrazine monohydrate	7803-57-8

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

Hydrazine monohydrate	7803-57-8

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

Hydrazine monohydrate	7803-57-8

Pennsylvania Right To Know

Hydrazine monohydrate	7803-57-8

New Jersey Right To Know

Hydrazine monohydrate	7803-57-8

California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16. OTHER INFORMATION

SECTIONS REVISED:	It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations., Arch accepts no responsibility for any loss or damage which arises directly or indirectly from following the above interpretation of legislation or guidance.
Major References :	Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

TRASAR™ TRAC103

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	TRASAR™ TRAC103
Other means of identification	:	Not applicable.
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630) 305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	09/10/2024

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Precautionary Statements	:	**Prevention:** Wash hands thoroughly after handling. **Response:** Get medical advice/ attention if you feel unwell. **Storage:** Store in accordance with local regulations.
Other hazards	:	None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture	:	Mixture

No hazardous ingredients

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse with plenty of water. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Get medical attention if symptoms occur.
Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put

		yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	:	Treat symptomatically.
Most important symptoms and effects, both acute and delayed	:	See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	None known.
Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	No special environmental precautions required.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Wash hands after handling.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.

Suitable material	:	The following compatibility data is suggested based on similar product data and/or industry experience: Shipping and long term storage compatibility with construction materials can vary; we therefore recommend that compatibility is tested prior to use.
Unsuitable material	:	not determinednot determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Eye protection	:	Safety glasses
Hand protection	:	Wear protective gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	No personal respiratory protective equipment normally required.
Hygiene measures	:	Wash hands before breaks and immediately after handling the product.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Colour	:	Clear
Odour	:	None
Flash point	:	> 100 °C, Method: ASTM D 93, Pensky-Martens closed cup
pH	:	7 - 10,(100 %)
Odour Threshold	:	no data available
Melting point/freezing point	:	Freezing Point: -6.1 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable.
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available

Vapour pressure	:	no data available
Relative vapour density	:	similar to water
Relative density	:	1.4,
Density	:	no data available
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Molecular weight	:	no data available
VOC	:	no data available

Section: 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	None known.
Incompatible materials	:	None known
Hazardous decomposition products	:	In case of fire, hazardous decomposition products may be produced such as: Carbon oxides

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact, Ingestion

Potential Health Effects

Eyes	:	Health injuries are not known or expected under normal use.
Skin	:	Health injuries are not known or expected under normal use.
Ingestion	:	Health injuries are not known or expected under normal use.
Inhalation	:	Health injuries are not known or expected under normal use.
Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	No symptoms known or expected.
Skin contact	:	No symptoms known or expected.
Ingestion	:	No symptoms known or expected.
Inhalation	:	No symptoms known or expected.

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg
Acute inhalation toxicity	:	Acute toxicity estimate: 14.56 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	no data available
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Toxicity

Environmental Effects	:	This product has no known ecotoxicological effects.

Product

Toxicity to fish	:	LC50 Bluegill Sunfish: 280 mg/l Exposure time: 96 hrs Test substance: Similar Product LC50 Rainbow Trout: > 5,000 mg/l Exposure time: 96 hrs Test substance: Product
Toxicity to daphnia and other aquatic invertebrates	:	EC50 Ceriodaphnia dubia: 3,026 mg/l Exposure time: 48 hrs

Test substance: Product

NOEC Ceriodaphnia dubia: 2,500 mg/l
Exposure time: 48 hrs
Test substance: Product

Persistence and degradability

Biodegradability : Result: Not applicable - inorganic

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 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.

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of contents/container in accordance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This product does not contain a RQ substance, or this product contains a substance with a RQ, however the calculated RQ exceeds the reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory

On or in compliance with the active portion of the TSCA inventory

Canadian Domestic Substances List (DSL)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)

On the inventory, or in compliance with the inventory.

Japan. ENCS - Existing and New Chemical Substances Inventory

On the inventory, or in compliance with the inventory.

Korea. Korean Existing Chemicals Inventory (KECI)

On the inventory, or in compliance with the inventory.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

On the inventory, or in compliance with the inventory.

China Inventory of Existing Chemical Substances

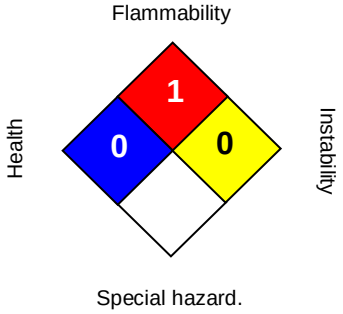
On the inventory, or in compliance with the inventory.

Taiwan Chemical Substance Inventory

On the inventory, or in compliance with the inventory.

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date	:	09/10/2024
Version Number	:	1.1
Prepared By	:	Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an SDS visit www.ecolab.com/sds and request access.

Material Safety Data Sheet

LA2365
Aluminum Sulphate 48% Solution

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA2365
Product Name: Aluminum Sulphate 48% Solution
Synonyms: Papermaker's alum, dialuminum trisulphate, aluminum sulfate, alum, aluminum sulfate tetradecahydrate.
Chemical Family: Aluminum Salt
Application: Alum is used as a coagulating agent in municipal and industrial water treatment and/or paper sizing in the forest products industry.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 08/Jun/2015
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Causes eye irritation. May result in mild to moderate irritation to eyes.
Skin Contact: Mild to moderate irritation can occur. Aluminum is very poorly absorbed through the skin and toxic effects would not be expected following short-term skin contact. Prolonged or repeated contact may cause discomfort and local redness. Prolonged or repeated contact may cause defatting and drying of the skin.
Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.
Ingestion: May cause irritation of the lining of the stomach. May irritate the gastrointestinal tract and cause nausea, vomiting and purging. Acute exposure can cause incoorination, muscle spasms and kidney effects.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Sulfuric acid, aluminum salt 10043-01-3	29-50	Oral LD50 Rat = 1930 mg/kg
Water 7732-18-5	Balance	Oral LD50 (Rat) >90 mL/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: None.
Flash Point Method: Not applicable.
Autoignition Temperature: Not available.
Flammable Limits in Air (%): Not Available.
Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
Special Exposure Hazards: Reacts with metals to generate flammable hydrogen gas.
Hazardous Decomposition/Combustion Materials (under fire conditions): Hydrogen chloride. Aluminum oxides. Oxides of sulphur.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 0, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 0, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.
Procedure for Clean Up: Ventilate area. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water. Neutralize with lime slurry, limestone, or soda ash.

7. HANDLING AND STORAGE

Handling: Aluminum sulfate in solution has acidic pH. Use corrosion-resistant transfer equipment when transferring acid. Keep the containers closed when not in use. Empty containers may contain hazardous product residues. Aluminum sulfate may attack some materials of construction.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep away from direct sunlight. Protect against physical damage. Place away from incompatible materials. Store in accordance with good industrial practices. Outdoor storage tanks should be suitably diked or other wise provided with an adequate means of secondary containment. Appropriate secondary containment measures should be taken to prevent spills or leaks from indoor storage tanks and tank-car or tank-truck in loading stations from entering sewers or other channels that discharge directly to a water body or a municipal sewage system.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local exhaust ventilation as necessary to maintain exposures to within applicable limits.
Respiratory Protection: A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, mist cartridges for concentrations up to 20 mg/m^3. An air-supplied respirator if concentrations are higher or unknown.
Gloves:

Rubber gloves. PVC gloves. Vinyl gloves.
Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Sulfuric acid, aluminum salt	Not available.	Not available.	Not Available.
Water	Not available.	Not available.	Not Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear
Odor: Slight Acidic
pH <2.5
Specific Gravity: 1.2 - 1.36
Boiling Point: 106°C /220°F
Freezing/Melting Point: -13°C / 8.59°F
Vapor Pressure: 40 mmHg @ 35°C
Vapor Density: Not Available.
% Volatile by Volume: Not Available.
Evaporation Rate: Similar to water
Solubility: Completely soluble.
VOCs: Not Available.
Viscosity: Not Available.
Molecular Weight: Not Available.
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: High temperatures.
Materials to Avoid: Strong bases. Sodium hydroxide. Reaction may be violent.
Hazardous Decomposition Products: Sulfuric acid vapors may be released upon heating and sulfur dioxide and sulfur trioxide may be released upon decomposition.
Additional Information:

Can be very corrosive to most metals including cast iron, steel and aluminum. The corrosivity depends on factors such as concentration, temperature and impurities.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: May cause irritation of the lining of the stomach. May irritate the gastrointestinal tract and cause nausea, vomiting and purging. Acute exposure can cause incoorination, muscle spasms and kidney effects.
Skin Contact: Mild to moderate irritation can occur. Aluminum is very poorly absorbed through the skin and toxic effects would not be expected following short-term skin contact. Prolonged or repeated contact may cause discomfort and local redness. Prolonged or repeated contact may cause defatting and drying of the skin.

11. TOXICOLOGICAL INFORMATION

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.
Eye Contact: Causes eye irritation. May result in mild to moderate irritation to eyes.

Additional Information: No additional information available.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Sulfuric acid, aluminum salt	Not listed.	Not listed.
Water	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Sulfuric acid, aluminum salt	100 mg/L LC50 (Carassius auratus) 96 h 37 mg/L LC50 (Gambusia affinis) 96 h static	Not Available.	Not Available.
Water	Not Available.	Not Available.	Not Available.

Other Information:
May be harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINUM SULPHATE)
DOT Hazardous Class 8
DOT UN Number: UN3264
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINUM SULPHATE)
Hazard Class: 8
UN Number: UN3264
Packing Group: III

14. TRANSPORT INFORMATION

Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Sulfuric acid, aluminum salt	Not Listed.	Listed	Not Listed.
Water	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
E CORROSIVE MATERIAL

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

NOTICE TO READER:
Univar, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

*****END OF MSDS*****

1100-0540

STERLING WATER TECHNOLOGIES LLC
MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: CP 837 - Chloride

Intended Use:

HMIS Hazard Ratings

Health	3
Fire	0
Reactivity	0

Manufacturer: Sterling Water Technologies LLC
114 W. Seventh Street, Suite 3
Columbia, TN 38401

Telephone: (800) 426-2428

Emergency Phone: CHEMTREC: (800) 424-9300

MSDS Date of Preparation: 08/13/07
Prepared by: Denese A. Deeds, CIH Industrial Health & Safety Consultants, Inc. Woodbridge, CT 203-929-3473

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount
Zinc Chloride	7646-85-7	10-20%
Orthophosphoric Acid	7664-38-2	30-50%
Water	7732-18-5	30-60%

3. HAZARDS IDENTIFICATION

This product is a clear, colorless liquid with a slight odor.

EMERGENCY OVERVIEW

DANGER!

Corrosive. Causes burns. Inhalation of mists may cause mucous membrane and respiratory irritation and possibly nasal ulceration. May be harmful or fatal if swallowed. Prolonged inhalation exposure to mists or fumes may cause lung damage.

4. FIRST AID MEASURES

Eye: Immediately flush victim's eyes with large quantities of water for at least 15 minutes, holding the eyelids apart. Get immediate medical attention.
Skin: Immediately remove contaminated clothing and wash skin thoroughly with soap and water for at least 15 minutes. Get medical attention. Launder clothing before re-use. Discard items like shoes that cannot be thoroughly decontaminated.
Ingestion: Do Not induce vomiting. Rinse mouth with water and give one glass of water to drink. Never give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.
Inhalation: Remove victim to fresh air. If breathing is difficult have qualified person administer oxygen. If not breathing, administer CPR. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flashpoint: None
Flammable Limits: **LEL:** Not applicable **UEL:** Not applicable

Autoignition Temperature: None
Extinguishing Media: Use media appropriate for surrounding fire. Cool fire exposed containers and structures with water.
Unusual Fire or Explosion Hazards: None known.
Special Fire-Fighting Instructions: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing.
Hazardous Combustion Products: Thermal decomposition may yield oxides of phosphorus and zinc, zinc chloride fumes and hydrogen chloride.
Explosion Data (sensitivity to mechanical impact or static discharge): None known.

6. ACCIDENTAL RELEASE MEASURES

Evacuate spill area and keep unprotected personnel away. Wear appropriate protective clothing as described in Section 8. Dike and contain liquid. Carefully neutralize with soda ash. Exercise caution during neutralization since large amounts of heat may be generated. Collect neutralized liquid with an inert absorbent and place in appropriate containers for disposal. Wash spill area with water. Prevent spill from entering sewers and water courses. Report releases as required by local, state and federal authorities.

7. HANDLING AND STORAGE

Handling: Prevent contact with the eyes, skin and clothing. Avoid breathing mists or aerosols. Wear protective clothing and equipment as described in Section 8. Use with adequate ventilation. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

Do not reuse containers. Empty containers retain product residues can be hazardous. Follow all MSDS precautions when handling empty containers.

Storage: Store in a cool, dry, well ventilated area away from incompatible materials. Protect from physical damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Orthophosphoric Acid	1 mg/m3 PEL-TWA 1 mg/m3 TWA, 3 mg/m3 STEL TLV
Zinc Chloride (fume)	1 mg/m3 PEL-TWA 1 mg/m3 TWA, 2 mg/m3 STEL TLV

Engineering Controls: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.
Respiratory Protection: In operations where exposure levels are exceeded, a NIOSH approved respirator with dust/mist cartridges or supplied air respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin Protection: Wear impervious gloves such as rubber or neoprene to prevent skin contact.
Eye Protection: Safety goggles and face shield recommended.
Other: Long-sleeved clothing and long pants recommended to avoid skin contact. Eye wash and safety shower should be available in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance And Odor: Clear, colorless liquid with a slight odor.

Physical State: Liquid	**Boiling Point:** >100°C
Vapor Density: Same as water	**Vapor Pressure:** Same as water
Solubility In Water: Soluble	**Evaporation Rate:** Same as water
Specific Gravity: 1.37-1.45	**pH:** <1
Melting Point: Not applicable	**Octanol/Water Coefficient:** Not determined
VOC Content: 0%	

10. STABILITY AND REACTIVITY

Stability: Stable under normal storage and handling conditions.
Incompatibility: Strong bases, strong oxidizing agents, strong reducing agents, fluorine, metals, sulfur trioxide, phosphorus pentoxide, cyanides, sulfides.
Hazardous Decomposition Products: When heated to decomposition emits toxic oxides of phosphorus and zinc, zinc chloride fumes and hydrogen chloride.
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:
Ingestion: Ingestion may cause severe mucous membrane and gastrointestinal irritation with chemical burns. May cause nausea, vomiting, diarrhea, abdominal pain, chest pain, shortness of breath, profuse sweating, low blood pressure, tachycardia (rapid heartbeat), pulmonary edema, seizures, shock and death.
Inhalation: Inhalation of mists may cause irritation of the nose throat and upper respiratory tract. High concentrations may cause lung damage (pulmonary edema).
Eye: May cause severe irritation or burns with pain and tearing. Corneal damage with permanent blindness is possible.
Skin: May cause severe irritation or burns.
Sensitization: This material is not known to cause sensitization.
Chronic: Repeated exposure to zinc chloride may cause dermatitis, boils, eye conjunctivitis and gastrointestinal disturbances. Prolonged inhalation exposure to mists or fumes may cause lung damage.
Carcinogenicity: None of the components is listed as a carcinogen or suspected carcinogen by IARC, NTP or OSHA.
Mutagenicity: None currently known.
Medical Conditions Aggravated by Exposure: Employees with pre-existing eye, skin and respiratory disease may be at increased risk from exposure.

Acute Toxicity Values:
Orthophosphoric acid: LD50 oral rat 1530 mg/kg, LD50 dermal rabbit 2740 mg/kg.
Zinc Chloride: LD50 oral rat 350 mg/kg.

12. ECOLOGICAL INFORMATION

No ecotoxicity data is available for the product.
Orthophosphoric acid: LC50 mosquito fish 138 mg/L/96 hr
Zinc Chloride: LC50 daphnia magna 0.798 mg/L/48 hr. LC50 bluegill sunfish 4.2 mg/L/96 hr. LC50 rainbow trout 0.136 mg/L/96 hr

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state and federal environmental regulations.

14. TRANSPORT INFORMATION

Dot Hazardous Materials Description:
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric Acid, Zinc Chloride)
UN Number: UN3264
Hazard Class/Packing Group: 8, III
Labels Required: Corrosive

15. REGULATORY INFORMATION

CERCLA: Releases above the reportable quantity of 5,000 lbs must be reported to the National Response Center. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA Hazard Category (311/312): Acute Health, Chronic Health

SARA 313: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): Zinc chloride (zinc compound) 10-20%

EPA TSCA Inventory: All of the ingredients in this product are listed on the EPA TSCA Inventory.

CANADA:
This product has been classified under the CPR and this MSDS discloses information elements required by the CPR.
Canadian CEPA: All the components of this product are listed on the Canadian DSL.
Canadian WHMIS Classification: Class E (Corrosive material)

16. OTHER INFORMATION

NFPA Rating:	Health = 3	Fire = 0	Reactivity = 0
HMIS Rating:	Health = 3	Fire = 0	Reactivity = 0

NOTICE

This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Sterling Water Technologies LLC shall not be held liable for any damage resulting from handling or from contact with the above product. This information relates only to the product designated herein and does not relate to its use in combination with any other material or process.

SAFETY DATA SHEET

PRODUCT

C-9

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **C-9**

APPLICATION : CORROSION INHIBITOR

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

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

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

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)
Phosphoric Acid	7664-38-2	30.0 - 60.0
Zinc Chloride	7646-85-7	10.0 - 30.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
Corrosive. May cause tissue damage. Harmful if swallowed.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available.
Wear a face shield. Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.
Not flammable or combustible. May evolve oxides of phosphorus (POx) under fire conditions. May evolve zinc fumes under fire conditions. May evolve HCl under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
Corrosive; causes permanent skin damage.

INGESTION :
Corrosive; causes chemical burns to the mouth, throat and stomach. Harmful if swallowed.

INHALATION :
Elevated temperatures or mechanical action may form vapors, mists or fumes which may be irritating to the eyes, nose, throat and lungs.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

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

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. Use a mild soap if available. For a large splash, flood body under a shower. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

INGESTION :
Get immediate medical attention. DO NOT INDUCE VOMITING. If conscious, washout mouth and give water to drink.

INHALATION :
Remove to fresh air, treat symptomatically. Get immediate medical attention.

NOTE TO PHYSICIAN :
Probable mucosal damage may contraindicate the use of gastric lavage. 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 : > 200 °F / > 93.3 °C

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 phosphorus (POx) under fire conditions. May evolve zinc fumes under fire conditions. May evolve HCl 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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. 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. 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).

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed. Store separately from bases.

SUITABLE CONSTRUCTION MATERIAL :
Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

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.

Substance(s)	Category:	ppm	mg/m3	Non-Standard Unit
Phosphoric Acid	ACGIH/TWA		1	
	ACGIH/STEL		3	
	OSHA Z1/PEL		1	
Zinc Chloride Fume (Fume)	ACGIH/TWA		1	
	ACGIH/STEL		2	
	OSHA Z1/PEL		1	

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

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors or aerosols are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. 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 :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

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 :
Use good work and personal hygiene practices to avoid exposure. 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. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless Clear
ODOR	None

SPECIFIC GRAVITY	1.56 - 1.6 @ 77 °F / 25 °C
DENSITY	13.3 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	< 1.0
FREEZING POINT	-4 °F / -20 °C
BOILING POINT	> 212 °F / > 100 °C
VOC CONTENT	0.00 % EPA Method 24

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 :
Freezing temperatures.

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. Metals

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of phosphorus, HCl, Zinc Oxide

11. TOXICOLOGICAL INFORMATION

The following results are for the hazardous components.

ACUTE ORAL TOXICITY :

Species:	Rat
LD50:	1,530 mg/kg
Test Descriptor:	Hazardous component Phosphoric Acid

Species:	Rat
LD50:	350 mg/kg
Test Descriptor:	Zinc Chloride

SENSITIZATION :
This product is not expected to be a sensitizer.

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.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Inland Silverside	96 hrs	> 5,000 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Mysid Shrimp (Mysidopsis bahia)	96 hrs	4.8 mg/l		Product

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Moderate

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

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D002

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

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.

The presence of an RQ component (Reportable Quantity for U.S. EPA and DOT) in this product causes it to be regulated with an additional description of RQ for road, or as a class 9 for road and air, ONLY when the net weight in the package exceeds the calculated RQ for the product.

LAND TRANSPORT :

Proper Shipping Name :	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Technical Name(s) :	ZINC CHLORIDE, PHOSPHORIC ACID
UN/ID No :	UN 3264
Hazard Class - Primary :	8
Packing Group :	III
Flash Point :	> 93.3 °C / > 200 °F
DOT Reportable Quantity (per package) :	3,730 lbs
DOT RQ Component :	ZINC CHLORIDE

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Technical Name(s) :	ZINC CHLORIDE, PHOSPHORIC ACID
UN/ID No :	UN 3264
Hazard Class - Primary :	8
Packing Group :	III
IATA Cargo Packing Instructions :	820
IATA Cargo Aircraft Limit :	60 L (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Technical Name(s) :	ZINC CHLORIDE, PHOSPHORIC ACID
UN/ID No :	UN 3264
Hazard Class - Primary :	8
Packing Group :	III
*Marine Pollutant :	ZINC CHLORIDE

*Note: This product is regulated as a Marine Pollutant when shipped by Rail, Highway, or Air in bulk quantities (greater than 119 gallons) and when shipped by water in all quantities.

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

Phosphoric Acid : Corrosive
Zinc Chloride : Corrosive

CERCLA/SUPERFUND, 40 CFR 302 :
This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product.

RQ Substance	RQ
Zinc Chloride	3,730 lbs

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
-	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 contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

Hazardous Substance(s)	CAS NO	% (w/w)
Zinc Chloride	7646-85-7	10.0 - 30.0

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the corrosion and scale control and sequestering categories. The official name is "Zinc Orthophosphate." Maximum product application dosage is : 15 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Zinc Chloride	Sec. 307, Sec. 311
• Phosphoric Acid	Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Zinc Chloride

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Zinc Chloride	7646-85-7
Phosphoric Acid	7664-38-2

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

16. OTHER INFORMATION

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.

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
Date issued : 04/01/2010
Version Number : 1.9

SAFETY DATA SHEET

PRODUCT

NALCO® 73550

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® 73550**

APPLICATION : CLEAN TOWER BIODETERGENT

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

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

NFPA 704M/HMIS RATING
HEALTH : 2 / 3 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

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)
Nonionic Surfactant	Proprietary	10.0 - 30.0
Nonionic Alkyl Polyglycoside	Proprietary	10.0 - 30.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
Risk of serious damage to eyes.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Severely irritating. If not removed promptly, will injure eye tissue and may result in permanent eye damage.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. No adverse effects expected.

INHALATION :
Not a likely route of exposure. No adverse effects expected.

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 :
Immediately flush eye with water for at least 15 minutes while holding eyelids open. If irritation persists, repeat flushing. Get immediate medical attention.

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms persist, call a physician.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. Get medical attention.

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 :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Keep containers cool by spraying with water. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
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. Spill may be slippery.

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. 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 :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not take internally. Do not get in eyes, on skin, on clothing. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Keep the containers closed when not in use. Use with adequate ventilation.

STORAGE CONDITIONS :
Store the containers tightly closed. Store in suitable labeled containers. Store separately from oxidizers.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, HDPE (high density polyethylene), Viton, Polypropylene, Polyethylene, Stainless Steel 304, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Mild steel, Epoxy phenolic resin

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended.

RESPIRATORY PROTECTION :
Respiratory protection is not normally needed.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light yellow
ODOR	Mild

SPECIFIC GRAVITY	1.1 @ 77 °F / 25 °C
DENSITY	9.2 lb/gal
SOLUBILITY IN WATER	Dispersible
pH (10 %)	7.0 - 9.5
BOILING POINT	> 212 °F / > 100 °C
VOC CONTENT	0 % 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 :
Avoid extremes of temperature.

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Strong acids Bases

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

The following results are for a similar product.

ACUTE ORAL TOXICITY :

Species:	Rat
LD50:	> 5,000 mg/kg
Test Descriptor:	Similar Product

ACUTE DERMAL TOXICITY :

Species:	Rabbit
LD50:	> 2,000 mg/kg
Test Descriptor:	Similar Product

PRIMARY SKIN IRRITATION :

Species:	Rabbit
Draize Score:	1.3 /8.0
Test Descriptor:	Similar Product
Remarks:	Not irritating

PRIMARY EYE IRRITATION :

Species:	Rabbit
Draize Score:	59 - 92 /110.0
Test Descriptor:	Similar Product
Remarks:	Eye irritant

SENSITIZATION :
This product is not expected to be a sensitizer.

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: Moderate

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	19 mg/l	Product
Inland Silverside	96 hrs	19 mg/l	Product
Gold Orfe	96 hrs	30 mg/l	Product
Fathead Minnow	96 hrs	21.35 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	76 mg/l	76 mg/l	Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	5.9 mg/l	5.4 mg/l	Product
Ceriodaphnia dubia	48 hrs	28.3 mg/l		Product

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Ceriodaphnia dubia		20 mg/l / 40 mg/l	Reproduction	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 250,000 mg/l

Chemical Oxygen Demand (COD) : 850,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
	400,000 mg/l	

The organic portion of this preparation is expected to be inherently 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 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%	10 - 30%	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: Moderate

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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

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 : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this 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.

Nonionic Surfactant : Corrosive to eyes
Nonionic Alkyl Polyglycoside : Corrosive to eyes

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
-	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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 138550
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

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 :
D2B - Materials Causing Other Toxic Effects - Toxic Material

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

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

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

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 Existing and New Chemical Substances list (ENCS).

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

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines 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: Moderate

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.

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
Date issued : 07/31/2009
Version Number : 3.3

Material Safety Data Sheet
Zinc acetate dihydrate

ACC# 25250

Section 1 - Chemical Product and Company Identification

MSDS Name: Zinc acetate dihydrate
Catalog Numbers: AC207640010, AC317215000, S80246, S93399, Z20-500
Synonyms: Acetic acid, zinc salt, dihydrate.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
5970-45-6	Zinc acetate dihydrate	> 98	unlisted

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white solid.
Warning! Causes eye irritation. May cause skin and respiratory tract irritation. May be harmful if swallowed.
Target Organs: Eyes.

Potential Health Effects
Eye: Causes eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed.
Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.
Chronic: Chronic exposure may cause kidney damage.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Get medical aid. Wash mouth out with water.
Inhalation: Remove from exposure and move to fresh air immediately.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability:

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust and fume.
Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Zinc acetate dihydrate	none listed	none listed	none listed
Zinc acetate anhydrous	none listed	none listed	none listed

OSHA Vacated PELs: Zinc acetate dihydrate: No OSHA Vacated PELs are listed for this chemical. Zinc acetate anhydrous: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: white
Odor: faint vinegar like odor
pH: 6-7 (5% soln)
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point:200 deg C (dec)
Decomposition Temperature:200 deg C
Solubility: Very soluble in water.
Specific Gravity/Density:1.735
Molecular Formula: Zn(CH3COO)2.2H2O
Molecular Weight:219.50

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Loses 2H2O at 100°C.
Conditions to Avoid: Dust generation, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, toxic fumes of zinc oxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 5970-45-6: ZG8750000
CAS# 557-34-6: AK1500000
LD50/LC50:
CAS# 5970-45-6:
Draize test, rabbit, eye: 20 mg/24H Moderate;
Draize test, rabbit, skin: 500 mg/24H Mild;
Oral, mouse: LD50 = 287 mg/kg;
Oral, rat: LD50 = 794 mg/kg;
CAS# 557-34-6:
Oral, rat: LD50 = 2510 mg/kg;
Carcinogenicity:
CAS# 5970-45-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 557-34-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: See actual entry in RTECS for complete information.
Mutagenicity: No data available.
Neurotoxicity: No data available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous

waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated	Not Regulated
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 5970-45-6 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).
CAS# 557-34-6 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 557-34-6: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 5970-45-6: acute.
Section 313
This material contains Zinc acetate dihydrate (listed as Zinc compounds), > 98%, (CAS# 5970-45-6) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
This material contains Zinc acetate anhydrous (listed as Zinc compounds), -%, (CAS# 557-34-6) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 557-34-6 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 5970-45-6 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 557-34-6 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 5970-45-6 can be found on the following state right to know lists: California, (listed as Zinc compounds), Pennsylvania, (listed as Zinc compounds).
CAS# 557-34-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:

XN

Risk Phrases:

R 22 Harmful if swallowed.
R 36 Irritating to eyes.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 39 Wear eye/face protection.

WGK (Water Danger/Protection)

CAS# 5970-45-6: No information available.
CAS# 557-34-6: 1

Canada - DSL/NDSL

CAS# 5970-45-6 is listed on Canada's DSL List.
CAS# 557-34-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

Canadian Ingredient Disclosure List

CAS# 5970-45-6 is not listed on the Canadian Ingredient Disclosure List.
CAS# 557-34-6 is not listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997
Revision #4 Date: 11/19/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Product Bulletin

NALCO® 7468

Antifoam

PRODUCT DESCRIPTION AND APPLICATION

NALCO 7468 is a silica-based industrial and municipal waste treatment antifoam/defoamer. **NALCO 7468** eliminates entrained air and surface foam and disperses readily in water. This product maintains its effectiveness in systems having a pH range of 4 to 12.

PHYSICAL & CHEMICAL PROPERTIES

Form:	Liquid
Color:	Off-white
Odor:	None
Specific Gravity @ 77°F (25°C)	0.99 - 1.03
Density:	8.2 - 8.6 lb/gal
Solubility in Water:	Complete
pH (100 %):	7.5
Viscosity @ 77°F (25°C):	300 - 1,000 cps
Vapor Pressure:	Same as water
Evaporation Rate:	Same as water

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

REGULATORY APPROVALS

NALCO 7468 currently has the following registrations: 21 CFR 173.340, 21 CFR 175.105, 21 CFR 176.200. Consult the Material Safety Data Sheet (MSDS) for most current registration information.

MATERIALS OF COMPATIBILITY

Compatible	Not Compatible	Not Tested
Hypalon	Aluminum	EDPM
Plasite 4005	Brass	
Plasite 6000	Buna-N	
Plasite 7122	Carbon Steel	
Polyethylene	Neoprene	
Polypropylene	Nickel	
Polyurethane		
PVC		
Stainless Steel 304		
Stainless Steel 316		
Teflon		
Viton		
Vinyl		

DOSAGE AND FEEDING

NALCO 7468 must be fed neat or diluted in-line.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-Day BOD)(@1%)	115 mg/l
Chemical Oxygen Demand (COD) (@1%)	2,400 mg/l
Total Organic Carbon (TOC) (@1%)	280 mg/l

Refer to the Product's Material Safety Data Sheet, SECTIONS 11 and 12, for all aquatic and mammalian information.

SAFETY AND HANDLING

Avoid eye and skin contact. Do not take internally. Ensure all containers are labelled. Keep the containers closed when not in use.

STORAGE

Read the Material Safety Data Sheet before using this product.

For maximum fluidity, storage temperatures greater than 50°F [10°C] are recommended. Do not heat above 120°F [48.9°C].The recommended in-plant storage limit is 6 months.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative. For more news about Nalco Company, visit our website at www.nalco.com.

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

NALCO is a registered trademark of Nalco Company (8-03)

Nalco Company, 1601 West Diehl Road, Naperville, Illinois 60563-1198

Subsidiaries and Affiliates in Principal Locations Around the World

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 7468

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

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 7468**

APPLICATION : DEFOAMER

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

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

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 0 / 0 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)
Amorphous Silica	7631-86-9	1.0 - 5.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing. Protect product from freezing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. May cause gastrointestinal irritation.

INHALATION :
Not a likely route of exposure. Inhalation of dried product dust may cause irritation.

AGGRAVATION OF EXISTING CONDITIONS :
Prolonged inhalation of dust containing amorphous silica can increase lung injury in individuals with emphysema, asthma or other lung disorders.

4. FIRST AID MEASURES

EYE CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

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

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 :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. 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. Stop or reduce any leaks if it is safe to do so. Do not touch spilled material. Ventilate spill area if possible. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

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. 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 :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Avoid eye and skin contact. Do not take internally. Ensure all containers are labeled. Keep the containers closed when not in use.

STORAGE CONDITIONS :
Store the containers tightly closed. Protect product from freezing.

SUITABLE CONSTRUCTION MATERIAL :
Nylon, Stainless Steel 304, Stainless Steel 316L, Hastelloy C-276, Plexiglass, Kalrez, EPDM, Alfax, PVC, Teflon, HDPE (high density polyethylene), Polyurethane, Aluminum, Ethylene propylene, Polypropylene, Polyethylene

UNSUITABLE CONSTRUCTION MATERIAL :
Copper, Brass, Buna-N, Natural rubber, Hypalon, Viton, Neoprene, Mild steel

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product contains amorphous, colloidal or fumed silica. Should the product become dried or misted such that inhalation of the material is possible, standard hygiene practices should be utilized to ensure that exposure to respirable particles is within the regulated limits.

ACGIH/TLV :

Substance(s)	
Amorphous Silica	TWA: 10 mg/m3 (total dust)

OSHA/PEL :

Substance(s)	
Amorphous Silica	TWA: 6 mg/m3

ENGINEERING MEASURES :
General ventilation is recommended. Local exhaust ventilation may be necessary when dusts or mists are generated.

RESPIRATORY PROTECTION :
Respiratory protection is not normally needed. If significant mists, vapors or aerosols are generated an approved respirator is recommended. A dust mask may be used.

HAND PROTECTION :
Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Keep an eye wash fountain available. Keep a safety shower available. 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: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Off-white
ODOR	None

SPECIFIC GRAVITY	0.99 - 1.03 @ 77 °F / 25 °C
DENSITY	8.2 - 8.6 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	7.5
VISCOSITY	300 - 1,000 cps @ 77 °F / 25 °C
VAPOR PRESSURE	Same as water
EVAPORATION RATE	Same as water

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 :
Freezing temperatures.

MATERIALS TO AVOID :
None known

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

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: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	> 1,000 mg/l	Product
Fathead Minnow	96 hrs	> 1,000 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	1,000 mg/l		Product

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

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.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

Triple rinse (or equivalent).

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 : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

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.

Amorphous Silica : Exposure Limit - Compound Class

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 that this product is not hazardous under 29 CFR 1910.1200.

X	Immediate (Acute) Health Hazard
-	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) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

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 175.105 Adhesives, 21 CFR 176.200 Defoaming Agents used in coatings, 21 CFR 173.340 Defoaming Agents

Limitation for 173.340: It is limited to use at 10ppm in food, or at such a level in a concentrated food that when prepared as directed on the labels, the food in its ready-for-consumption state will have not more than 10 ppm except as follows: zero in milk; 110 ppm in dry gelatin dessert mixes labeled for use whereby no more than 16 ppm is present in the ready-to-serve dessert; 250ppm in salt labeled for cooking purposes, whereby no more than 10ppm is present in the cooked food.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation:

Substance(s)	Citations
• Benzoic Acid	Sec. 311

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 :
The following substances are disclosed for compliance with State Right to Know Laws:

Amorphous Silica 7631-86-9

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 :
Not considered a WHMIS controlled product.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

INTERNATIONAL CHEMICAL CONTROL LAWS

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

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.

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
Date issued : 03/12/2007
Version Number : 1.12

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 24-JAN-2007
Supercedes: 24-JAN-2007

OPTISPERSE PWR6600

1 Identification of Product and Company

Identification of substance or preparation
OPTISPERSE PWR6600

Product Application Area
Internal boiler water treatment

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: 215 355-3300

2 Composition / Information On Ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
141-43-5	MONOETHANOLAMINE (ETHANOLAMINE) Combustible; corrosive; irritant; CNS depressant; may cause liver and kidney toxicity; in vitro mutagen; fetotoxic and developmental toxin in laboratory animals	7-13

3 Hazards Identification

****

EMERGENCY OVERVIEW

WARNING

May cause moderate irritation to the skin. Absorbed by skin. Severe irritant to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable

Odor: Slight; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; May cause moderate irritation to the skin. Absorbed by skin.

ACUTE EYE EFFECTS:
Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:
Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:
May cause gastrointestinal irritation with possible nausea, vomiting, headache, dizziness, unconsciousness and injury to the kidneys and liver. Small amounts aspirated during ingestion/vomiting may cause lung injury, possibly death.

TARGET ORGANS:
Prolonged or repeated exposures may cause toxicity to the liver, kidney, nervous system, and/or blood system.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
May cause redness or itching of skin, irritation, and/or tearing of eyes (direct contact).

4 First Aid Measures

SKIN CONTACT:
URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:
Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:
If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:
Aspiration into the lungs will result in chemical pneumonia and may be fatal.

5 Fire Fighting Measures

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).
EXTINGUISHING MEDIA:
dry chemical, carbon dioxide, foam or water
HAZARDOUS DECOMPOSITION PRODUCTS:
oxides of carbon and nitrogen, ammonia and volatile amines
FLASH POINT:
> 200F > 93C P-M(CC)

6 Accidental Release Measures

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.
DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling & Storage

HANDLING:
Clean spill immediately. Wash contaminated skin promptly.
STORAGE:
Keep containers closed when not in use. Protect from freezing. If frozen, thaw and mix completely prior to use. Shelf life 270 days.

8 Exposure Controls / Personal Protection

EXPOSURE LIMITS
CHEMICAL NAME

MONOETHANOLAMINE (ETHANOLAMINE)
PEL (OSHA): 3 PPM(6PPM-STEL)
TLV (ACGIH): 3PPM-SKIN(6PPM-STEL-SKIN)

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.
PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I
RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with organic vapor cartridges and dust/mist prefilters.
SKIN PROTECTION:
gauntlet-type neoprene gloves, chemical resistant apron--
Wash off after each use. Replace as necessary.
EYE PROTECTION:
splash proof chemical goggles, face shield

9 Physical & Chemical Properties

Specific Grav.(70F,21C)	1.063	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	30	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-1		
Viscosity(cps 70F,21C)	133	% Solubility (water)	100.0

Odor		Slight
Appearance		Colorless To Light Yellow
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH As Is (approx.)		8.5
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		15.0

NA = not applicable ND = not determined

10 Stability & Reactivity

STABILITY:
Stable under normal storage conditions.
HAZARDOUS POLYMERIZATION:
Will not occur.
INCOMPATIBILITIES:
May react with strong oxidizers.
DECOMPOSITION PRODUCTS:
oxides of carbon and nitrogen, ammonia and volatile amines
INTERNAL PUMPOUT/CLEANOUT CATEGORIES:
"B"

11 Toxicological Information

Oral LD50 RAT:	>2,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	

12 Ecological Information

AQUATIC TOXICOLOGY
Daphnia magna 48 Hour Static Renewal Bioassay
LC50= 1250; No Effect Level= 687 mg/L
Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal
0% Mortality= 2000 mg/L
Mysid Shrimp 96 Hour Static Renewal Bioassay
LC50= 2640; No Effect Level= 1000 mg/L
Sheepshead Minnow 96 Hour Static Renewal Bioassay
No Effect Level= 8000 mg/L

BIODEGRADATION
No Data Available.

13 Disposal Considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport Information

DOT HAZARD: Not Applicable
PROPER SHIPPING NAME:

DOT EMERGENCY RESPONSE GUIDE #: Not applicable
Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory Information

TSCA:
All components of this product are listed in the TSCA inventory.
CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds
SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)
SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds
SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds
CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:
No regulated constituents present
MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other Information

NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	24-JAN-2007		** NEW **

SAFETY DATA SHEET

Creation Date 24-Jun-2014 **Revision Date** 28-Apr-2022 **Revision Number** 5

1. Identification

Product Name **Zinc acetate dihydrate**

Cat No. : **AC451880000; AC451880010; AC451880025; AC451880100**

CAS No 5970-45-6
Synonyms Acetic acid, zinc salt, dihydrate.

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Harmful if swallowed
Causes serious eye damage

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Eyes
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/physician
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Zinc Acetate dihydrate	5970-45-6	<= 100
Zinc acetate	557-34-6	-

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects Causes severe eye damage.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Zinc.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if

exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	vinegar-like
Odor Threshold	No information available
pH	6.0-7.0 (@ 25) 5% in water (25°C)
Melting Point/Range	237 °C / 458.6 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	1.840
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C4 H6 O4 Zn . 2 H2 O
Molecular Weight	219.5

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Zinc

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Zinc Acetate dihydrate	LD50 = 794 mg/kg (Rat)	Not listed	Not listed
Zinc acetate	LD50 = 663 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Zinc Acetate dihydrate	5970-45-6	Not listed	Not listed	Not listed	Not listed	Not listed
Zinc acetate	557-34-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Zinc Acetate dihydrate	Not listed	LC50: 0.88 mg/l/96 H (Pimephales proelas) LC50: 0.55mg/l/96 H (Onchorynchus mykiss)	Not listed	Not listed

Persistence and Degradability May persist based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name (ZINC ACETATE DIHYDRATE)
Hazard Class 9
Packing Group III

TDG

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s.
Hazard Class	9
Packing Group	III

IATA

UN-No	UN3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
Hazard Class	9
Packing Group	III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s.
Hazard Class	9
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Zinc Acetate dihydrate	5970-45-6	-	-	-
Zinc acetate	557-34-6	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Zinc Acetate dihydrate	5970-45-6	X	-	-	X	-		X	X	-
Zinc acetate	557-34-6	X	-	209-170-2	X	X	X	X	X	KE-35519

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Zinc Acetate dihydrate	5970-45-6	<= 100	1.0
Zinc acetate	557-34-6	-	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Zinc Acetate dihydrate	-	-	X	-
Zinc acetate	X	1000 lb	X	-

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Zinc acetate	1000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Zinc Acetate dihydrate	-	X	X	-	-
Zinc acetate	X	X	X	-	-

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Zinc Acetate dihydrate	5970-45-6	-	-	-
Zinc acetate	557-34-6	-	-	-

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Zinc Acetate dihydrate	5970-45-6	Not applicable	Not applicable	Not applicable	Not applicable
Zinc acetate	557-34-6	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Zinc Acetate dihydrate	5970-45-6	Not applicable	Not applicable	Not applicable	Annex I - Y23
Zinc acetate	557-34-6	Not applicable	Not applicable	Not applicable	Annex I - Y23

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 24-Jun-2014
Revision Date 28-Apr-2022
Print Date 28-Apr-2022
Revision Summary SDS sections updated.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS