<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium Phosphate</td>
<td>Harcros Chemicals</td>
</tr>
<tr>
<td>H-300 Microbiocide</td>
<td>Nalco</td>
</tr>
<tr>
<td>H-901G Microbiocide</td>
<td>Nalco</td>
</tr>
<tr>
<td>Nalco 1720</td>
<td>Nalco</td>
</tr>
<tr>
<td>Pre-Tect PT2000</td>
<td>Nalco</td>
</tr>
<tr>
<td>Sodium Sulfite</td>
<td>Harcros Chemicals</td>
</tr>
<tr>
<td>Sodium Hydroxide - Caustic Soda (50%)</td>
<td>Occidental Chemical Corporation</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>Rhodia</td>
</tr>
<tr>
<td>Trisodium Phosphate</td>
<td>Harcros Chemicals</td>
</tr>
</tbody>
</table>
MICAL PERMIT NO: NR STK NO: P6891609173
STATUS: 10-APPROVED FOR USE
PROD. NAME: PHOS SODA DI ANHY GRAN 100#
COMMON NAME: NR
CHEM. NAME: DISODIUM PHOSPHATE; DISODIUM ORTHOPHOSPHATE; SODIUM PHOSPHATE

SECTION I PRODUCT/MANUFACTURER INFORMATION

MEG NAME: HARCROS CHEMICALS, INC. MFG PROD #: 16-07436-0
ADDRESS: 5200 SPEAKER RD TEL #: 913-371-3191
CT/ST/ZP: KANSAS CITY KS 66106 24-HR #: 1-800-424-9300

CAS NO: 7558-79-4 TRADE SECRET: NR (Y/N)
FORMULA: NR
CHEM. FAMILY: PHOSPHATES


SECTION II HAZARDOUS INGREDIENTS

PRINCIPLE COMPONENT:
DISODIUM PHOSPHATE

<table>
<thead>
<tr>
<th>PH</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.6</td>
<td>15.00000</td>
</tr>
<tr>
<td>NR</td>
<td>10.00000</td>
</tr>
</tbody>
</table>

HAZARD INGREDIENTS INFORMATION:
NR

SECTION III PHYSICAL AND CHEMICAL CHARACTERISTICS

POURING PT: NA FREEZING PT: NR MELTING PT: NR

MOL. WEIGHT: NR VAPOR PRESSURE: NON-VOLATILE COMPRT.
PH: 1% VAPOR DENSITY: NON- (AIR=1)
1% CONCENTRATION: 2.500 (AIR=1)
EVAPOR RATE: NA SOLUBILITY IN H2O: 11.5%
PERCENT VOLATILE BY VOLUME: NON-VOLATILE %

HAZARD CLASSIFICATION

SOURCE: NR FLAMMABLE: NR HEALTH: NR REACTIVITY: NR SPECIAL: NR

APPEARANCE AND ODOR:
WHITE GRANULES OR POWDER; ODORLESS

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT: NA TEST METHOD: NR
FLAMMABLE LIMITS LOWER: NR UPPER: NR
SECTION VI  HEALTH HAZARDS

CARCINOGENIC INFORMATION

NTP: NK  IARC: NA  OSHA: NK  ACGIH: NK  NIOSH: NK  [Y/N/S/NA/NH]

EXPOSURE ACUTE/CHRONIC:

IRRITATION (RABBIT) 4.2 ON A SCALE OF 0-4.0, SLIGHTLY IRITATING.

VARIOUS: 27.0 mg/m³ NON-TOXIC  PRACTICALLY.  SKIN IRRITATION (RABBIT): 0.2 ON SCALE OF 0-4 PRACTICALLY NON-IRITATING.

MAY PRODUC FURTHER EFFECT ON THE RESPIRATORY TRACT MEMBRANES IF WORKERS SITTING.
COMMON NAME: NR
CHEM. NAME: DINITRO PHOSPHATE; DINITRO PHOSPHORIC ACID; SODIUM PHOSPHATE

SECTION VI

HEALTH HAZARDS

GASTROINTESTINAL IRRITATION. LD50 (ROD): 0.6 gm/kg. SYMPTOMS MAY INCLUDE:
HYPOCALCEMIA, SLOWED PULSE, DECREASED BLOOD PRESSURE, CYANOSIS, AND COMA.

EMERGENCY FIRST AID:

MEDICAL ATTENTION IF IRRITATION PERSISTS.

REPLACEMENT TREATMENT - REMOVE TO DUST-FREE AIR.

PREPARE MILK IF AVAILABLE. CONSULT WITH A PHYSICIAN.

INGESTION OF LARGE DOSE (E.G. 20G) MAY CAUSE NAUSEA AND VOMITING. IF:

A LAXATIVES. SYMPTOMATIC AND SUPPORTIVE TREATMENT IS RECOMMENDED.

SPECIAL INSTRUCTIONS:

BELIEVED TO BE RELIABLE. HARBOR CHLORINE INC. PROVIDES NO WARRANTIES.
ON COMPLETENESS OR THE DATA CONTAINED HEREIN. THIS INFORMATION IS ftp:
YOU MUST SATISFY YOURSELF OF THE CURRENT DATA RELEVANT TO YOUR PARTICULAR USE.

SECTION VII

SPECIAL PROTECTION INFORMATION

SPECIAL PROTECTION

EXPOSURE TO UNDILUTED, CONCENTRATED PRODUCTS MAY CAUSE:

SECTION VIII

INFORMATION RE:

WHEN HANDLING, STORAGE, OR USE AN APPROPRIATE RESPIRATORY PROTECTION;
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: H-300 MICROBIOCIDE
APPLICATION: BIOCIDES
COMPANY IDENTIFICATION: Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

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

NFPA 704/AM/HMIS RATING
HEALTH: 3 / 3 FLAMMABILITY: 1 / 1 INSTABILITY: 0 / 0 OTHER:
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).

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>111-30-8</td>
<td>30.0 - 60.0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

DANGER
Corrosive. May cause tissue damage. May cause sensitization by inhalation and skin contact. Corrosive. Causes irreversible eye damage. Causes skin burns. Harmful if inhaled. May be fatal if swallowed. Harmful if absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Causes asthmatic signs and symptoms in hyper-reactive individuals. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Wear goggles, protective clothing, and rubber gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed and in a well-ventilated place. 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. 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.

PRIMARY ROUTES OF EXPOSURE:
Eye, Skin, Inhalation.
MATERIAL SAFETY DATA SHEET

H-300 MICROBIOCIDE

HUMAN HEALTH HAZARDS - ACUTE:

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

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

INHALATION:
Irritating, in high concentrations, to the eyes, nose, throat and lungs. Repeated or prolonged inhalation exposure may cause asthmatic reactions in susceptible individuals.

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:
Skin contact may aggravate an existing dermatitis condition.

4. FIRST AID MEASURES

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

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

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

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

NOTE TO PHYSICIAN: Aspiration may cause lung damage. Probable mucosal damage may contraindicate the use of gastric lavage.

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: 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. Keep containers cool by spraying with water.

FIRE AND EXPLOSION HAZARD:
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING:
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

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

METHODS FOR CLEANING UP:
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Wash site of spillage thoroughly with water. Dilute the glutaraldehyde to 5% or less with water. Add sodium bisulfite (2-3 parts by weight per part glutaraldehyde). This will typically reduce the glutaraldehyde concentration to 2 ppm or less in 5 minutes at room temperature. The remaining solution can be disposed of via appropriate means. 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 product is toxic to fish and other water organisms. Do not discharge directly into lakes, ponds, streams, waterways or public water supplies.

7. HANDLING AND STORAGE

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

STORAGE CONDITIONS:
Store the containers tightly closed. Store separately from bases. Store in suitable labelled containers.

SUITABLE CONSTRUCTION MATERIAL:
Polyethylene, Stainless steel
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

ACGIH/TLV:
Substance(s) Glutaraldehyde
CEILING: 0.05 ppm, 0.2 mg/m³ 0.05 ppm, 0.2 mg/m³

OSHA/PEL:
Substance(s) Glutaraldehyde
CEILING: 0.2 ppm, 0.8 mg/m³

ENGINEERING MEASURES:
General ventilation is recommended. Local exhaust ventilation may be necessary when dusts or mists are generated.

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

HAND PROTECTION:
Nitrile gloves, Rubber gloves, Butyl gloves

SKIN PROTECTION:
Wear impervious apron 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:
Keep an eye wash fountain available. Keep a safety shower available.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE
Liquid

APPEARANCE
Clear Colorless

ODOR
Characteristic, Aldehyde

SPECIFIC GRAVITY
1.11 - 1.13 @ 68 °F / 20 °C

DENSITY
9.2 - 9.4 lb/gal

SOLUBILITY IN WATER
Complete
10. STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions.

HAZARDOUS POLYMERIZATION:
Polymerization may occur, but is not expected to be violent.

CONDITIONS TO AVOID:
High temperatures

MATERIALS TO AVOID:
Strong acids  Strong Bases  Contact with these may cause a heat-generating reaction which is not expected to be violent.

HAZARDOUS DECOMPOSITION PRODUCTS:
Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

The following results are for the product along with results on the hazardous components.

ACUTE ORAL TOXICITY:
Species  LD50  Test Descriptor
Rat  1.2 ml/Kg  45% Active Ingredient Glutaraldehyde
Rating: Non-Hazardous

ACUTE DERMAL TOXICITY:
Species  LD50  Test Descriptor
Rabbit  2.0-2.7 ml/kg  45% Active Ingredient Glutaraldehyde
Rating: Non-Hazardous

ACUTE INHALATION TOXICITY:
Species  LC50  Test Descriptor
Rat  20.4 mg/L (4 hrs)  Glutaraldehyde
Rating: Non-Hazardous

CHRONIC TOXICITY DATA:
Glutaraldehyde incorporated into the diet of rats up to 1.6 g/kg for seven days resulted in no deaths. An eleven week drinking water study of glutaraldehyde at up to 0.5% showed no effect.
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). Preliminary histopathological findings in the 24-month sacrifice of a combined oncogenicity/chronic study in Fischer 344 rats given glutaraldehyde in drinking water showed an increase in the incidence of the spontaneously occurring large granular cell lymphocytic leukemia (LGL) at all doses (50, 250, 1000 ppm) compared with the controls only for the female rats. Male rats had the same incidence as the controls at all levels of exposures. The significance of this observation to humans remains to be determined.

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

MUTAGENICITY:
Mutagenicity in vitro tests of Chinese hamster ovary, sister chromatid exchange and unscheduled DNA synthesis did not produce dose-related responses. Oral doses of 30 and 60 mg/kg to mice showed no effect in the dominant lethal assay. In all five strains of Salmonella, with and without metabolic activation by S9 liver homogenate, no mutagenic response was noted.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS:
The following results are for the product.

ACUTE FISH RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluegill Sunfish</td>
<td>96 hrs</td>
<td>24.4 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>96 hrs</td>
<td>26.7 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>13.3 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Sheepshead Minnow</td>
<td>96 hrs</td>
<td>71.1 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>10.8 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Bluegill Sunfish</td>
<td>96 hrs</td>
<td>18.8 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Sheepshead Minnow</td>
<td>96 hrs</td>
<td>64 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>96 hrs</td>
<td>6 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>96 hrs</td>
<td>24 mg/l</td>
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</tr>
<tr>
<td>Rating: Toxic</td>
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<td></td>
</tr>
</tbody>
</table>

ACUTE INVERTEBRATE RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>EC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>48 hrs</td>
<td>11.1 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Mysid Shrimp (Mysidopsis bahia)</td>
<td>96 hrs</td>
<td>15.8 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Ceriodaphnia dubia</td>
<td>48 hrs</td>
<td>18.0 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Daphnia magna</td>
<td>504 hrs</td>
<td></td>
<td>Product</td>
</tr>
</tbody>
</table>
### MATERIAL SAFETY DATA SHEET

**PRODUCT**

H-300 MICROBIOCIDE

**EMERGENCY TELEPHONE NUMBER(S)**

(800) 424-9306 (24 Hours)  CHEMTREC

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>EC50/LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Algae (Skeletonema costatum)</td>
<td>72 hrs</td>
<td>1.22 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Algae (Scenedesmus subspicatus)</td>
<td>72 hrs</td>
<td>1.7 mg/l</td>
<td>Product</td>
</tr>
</tbody>
</table>

**AQUATIC PLANT RESULTS:**

**Rating:** Toxic

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

### 13. DISPOSAL CONSIDERATIONS

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

Do not contaminate water, food, or feed by storage or disposal, or cleaning of equipment. Pesticide wastes are acutely hazardous and/or toxic. 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 the label instructions, contact your State pesticide or environmental control agent or the hazardous waste representative at the nearest EPA Regional Office for guidance.

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

### 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):** GLUTARALDEHYDE
- **UN/ID No:** UN 3265
- **Hazard Class - Primary:** 8
MATERIAL SAFETY DATA SHEET

PRODUCT

H-300 MICROBIOCIDE

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

Packing Group: II
Flash Point: None

AIR TRANSPORT (ICAO/IATA):
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical Name(s): GLUTARALDEHYDE
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): GLUTARALDEHYDE
UN/ID No.: UN 3265
Hazard Class - Primary: 8
Packing Group: II

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

Glutaraldehyde: Corrosive, Sensitizer

CERCLA/SUPERFUND, 40 CFR 117, 302:
Notification of spills of this product is not required.

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

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

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

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

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA):
This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA):
EPA Reg. No. 464-692-1706
In all cases follow instructions on the product label.

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

CLEAN AIR ACT, Sec. 111 (40 CFR 60, Volatile Organic Compounds), Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances):
None of the substances are specifically listed in the regulation.

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

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

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

NATIONAL REGULATIONS, CANADA:

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

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

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


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: 02/28/2004
Version Number: 1.5
MATERIAL SAFETY DATA SHEET

PRODUCT
H-901G

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: H-901G
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: 1 / 1 OTHER: 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).

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Bromo-3-Chloro-5,5-Dimethyl-Hydantoin</td>
<td>16079-88-2</td>
<td>60.0 - 100.0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

DANGER
Highly corrosive. Causes skin and eye damage. May be fatal if swallowed. Do not get in eyes, on skin, on clothing. Wear goggles or safety glasses and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust and fumes. Remove and wash contaminated clothing before reuse. Avoid breathing dust. Use with adequate ventilation. Do not get in eyes, on skin or on clothing. Wear rubber gloves and chemical glasses and face shield when handling. Wash thoroughly after handling. Immediately remove contaminated clothing and wash before reuse. Oxidizer; material is an oxidizer which may readily react with other materials, especially upon heating. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve hydrogen bromide and bromine under fire conditions. May evolve chlorine under fire conditions. May evolve HCl under fire conditions.

PRIMARY ROUTES OF EXPOSURE:
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE:

EYE CONTACT:
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered.
SKIN CONTACT:
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Repeated or prolonged contact may cause skin sensitization.

INGESTION:
Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. May be harmful or fatal if swallowed.

INHALATION:
Not a likely route of exposure. Irritating, in high concentrations, to the eyes, nose, throat and lungs.

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.

4. FIRST AID MEASURES

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

SKIN CONTACT:
Remove contaminated clothing. Wash off affected area immediately with plenty of water. Get immediate medical attention.

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

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

FIRST AID: IF CONTACT WITH EYES OCCURS: Immediately flush with cold water for at least 15 minutes. Then get immediate medical attention.

IF CONTACT WITH SKIN: Brush off excess chemical and flush skin with cold water for at least 15 minutes. If irritation persists, get medical attention.

IF INHALED: Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If not breathing, give artificial respiration. Call a physician immediately.

IF SWALLOWED: Drink large quantities of water. DO NOT induce vomiting. Avoid alcohol. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage.
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 applicable

EXTINGUISHING MEDIA:
Dry powder, Foam, Carbon dioxide. Other extinguishing agent suitable for Class B fires. For large fires, use water spray or fog, thoroughly drenching the burning material.

FIRE AND EXPLOSION HAZARD:
Oxidizer, material is an oxidizer which may readily react with other materials, especially upon heating. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve hydrogen bromide and bromine under fire conditions. May evolve chlorine 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. Ensure clean-up is conducted by trained personnel only. Ensure adequate ventilation. Do not touch spilled material. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP:
Sweep up and shovel. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS:
This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waters.

7. HANDLING AND STORAGE

HANDLING:
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep the containers closed when not in use. Avoid generating dusts. Classified as an ST-1 dust explosive hazard (ASTM E-1226-88). Airborne dusts of this product in an enclosed space and in the presence of an ignition source may constitute an explosion hazard.

STORAGE CONDITIONS:
Store the containers tightly closed. Store in suitable labelled containers. Keep in dry place.
SUITABLE CONSTRUCTION MATERIAL:
Butyl rubber, Buna-N, Hypalon, Teflon

UNSuitABLE CONSTRUCTION MATERIAL:
Do not use aluminum or mild steel, Brass, Carbon steel

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

ACGIH/TLV:
Substance(s)
OSHA/PEL:
Substance(s)
Manufacturer's Recommendation:
Substance(s)
  1,3-Dichloro-5-Ethyl-5-
Methylhydantoin
Manufacturer's Recommendation:
Substance(s)
  3-Bromo-1-Chloro-5,5-
Dimethyl-Hydantoin
Manufacturer's Recommendation:
Substance(s)
  1-Bromo-3-Chloro-5,5-
Dimethyl-Hydantoin

ENGINEERING MEASURES:
General ventilation is recommended. Local exhaust ventilation may be necessary when dusts or mists are generated.

RESPIRATORY PROTECTION:
If dusts are generated, use an approved air-purifying respirator. An organic vapor/acid gas cartridge with dust/mist prefilter may be used. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION:
Neoprene gloves, PVC gloves, Butyl gloves

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

EYE PROTECTION:
Wear a face shield with chemical splash goggles.
HYGIENE RECOMMENDATIONS:
Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Granular
APPEARANCE: White
ODOR: Slight, Pungent

SOLUBILITY IN WATER: Partial
pH (0.1 %): 3.5

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:
Moisture
Avoid temperatures greater than 130 °C

MATERIALS TO AVOID:
Strong acids Strong Bases Contact with organic materials (e.g. rags, sawdust, hydrocarbon oils or solvents) and avoid reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) which can generate heat, fires, explosions and the release of toxic fumes.

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

11. TOXICOLOGICAL INFORMATION

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

ACUTE ORAL TOXICITY:
Species: LD50 Test Descriptor
Rat: 468 - 477 mg/kg Product
Rating: Toxic
**MATERIAL SAFETY DATA SHEET**

**PRODUCT**

**H-901G**

**EMERGENCY TELEPHONE NUMBER(S)**

(800) 424-9300 (24 Hours) CHEMTREC

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**ACUTE DERMAL TOXICITY:**

<table>
<thead>
<tr>
<th>Species</th>
<th>LD50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>&gt; 2,000 mg/kg</td>
<td>Active Substance</td>
</tr>
</tbody>
</table>

**SENSITIZATION:**

May cause sensitization by skin contact.

**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

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**12. ECOLOGICAL INFORMATION**

**ECOTOXICOLOGICAL EFFECTS:**

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

**ACUTE FISH RESULTS:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainbow Trout</td>
<td>96 hrs</td>
<td>0.5 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Bluegill Sunfish</td>
<td>96 hrs</td>
<td>1.2 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Sheepshead Minnow</td>
<td>96 hrs</td>
<td>1.4 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>0.71 mg/l</td>
<td>Product</td>
</tr>
</tbody>
</table>

**Rating:** Very toxic

**ACUTE INVERTEBRATE RESULTS:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>EC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>48 hrs</td>
<td>0.4 mg/l</td>
<td></td>
<td>Product</td>
</tr>
<tr>
<td>Mysid Shrimp (Mysisopsis bahia)</td>
<td>96 hrs</td>
<td>0.93 mg/l</td>
<td></td>
<td>Product</td>
</tr>
<tr>
<td>American Oyster</td>
<td>96 hrs</td>
<td>0.84 mg/l</td>
<td></td>
<td>Product</td>
</tr>
</tbody>
</table>

**Rating:** Very toxic

**AQUATIC PLANT RESULTS:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>EC50/LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Algae (Selenastrum capricornutum)</td>
<td>72 hrs</td>
<td>0.12 mg/l</td>
<td>Active Substance (1,3-Dichloro-5-Ethyl-5-Methylhydantoine)</td>
</tr>
</tbody>
</table>

**Rating:**

**AVIAN RESULTS:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobwhite Quail</td>
<td>&gt; 5,620 mg/kg</td>
<td></td>
<td>Similar active ingredients</td>
</tr>
<tr>
<td>Mallard Duck</td>
<td>&gt; 5,620 mg/kg</td>
<td></td>
<td>Similar active ingredients</td>
</tr>
</tbody>
</table>
ENVIROMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: High

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: D001

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

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures approved by state and local authorities. If burned, stay out of smoke.

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: OXIDIZING SOLID, N.O.S.
Technical Name(s): BROMOCHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No.: UN 1479
Hazard Class - Primary: 5.1
Packing Group: II

Flash Point:
Not applicable

AIR TRANSPORT (ICAO/IATA):

Proper Shipping Name: OXIDIZING SOLID, N.O.S.
Technical Name(s): 1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No.: UN 1479
Hazard Class - Primary: 5.1
Packing Group: II
IATA Cargo Packing Instructions:
(Max net quantity per package)

AIR TRANSPORT (ICAO/IATA):
MATERIAL SAFETY DATA SHEET

PRODUCT

H-901G

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

Proper Shipping Name: OXIDIZING SOLID, N.O.S.
Technical Name(s): BROMOCHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No: UN 1479
Hazard Class - Primary: 5.1
Packing Group: II
IATA Cargo Packing Instructions: 511
IATA Cargo Aircraft Limit: 25 L (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO):
Proper Shipping Name: OXIDIZING SOLID, CORROSIVE, N.O.S.
Technical Name(s): BROMOCHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No: UN 3085
Hazard Class - Primary: 5.1
Hazard Class - Secondary: 8
Packing Group: II

MARINE TRANSPORT (IMDG/IMO):
Proper Shipping Name: OXIDIZING SOLID, N.O.S.
Technical Name(s): 1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No: UN 1479
Hazard Class - Primary: 5.1
Packing Group: II

*Marine Pollutant: BROMOCHLORO-5,5-DIMETHYLHYDANTOIN

*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

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

1-Bromo-3-Chloro-5,5-Dimethyl-Hydantoin: Corrosive, Oxidizer, Dermal 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:

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

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA):
EPA Reg. No. 5185-490-1706
In all cases follow instructions on the product label.

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

CLEAN AIR ACT, Sec. 111 (40 CFR 60, Volatile Organic Compounds), 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:
Substances known to the State of California to cause cancer are present as an impurity or residue.

<table>
<thead>
<tr>
<th>Substance(s)</th>
<th>Concentration</th>
<th>EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromoform</td>
<td>&lt;= .0012 %</td>
<td>Causes Cancer</td>
</tr>
</tbody>
</table>

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

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

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

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

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

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 ensure 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.


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.
<table>
<thead>
<tr>
<th>MATERIAL SAFETY DATA SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT</td>
</tr>
<tr>
<td>H-901G</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>EMERGENCY TELEPHONE NUMBER(S)</td>
</tr>
<tr>
<td>(800) 424-9390 (24 Hours)</td>
</tr>
<tr>
<td>CHEMTREC</td>
</tr>
</tbody>
</table>

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: 02/28/2004
Version Number: 1.3
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: NALCO 1720
APPLICATION: OXYGEN SCAVENGER
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: 1 / 2 FLAMMABILITY: 0 / 0 INSTABILITY: 0 / 0 OTHER:
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).

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Bisulfite</td>
<td>7631-90-5</td>
<td>10.0 - 30.0</td>
</tr>
<tr>
<td>Potassium Bisulfite</td>
<td>7773-03-7</td>
<td>1.0 - 5.0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

WARNING
Harmful if swallowed. Contains Sulfite. Causes asthmatic signs and symptoms in hyper-reactive individuals.
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 sulfur (SOx) under fire conditions. May evolve hydrogen sulfide (H2S) under fire conditions.

PRIMARY ROUTES OF EXPOSURE:
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE:

EYE CONTACT:
Can cause mild irritation.

SKIN CONTACT:
Can cause mild irritation.
INGESTION:
Not a likely route of exposure. May cause asthmatic-like attack.

INHALATION:
Irritant to respiratory system. Causes asthmatic signs and symptoms in hyper-reactive individuals.

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:
Ingestion of sulfite can cause a severe allergic reaction in asthmatics and some sulfite sensitive individuals. The resulting symptoms can include difficulty in breathing, flushed skin and a rash. Chronic exposure to sulfites may cause symptoms of upper respiratory disease and affect sense of taste and smell.

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. If breathing is difficult, administer oxygen. 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:
Not expected to burn. Use extinguishing media appropriate for surrounding fire. Keep containers cool by spraying with water.
FIRE AND EXPLOSION HAZARD:
May evolve oxides of sulfur (SOx) under fire conditions. May evolve hydrogen sulfide (H2S) 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. Ensure adequate ventilation. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP:
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. 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:
Avoid eye and skin contact. 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 labelled. Keep the containers closed when not in use. Use with adequate ventilation.

STORAGE CONDITIONS:
Store the containers tightly closed. Store in suitable labelled containers. Store separately from acids. Store separately from oxidizers. Amine and sulphite products should not be stored within close proximity or resulting vapors may form visible airborne particles.

SUITABLE CONSTRUCTION MATERIAL:
Polypropylene, Buna-N, EPDM, Polyethylene, Polyurethane, PVC, Neoprene, Hypalon, Viton

UNSUITABLE CONSTRUCTION MATERIAL:
Brass, Mild steel, Stainless Steel 304, Stainless Steel 316L, 100% phenolic resin liner, Epoxy phenolic resin
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. Exposure limits are listed for sulfur dioxide (SO2) since this product evolves SO2 when open to the atmosphere.

ACGIH/TLV:
Substance(s)
- Sodium Bisulfite: TWA: 5 mg/m³
- Sulfur Dioxide: TWA: 2 ppm, 5.2 mg/m³
  STEL: 5 ppm, 13 mg/m³

OSHA/PEL:
Substance(s)
- Sodium Bisulfite: TWA: 5 mg/m³
- Sulfur Dioxide: TWA: 2 ppm, 5 mg/m³
  STEL: 5 ppm, 13 mg/m³

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

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

HAND PROTECTION:
Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

SKIN PROTECTION:
Wear standard protective clothing.

EYE PROTECTION:
Wear chemical splash goggies.

HYGIENE RECOMMENDATIONS:
If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Keep an eye wash fountain available. Keep a safety shower available.

HUMAN EXPOSURE CHARACTERIZATION:
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear Pink</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.22 - 1.28 @ 60 °F / 15.6 °C</td>
</tr>
<tr>
<td>Density</td>
<td>10.1 - 10.7 lb/gal</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Complete</td>
</tr>
<tr>
<td>pH (100%)</td>
<td>3.5 - 4.1</td>
</tr>
<tr>
<td>Viscosity</td>
<td>5 cps @ 60 °F / 15 °C</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>11 °F / -11 °C</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>205 °F / 96 °C</td>
</tr>
<tr>
<td>VOC Content</td>
<td>0 % Calculated</td>
</tr>
</tbody>
</table>

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 acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) 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 sulfur, Hydrogen sulfide (H2S)

11. TOXICOLOGICAL INFORMATION

The following results are for a similar product.

ACUTE ORAL TOXICITY:

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>LD50</th>
<th>TEST DESCRIPTOR</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>4,112 mg/kg</td>
<td>Similar Product</td>
<td>Non-Hazardous</td>
</tr>
</tbody>
</table>
ACUTE DERMAL TOXICITY:
Species: LD50
Rabbit: > 3,000 mg/kg
Rating: Non-Hazardous

PRIMARY SKIN IRRITATION:
Draize Score
1.0 / 8.0
Rating: Minimally irritating

PRIMARY EYE IRRITATION:
Draize Score
9.4 / 110.0
Rating: Minimally 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).

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:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>382 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Inland Silverside</td>
<td>96 hrs</td>
<td>&gt; 5,000 mg/l</td>
<td>Product</td>
</tr>
</tbody>
</table>

ACUTE INVERTEBRATE RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>EC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>48 hrs</td>
<td>728 mg/l</td>
<td></td>
<td>Product</td>
</tr>
<tr>
<td>Mysid Shrimp (Mysidopsis bairdii)</td>
<td>96 hrs</td>
<td>&gt; 5,000 mg/l</td>
<td></td>
<td>Product</td>
</tr>
</tbody>
</table>

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;

<table>
<thead>
<tr>
<th>Air</th>
<th>Water</th>
<th>Soil/Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5%</td>
<td>30 - 50%</td>
<td>50 - 70%</td>
</tr>
</tbody>
</table>

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

BIOACCUMULATION POTENTIAL
The product will not 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 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 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:

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name(s):</td>
<td>SODIUM BISULFITE</td>
</tr>
<tr>
<td>UN/ID No :</td>
<td>UN 3082</td>
</tr>
<tr>
<td>Hazard Class - Primary :</td>
<td>9</td>
</tr>
<tr>
<td>Packing Group :</td>
<td>III</td>
</tr>
<tr>
<td>Flash Point :</td>
<td>None</td>
</tr>
</tbody>
</table>
MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 1720

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

DOT Reportable Quantity (per package) : 18,350 lbs
DOT RQ Component : SODIUM BISULFITE

AIR TRANSPORT (ICAO/IATA):

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name(s) : SODIUM BISULFITE
UN/ID No : UN 3082
Hazard Class - Primary : 9
Packing Group : III
IATA Cargo Packing Instructions : 914
IATA Cargo Aircraft Limit : NO LIMIT (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO):

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

NATIONAL REGULATIONS, USA:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Sodium Bisulfite: Respiratory irritant
Potassium Bisulfite: Irritant

CERCLA/SUPERFUND, 40 CFR 117, 302:
This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product.

<table>
<thead>
<tr>
<th>RQ Substance</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Bisulfite</td>
<td>18,000 lbs</td>
</tr>
</tbody>
</table>

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
MATERIAL SAFETY DATA SHEET
PRODUCT
NALCO 1720

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

- 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 173.310 Boiler Water Additives

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

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 contains the following substances listed in the regulation:

<table>
<thead>
<tr>
<th>Substance(s)</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Bisulfite</td>
<td>Sec. 311</td>
</tr>
</tbody>
</table>

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:

Sodium Bisulfite 7631-90-5

NATIONAL REGULATIONS, CANADA:
MATERIAL SAFETY DATA SHEET

PRODUCT
NALCO 1720

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

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 substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

INTERNATIONAL CHEMICAL CONTROL LAWS

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

CHINA
All substances in this product comply with the Chemical Control Law and are listed on the Inventory of Existing Chemical Substances China (IECSC).
This product's trade name is registered with the Chemical Registration Center (CRC), Beijing.

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).
This product's trade name is registered with the Korean Ministry of Environment (KMOE).

NEW ZEALAND
This product complies with Parts XI - XV of the HSNO Act (1996).

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
F100777

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.


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
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PRE-TECT® PT2000
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: 2/2 INSTABILITY: 0/0 OTHER: 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).

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methoxypropylamine</td>
<td>5332-73-0</td>
<td>30.0 - 60.0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

DANGER
Corrosive. Combustible. May cause tissue damage. Harmful if absorbed through skin. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting.
Do not get in eyes, on skin, on clothing. Do not take internally. Avoid breathing vapor. Use with adequate ventilation. Keep container tightly closed. Keep away from heat. Keep away from sources of ignition - No smoking. 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 a face shield. Wear suitable protective clothing, gloves and eye/face protection.
Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. 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:
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Harmful if absorbed through skin.

INGESTION:
Not a likely route of exposure. Corrosive, causes burns to gastro-intestinal tract. Nausea, vomiting and stomach pain may occur. In severe cases blood may be vomited.

INHALATION:
Irritating to the eyes, nose, throat and lungs. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting.

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.

4. FIRST AID MEASURES

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

SKIN CONTACT:
Immediately flush with plenty of water for at least 15 minutes. For a large splash, flood body under a shower. Remove contaminated clothing. Wash off affected area immediately with plenty of water. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

INGESTION:
DO NOT INDUCE VOMITING. 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:
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 : 130 °F / 54 °C

EXTINGUISHING MEDIA :
Alcohol foam, Dry powder. Other extinguishing agent suitable for Class B fires. For large fires, use water spray or fog, thoroughly drenching the burning material. Keep containers cool by spraying with water.

FIRE AND EXPLOSION HAZARD :
Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. 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. Ensure clean-up is conducted by trained personnel only. Ventilate spill area if possible. Do not touch spilled material. Remove sources of ignition. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Wash site of spillage thoroughly with water. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. **HANDLING AND STORAGE**

HANDLING :
Avoid eye and skin contact. Do not take internally. Do not breathe vapors/gases/dust. Do not get in eyes, on skin, on clothing. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labelled. Keep the containers closed when not in use. Use with adequate ventilation. Do not use in locations where vapor is likely to travel to welding flames or arcs or to other hot surfaces. Vapors are much heavier than air, this can result in uneven distribution.
STORAGE CONDITIONS:
Store the containers tightly closed. Store in suitable labelled containers. Store away from heat and sources of ignition. Store separately from oxidizers. Amine and sulphite products should not be stored within close proximity or resulting vapors may form visible airborne particles. Have appropriate fire extinguishers available in and near the storage area.

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.
AIHA/WEEL:
Substance(s)
   Methoxypropylamine   TWA: 5 ppm
   STEL: 15 ppm

ENGINEERING MEASURES:
Use general ventilation with local exhaust ventilation.

RESPIRATORY PROTECTION:
If significant mists, vapors or aerosols are generated an approved respirator is recommended. Wear an organic vapor/mist respirator when spraying. 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:
Most glove materials are of low chemical resistance. Replace gloves regularly. Impervious gloves, Teflon® BUTYL GLOVES, NITRILE GLOVES, NEOPRENE GLOVES Most glove materials are of low chemical resistance. Replace gloves regularly. BUTYL GLOVES, NITRILE GLOVES, NEOPRENE GLOVES

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

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE   Liquid
APPEARANCE       Colorless Clear
ODOR Amine

SPECIFIC GRAVITY 0.95 - 0.97 @ 77 °F / 25 °C
SOLUBILITY IN WATER Complete
pH (1.0 %) 10.2 - 11.8
BOILING POINT 241 °F / 116 °C
VAPOR PRESSURE 20 mm Hg @ 86 °F / 30 °C
VOC CONTENT 60 %

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:
Heat and sources of ignition including static discharges.

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

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

11. TOXICOLOGICAL INFORMATION

The following results are for the hazardous components.

ACUTE ORAL TOXICITY:
Species LD50 Test Descriptor
Rat 750 mg/kg Methoxypropylamine
Rating: Non-Hazardous

ACUTE DERMAL TOXICITY:
Species LD50 Test Descriptor
Rabbit 2,600 mg/kg Methoxypropylamine
Rating: Non-Hazardous

ACUTE INHALATION TOXICITY:
Species LC50 Test Descriptor
Rat 9.8 mg/l (4 hrs) Methoxypropylamine
Rating: Toxic
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).

MUTAGENICITY:
A bacterial mutagenicity (Ames) bioassay was negative for methoxypropylamine.

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:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>&gt; 1,000 mg/l</td>
<td>Product</td>
</tr>
<tr>
<td>Bluegill Sunfish</td>
<td>96 hrs</td>
<td>&gt; 1,000 mg/l</td>
<td>Product</td>
</tr>
</tbody>
</table>

Rating: Essentially non-toxic

ACUTE INVERTEBRATE RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>EC50</th>
<th>Test Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>48 hrs</td>
<td>694 mg/l</td>
<td>Product</td>
</tr>
</tbody>
</table>

Rating: Essentially non-toxic

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low

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: D001

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.

LAND TRANSPORT:

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s): METHOXYPROPYLAMINE
UN/ID No.: UN 2734
Hazard Class - Primary: 8
Hazard Class - Secondary: 3
Packing Group: II

Flash Point: 54 °C / 130 °F

AIR TRANSPORT (ICAO/IATA):

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s): METHOXYPROPYLAMINE
UN/ID No.: UN 2734
Hazard Class - Primary: 8
Hazard Class - Secondary: 3
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: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s): METHOXYPROPYLAMINE
UN/ID No.: UN 2734
Hazard Class - Primary: 8
Hazard Class - Secondary: 3
Packing Group: II

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.

Methoxypropylamine: Corrosive, Flammable
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:

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

CLEAN AIR ACT, Sec. 111 (40 CFR 60, Volatile Organic Compounds), 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:

Methoxypropylamine 5332-73-0
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:
B3 - Combustible Liquids, E - Corrosive 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.

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.


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: 02/26/2004
Version Number: 1.6
SECTION I  HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>MAX</th>
<th>SPCPA</th>
<th>AIR CONTAMINENT LEVELS</th>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Sulfite</td>
<td>100.0</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>(CAS # 7757-83-7)</td>
<td></td>
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</tbody>
</table>

SECTION II  HEALTH HAZARDS

POTENTIAL EFFECTS OF EXPOSURE

EYES

Eye contact with product may cause irritation burns

SKIN

Skin contact may cause irritation

INHALATION

Inhalation may cause irritation sensitization (allergic reaction) blood disorders swelling decreased blood pressure lowered calcium level in the blood (hypocalcemia)

--Continued On Page 2
SECTION II HEALTH HAZARDS

Inhalation: May cause respiratory irritation with wheezing, coughing, and shortness of breath, especially in asthmatics. rosages are possible. Inhalation under conditions which increase the oxygen partial pressure in the body, can cause oxygen toxicity. Inhalation of large amounts of gas may cause unconsciousness and death. USE PROTECTIVE EQUIPMENT: ALWAYS WEAR FULL BODY COVERING CLOTHING RUBBER BOOTS. INTERNAL EXPOSURE: May cause gastrointestinal irritation such as vomiting, diarrhea, and abdominal pain. May also cause respiratory irritation. USE PROTECTIVE EQUIPMENT: ALWAYS WEAR FULL BODY COVERING CLOTHING RUBBER BOOTS.
SECTION III SPECIAL PROTECTION

- PROTECTIVE EQUIPMENT INHALATION
  If exposure limits are exceeded, or if exposure may occur, use a NIOSH/MSHA respirator approved for your conditions of exposure. Refer to the most recent NIOSH publications concerning chemical hazards, or consult your safety equipment supplier. Respiratory protection programs must be in compliance with OSHA requirements in 29 CFR 1910.134. For emergencies, a NIOSH/MSHA approved positive pressure breathing apparatus should be readily available.

VENTILATION REQUIRED:
Adequate ventilation is required to minimize exposure or to maintain exposure levels below OSHA/ACGIH requirements. Local mechanical ventilation may be required.

ADDITIONAL PROTECTIVE MEASURES
Safety shower, eye wash fountain, and washing facilities should be readily available.

SECTION IV FIRE & EXPLOSION HAZARD DATA

Flash Point (METHOD): > OR = N/A
Flammable Limits (% Volume in Air) Upper: N/D Lower: N/D

HMIS Info:
  Health: 2
  Fire: 0
  React: 2
  Special: X

EXTINGUISHING MEDIA
media appropriate for surrounding fire

FIRE FIGHTING PROCEDURES
Prevent human exposure to fire, fumes, smoke, and products of combustion. Evacuate non-essential personnel. Firefighters should wear full face, self contained breathing apparatus and impervious protective clothing. Use water to cool containers exposed to fire.

UNUSUAL FIRE & EXPLOSION HAZARDS
Toxic fumes may be released.

SECTION V PHYSICAL DATA

Boiling Point: N/D
Freezing Point: N/D
Specific Gravity (H2O=1): OR = 2.6300 @ 68 deg. F
Vapor Pressure (MM HG.): N/D
Vapor Density (Air=1): N/D
Evaporation Rate: (NA 1): N/D
Solubility in Water: 17%
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: SODIUM SULFITE ANHYDROUS

DATE: 10-Nov-2005
TIME: 13:15

SECTION V PHYSICAL DATA

- Percent Volatile by Volume: N/D
- pH: aqueous approx. 8.000 to 10.000
- Appearance:
  - SOLID: POWDER, CRYSTAL, FLAKE, GRANULE
  - TABLET, PILL, BRIQUETTE, ETC.
- Odor: NIL

(Continued)

SECTION VI REACTIVITY DATA

STABILITY
- Stable

INCOMPATABILITY
- Inorganic acids, bleaching agents (oxidizers): Avoid contact with bleaching agents and oxidizers which include chlorine, oxygen, permanganates, perchlorates, percarbonates, peroxides, chromates, hypochlorites, nitric acid, and sulfuric acid.

HAZARDOUS DECOMPOSITION PRODUCTS
- Thermal decomposition or combustion (burning) can produce oxides of sulfur.

HAZARDOUS POLYMERIZATION
- Will not occur

SECTION VII SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
- Evacuate non essential personnel, eliminate ignition sources, and wear protective equipment (See Section III). Shut off source of leak only if safe to do so. Contain spill. Recover free product. To clean up residue, flush sparingly with water or use an absorbent. Avoid runoff to ground water, surface waters, and sewers. It may be necessary to remove contaminated soil. If product is flammable or combustible, use non sparking tools. If acidity (low pH) is a problem, neutralize with hydrated lime, soda ash, or sodium bicarbonate. If alkalinity (high pH) is a problem neutralize with dilute acetic acid or dilute hydrochloric (muriatic) acid. If required, notify state and local authorities.

DISPOSAL METHOD
- Solids must be disposed of in a permitted waste management facility. Recovered liquids may be reprocessed or incinerated. Incineration must be handled in a permitted facility. Dispose of material in accordance with all Federal, State and local regulations. Local regulations may be more stringent than Federal or State.

SECTION VIII

- Continued On Page 5
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: SODIUM SULFITE ANHYDROUS

SECTION VIII

Proper Shipping Name: UNCLASSIFIED
Label Requirements: NONE
Reportable Quantity: None

SECTION IX ADDITIONAL INFORMATION

PRECAUTIONS
Wear protective equipment when handling. Use only with adequate ventilation. Wash thoroughly after handling. Do Not breathe dust. Do Not get in eyes, on skin, or clothing. Do not swallow.

HANDLING
For industrial use only, ATTENTION: This container hazardous when emplaced. Since emptied container contains product residues (vapor or liquid), all labeled hazard precautions must be observed.

STORAGE
Keep container closed when not in use. Store in a cool dry place. Store away from oxidizers. Keep out of reach of children.

SECTION X COMPLIANCE INFORMATION

TSCA INVENTORY STATUS:
Listed

INTERNATIONAL INVENTORY STATUS:
Australia (AICS) Listed China (CIS) Listed Canada (DSL) Listed

DATE ISSUED: 931012
DATE REVISED: 051020

< = LESS THAN   N/A = NOT APPLICABLE
N/D = NOT DETERMINED
> = MORE THAN   N/E = NOT ESTABLISHED

The information provided in this Material Safety data sheet has been obtained from sources believed to be reliable. Harcros Chemicals Inc provides no warranties, either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. Harcros Chemicals Inc knows of no medical condition, other than those noted on this material safety data sheet, which are generally recognized as being aggravated by exposure to this product.
VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ YES (identify the test(s) and describe their purposes below) ☐ NO (go to Section VIII)

The Lake Catherine Plant is required to perform quarterly effluent biomonitoring as part of its current NPDES permit. Chronic biomonitoring tests using Ceriodaphnia dubia and Pimephales promelas are performed on a flow weighted composite sample of Outfalls 001 and 002 (Once-through cooling water).

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below) ☐ NO (go to Section IX)

<table>
<thead>
<tr>
<th>A. NAME</th>
<th>B. ADDRESS</th>
<th>C. TELEPHONE (area code &amp; no.)</th>
<th>D. POLLUTANTS ANALYZED</th>
</tr>
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<tbody>
<tr>
<td>American Interplex Corp.</td>
<td>8600 Kanis Road, Little Rock, AR</td>
<td>501-224-5060</td>
<td>Parts V-A, V-B, and V-C</td>
</tr>
<tr>
<td>ACZ Laboratories, Inc.</td>
<td>72204-2322</td>
<td>800-334-5493</td>
<td>Radioactivity (Radium 226 and Radium 228)</td>
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<tr>
<td></td>
<td>2773 Downhill Drive, Steamboat Springs, CO</td>
<td></td>
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<tr>
<td></td>
<td>80487</td>
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IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type of print) | B. PHONE NO. (area code & no.)
---|---
Alfred H. Gahn, Director Entergy Arkansas, Inc Plants | (409) 827-5428
<table>
<thead>
<tr>
<th>C. SIGNATURE</th>
<th>D. DATE SIGNED</th>
</tr>
</thead>
</table>

PA Form 3510-2C (Rev. 2-85)  
PAGE 4 OF 4
**EMERGENCY PERMIT NO:** FR  
**STK NO:** NOT FOUND  
**STATUS:** 10-APPROVED FOR USE  
**PROD. NAME:** CAUSTIC SODA-MEMBRANE, 50%  
**COMMON NAME:** CAUSTIC SODA  
**CHEM. NAME:** SODIUM HYDROXIDE  

**SECTION I  PRODUCT/MANUFACTURER INFORMATION**  
**MFG NAME:** OCCIDENTAL CHEMICAL CORPORATION  
**MFG PROD #:** M7767(MSDS  
**ADDRESS:** P.O. BOX 809050  
**CT/ST/ZP:** DALLAS, TX 75380  
**TEL #:** 1-800-752-5151  
**TEL #: 1-716-278-7021**  
**CAS NO:** 1310-73-2  
**TRADE SECRET:** N (Y/N)  
**FORMULA:** NR  
**CHEM. FAMILY:** NR  
**DATE ISSUED:** 01-19-1990  
**DATE ENTERED:** 03-30-1994  
**DATE REVISED:** 04-05-1994  

**SECTION II  HAZARDOUS INGREDIENTS**  
**PRINCIPLE COMPONENT:**  
WATER  

<table>
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<th>PERCENT</th>
<th>CAS NO.</th>
<th>PPM</th>
<th>MG/M3</th>
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<th>MG/M3</th>
<th>SKIN</th>
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**PRINCIPLE COMPONENT:**  
SODIUM HYDROXIDE (NaOH)  

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<td>2.00000</td>
<td>NR</td>
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</tbody>
</table>

**HAZARD INGREDIENTS INFORMATION:**  
ALL COMPONENTS OF THIS PRODUCT THAT ARE REQUIRED TO BE ON THE TSCA INVENTORY ARE LISTED ON THE INVENTORY. NOT LISTED AS CARCINOGEN - IARC, NTP, OSHA.  
LIST LEDGEN:  
13 PA ENVIRONMENTAL HAZ SUBSTANCE  
18 NY HAZARDOUS SUBSTANCES  
19 PA REQUIREMENT - 3% OR GREATER  
21 NY SPECIAL HEALTH HAZ SUB  
SODIUM HYDROXIDE LISTED AS 13, 18, 21  
WATER LISTED AS 19  

**SPECIAL MIXING AND HANDLING INSTRUCTIONS:**  
PRODUCT CAN REACT VIOLENTLY WITH WATER. CONSIDERABLE HEAT IS GENERATED WHEN PRODUCT IS MIXED WITH WATER. THEREFORE, WHEN MAKING SOLUTIONS ALWAYS  

**AREFULLY FOLLOW THESE STEPS:**  
ALWAYS WEAR ALL PROTECTIVE CLOTHING. NEVER ADD WATER TO PRODUCT. ALWAYS ADD PRODUCT - WITH CONSTANT STIRRING - SLOWLY TO SURFACE
EMICAL PERMIT NO: FR       STK NO: NOT FOUND
ATUS: 10-APPROVED FOR USE
PROD. NAME: CAUSTIC SODA-MEMBRANE, 50%
COMMON NAME: CAUSTIC SODA
CHEM. NAME: SODIUM HYDROXIDE

************************************************************
SECTION II  HAZARDOUS INGREDIENTS  ( CONTINUATION )
************************************************************

BB

OF LUKEWARM (80-100 DEG F) WATER, TO ASSURE PRODUCT IS BEING COMPLETELY
DISSOLVED AS IT IS ADDED.

IF PRODUCT IS ADDED TOO RAPIDLY, OR WITHOUT STIRRING, AND BECOMES
CONCENTRATED AT BOTTOM OF MIXING VESSEL, EXCESSIVE HEAT MAY BE GENERATED,
RESULTING IN DANGEROUS BOILING AND SPATTERING, AND A POSSIBLE IMMEDIATE
AND VIOLENT ERUPTION OF HIGHLY CAUSTIC SOLUTION.
NOTE: NEVER ADD MORE PRODUCT THAN CAN BE ABSORBED BY SOLUTION WHILE
MAINTAINING TEMPERATURE BELOW 200 DEG F (# SEA LEVEL) TO PREVENT BOILING
AND SPATTERING.

PRODUCT CAN REACT EXPLOSIVELY WITH ACIDS, ALDEHYDES, AND MANY OTHER ORGANIC
CHEMICALS - WHEN MIXING PRODUCT WITH SOLUTIONS CONTAINING SUCH CHEMICALS,
FOLLOW ALL OF ABOVE MIXING INSTRUCTION, AND ADD PRODUCT VERY GRADUALLY,
WHILE STIRRING CONSTANTLY.

ALWAYS EMPTY AND CLEAN CONTAINERS OF ALL RESIDUE BEFORE AWAYING...ADO
AVOID POSSIBLE EXPLOSIVE REACTION BETWEEN PRODUCT AND UNKNOWN RESIDUE.

SECTION III  PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING PT: 200-210 F  FREEZING PT: 54.7 F MELTING PT: NR
PH: 14.0  VAPOUR DENSITY: NA  AIR=1
 EVAPORATE: NA  SOLUBILITY IN H2O: COMPLETE
PERCENT VOLATILE BY VOLUME: NA

HAZARD CLASSIFICATION

SOURCE: MMIS FLAMMABLE: 0  HEALTH: 3  REACTIVITY: 2  SPECIAL: 5

APPEARANCE AND ODOR:
COLOR LIQUID WITH NO DISTINCT ODOR.

SECTION IV  FIRE AND EXPLOSION DATA

FLASH POINT: NA  TEST METHOD: NA

EXTINGUISHING MEDIA: H2O SPRAY, FOAM, CO2, DRY CHEM.
AUTO-IGNITION POINT: NA
SPECIAL FIRE FIGHTING PROCEDURES:

WASH WITH PROTECTIVE CLOTHING. AVOID DIRECT CONTACT OF THIS PRODUCT WITH WATER AS THIS CAN CAUSE A VIOLENT EXOTHERMIC REACTION.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE

SECTION V

PHYSICAL HAZARDS

STABILITY
STABLE: Y (Y/N)

HAZARDOUS POLYMERIZATION
MAY OCCUR: N (Y/N)

PHYSICAL HAZARDS INFORMATION:

ALLOYS CONTAINING THESE METALS.

WATER. THIS PRODUCT MAY BE ADDED SLOWLY TO WATER OR ACIDS WITH DILUTION

PRODUCT, AVOID CONTACT WITH ALUMINUM, TIN, ZINC, AND ALLOYS CONTAINING

MAY BE EXTREMELY VIOLENT OR EXPLOSIVE REACTION. AVOID CONTACT WITH LEAD-CONTAINING MATERIALS. USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

DECOMPOSITION PRODUCTS: VAPOR NOXIOUS.

SECTION VI

HEALTH HAZARDS

ELECTROLYTIC INFORMATION

EXPOSURE MECHANISMS:

MOUTH, EYES, LUNGS, SKIN, DIGESTION, AND INHALATION

PRODUCT MAY CAUSE DAMAGE TO THE UPPER RESPIRATORY TRACT AND LUNG TISSUE.

CHEMICALS IN WATER OR AIR MAY FAINT BETWEEN EXPOSURE AND ONSET OF TOXICITY.
COMMON NAME: CAUSTIC SODA
CHEM. NAME: SODIUM HYDROXIDE

SECTION 7: HEALTH HAZARDS

CAUSE SEVERE BURNS THAT RESULT IN DAMAGE TO THE EYES AND EVEN BLINDNESS.

TISSUE PERFORATION OF MUCOUS MEMBRANES OF THE MOUTH, THROAT, ESOPHAGUS, AND STOMACH.

ARE NOT IMMEDIATELY PAINFUL OR VISIBLE.

EFFECTS OF OVEREXPOSURE:

EFFECT OF LOCAL DERMAL EXPOSURE MAY CONSIST OF MULTIPLE AREAS OF

SIMILARLY, INHALATION OF DUST, SPRAY, OR MIST MAY RESULT IN VARYING DEGREES

SENSITIVITY TO RESPIRATORY ILLNESS. THESE EFFECTS OCCUR ONLY WHEN THE

CONCENTRATION IS EXCEEDED.

CHRONIC: NO KNOWN CHRONIC EFFECTS.

CAUSTIC SODA IS A CORROSIVE MATERIAL.

ACUTE DERMAL LD50 = 1550 MG/KG (RABBIT)

REGARDLESS OF CONCENTRATIONS, THE SEVERITY OF DAMAGE AND EXTENT OF ITS

WITH EVEN DILUTE SODIUM HYDROXIDE SOLUTION CAN CAUSE A HIGH DEGREE OF

NO SENSATION OF IRRITATION OCCURS; VARIES FROM SEVERAL HOURS FOR 0.1 – 4%

SOLUTION TO 2 MINUTES WITH 2–50% SOLUTION.

EMERGENCY FIRST AID:

ATTENTION: IMMEDIATELY FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT LEAST

SURFACE. WASHING EYES WITHIN SEVERAL SECONDS IS ESSENTIAL TO ACHIEVE

MAXIMUM EFFECTIVENESS. SEEK MEDICAL ATTENTION IMMEDIATELY.

TOUCH CONTAMINATED CLOTHING AND FOOTWEAR. WEAR GLOVES WHERE POSSIBLE AND

FOOTWEAR WHICH CANNOT BE DECONTAMINATED. SEEK MEDICAL ATTENTION
COMMON NAME: CALCIUM HYDROXIDE

SITUATION 9

HEALTH HAZARD

CONTINUATION:

IMMEDIATELY.

PERSON ADMINISTRATE OXYGEN. IF RESPIRATION STOPS, GIVE ARTIFICIAL RESPIRATION. GET MEDICAL ATTENTION.

SWALLOWED, DO NOT induction VOMITING. GIVE LARGE QUANTITIES OF WATER. KEEP AIRWAY CLEAR. SEEK MEDICAL ATTENTION IMMEDIATELY.

SPECIAL INSTRUCTIONS:

S - GREEN PERMISSIBLE EXPOSURE LIMIT

N - NO RELEVANT INFORMATION FOUND OR NOT AVAILABLE

E - SEE CHRONIC EFFECTS INFORMATION

A - NOT APPLICABLE

REPRODUCED BY COMPETENT TECHNICAL PERSONNEL AND IS TRUE AND ACCURATE TO THE

REGARDING PERFORMANCE, STABILITY, OR OTHERWISE. THIS INFORMATION IS NOT

HANDLING AND STORAGE. OTHER FACTORS MAY INFLUENCE OTHER OR ADDITIONAL SAFETY

INTERPRETATIONS REGARDING HANDLING AND USE. IN CONNECTION WITH, THE

SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HERETO SHALL BE CONSIDERED

GENERAL, STATE OR LOCAL LAW.

SECTION 37I

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

APPROVED RESPIRATORS WHERE DUST, MIST, OR SPRAY MAY BE GENERATED.

VENTILATION TYPE:

VENTILATION WHERE DUST, MIST, OR SPRAY MAY BE GENERATED.
COMMON NAME: CAUSTIC SODA
CHEM. NAME: SODIUM HYDROXIDE

SECTION VI: SPECIAL PROTECTION INFORMATION

SPECIAL VENTILATION MAY BE REQUIRED.

HAND PROTECTION:

WASHING WITH MILD SOAP AND WATER. NATURAL AND BUTYL GLOVES HAVE BEEN
RECOMMENDED.

EYE PROTECTION:

SPRAYING.

OTHER PROTECTION:

BE WARNED TO MINIMIZE CONTACT. HAND CONTAMINATED CLOTHING MUST BE WASHED
AND DRY BEFORE USE. SHOWERS AND EYESWASH FACILITIES SHOULD BE ACCESSIBLE.

SECTION VII: SPECIAL PRECAUTIONS AND SPILL PROCEDURES

WASH UNDER running water
TAN
RINSE / RINSE
TAN
CLEAN UNDER running water
TAN
RINSE
TAN

DOT HAZARD CLASS: CORROSIVE MATERIAL
DOT ID NO: UN1024

RESPONSIBLE GUILD NO: NR
CONVERSION FACTOR: NF

SPILL PRECAUTIONS:

PRODUCT CAN REACT VIOLENTLY WITH WATER, ACIDS, AND OTHER SUBSTANCES - CORROSIVE
PRODUCT IS COMPATIBLE TO THE ALUMINUM, ZINC AND ALUMINUM CONTAINING TRENCH.
INFLAMMABLE CARBON MONOXIDE GAS CAN FORM UPON CONTACT WITH FOOD AND
APPROPRIATE TANK VENT PERMITS COMBUSTION (SECTION VI, 4.3.1).
COMMON NAME: CAUSTIC SODA
CHEM. NAME: SODIUM HYDROXIDE

SECTION VII: SPECIAL PRECAUTIONS AND SAFE PROCEDURES (CONTINUED)

AREA SHOULD THEN BE FLUSHED WITH WATER FOLLOWED BY LIBERAL COVERINGS OF
APPROVED CONTAINERS, LABELLED AND STORED IN A SAFE PLACE TO AVOID PROPER
YARD, MAY BE HANDLED BY REMOVING THE AFFECTED EYES AND FLUSHING IN APPROVED
EXPERIMENTAL EQUIPMENT AND CLOTHING. AGENCY OR RECIPIENT SHOULD BE NOTIFIED,
AGENCY.

CAUTION: CAUSTIC SODA MAY REACT VIOLENTLY WITH ACIDS AND WATER.

WASTE DISPOSAL:

AND, THEREFORE, SUBJECT TO SPECIFIC REGULATIONS, PROCEDURES, ETC.,
IMPLEMENT IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL
ARMED TO MANUFACTURING REQUIREMENTS AND APPLICABLE REGULATIONS.

SHOULD BE PERFORMED BY COMPETENT AND PROPERLY PERMITTED CONTRACTORS.

PROPER NOTIFICATION OF CRUEL AND FIT FOR USE METHODS.

"CAUSTIC SODA. WASTE MATERIALS MUST NOT BE STORED FOR ANY PERIOD OF TIME.
CONTINUENCE PRIOR TO DISPOSAL"
MATERIAL PERMIT NO: NR
STK NO: NOT FOUND
STATUS: 10-APPROVED FOR USE
PROD. NAME: SULFURIC ACID 66 DEGREE
COMMON NAME: NR
CHEM. NAME: NR

***************************************************************
SECTION I PRODUCT/MANUFACTURER INFORMATION
***************************************************************
MFG NAME: ASHLAND CHEMICAL COMPANY
ADDRESS: P O BOX 2219
CT/ST/ZP: COLUMBUS, OH 43216
TEL #: 614-889-3333
MFG PROD #: 3934100
TEL #: 24-HR#: 606-324-1133
CAS NO: 7664-93-9
TRADE SECRET: NR (Y/N)
FORMULA: NR
CHEM. FAMILY: NR

***************************************************************
SECTION II HAZARDOUS INGREDIENTS
***************************************************************
PRINCIPLE COMPONENT:
SULFURIC ACID

<table>
<thead>
<tr>
<th>PEL</th>
<th>TLV</th>
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<td>1.00000</td>
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</table>

HAZARD INGREDIENTS INFORMATION:

***************************************************************
SECTION III PHYSICAL AND CHEMICAL CHARACTERISTICS
***************************************************************
BOILING PT: 535.00 F FREEZING PT: NR MELTING PT: NR
MOLECULAR WEIGHT: NR VAPOR PRESSURE: 0.01 (MM/HG)
PH: NR VAPOR DENSITY: NA (AIR=1)
REACTION IN WATER: NR SPECIFIC GRAVITY: 1.8360 (H2O=1)
EVAPR RATE: SLOWER THAN ETHER SOLUBILITY IN H2O: NR
PERCENT VOLATILE BY VOLUME: 5-10%

HAZARD CLASSIFICATION
SOURCE: NFPA FLAMMABLE: 0 HEALTH: 3 REACTIVITY: 2 SPECIAL: NR

***************************************************************
SECTION IV FIRE AND EXPLOSION DATA
***************************************************************
FLASH POINT: NA TEST METHOD: NA
FLAMMABLE LIMITS LOWER: NA UPPER: NA
MICRA PERMIT NO: NR    STK NO: NOT FOUND
PROD. NAME: SULFURIC ACID 66 DEGREE
COMMON NAME: NR
CHEM. NAME: NR

SECTION IV    FIRE AND EXPLOSION DATA    ( CONTINUATION )

EXTINGUISHING MEDIA: DRY CHEMICAL
AUTO-IGNITION POINT: NA

SPECIAL FIRE FIGHTING PROCEDURES:
WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN
PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE AND FULL BODY PROTECTIVE
CLOTHING WHEN FIGHTING FIRES.
WATER MAY BE USED TO KEEP FIRE-EXPOSED CONTAINERS COOL UNTIL FIRE IS OUT.
WATER OR FOAM MAY CAUSE FROTHING WHICH CAN BE VIOLENT AND POSSIBLY ENDANGER
THE LIFE OF THE FIREFIGHTER, ESPECIALLY IF SPRAYED INTO CONTAINERS OF HOT,
BURNING LIQUID.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
CID REACTS WITH MOST METALS TO RELEASE HYDROGEN GAS WHICH CAN FORM
EXPLOSIVE MIXTURES WITH AIR.

SECTION V    PHYSICAL HAZARDS

STABILITY    STABLE: Y (Y/N)
HAZARDOUS POLYMERIZATION    MAY OCCUR: N (Y/N)

PHYSICAL HAZARDS INFORMATION:
INCOMPATIBILITY: AVOID CONTACT WITH STRONG ALKALIES, COMBUSTIBLE MATERIALS,
POWDERED METALS, ORGANIC MATERIALS

SECTION VI    HEALTH HAZARDS

CARCINOGENIC INFORMATION
NTP: NR    IARC: NR    OSHA: NR    ACGIH: NR    RTECS: NR    (Y/N/S/NA/NE)

EXPOSURE ACUTE/CHRONIC:
EYES............CAUSES SEVERE DAMAGE AND EVEN BLINDNESS VERY RAPIDLY.
SKIN............CAUSES BURNS, POSSIBLE DEEP ULCERATION.
BREATHING.....MIST CAN CAUSE DAMAGE TO NASAL AND RESPIRATORY PASSAGES.
SWALLOWING....RESULTS IN SEVERE DAMAGE TO MUCOUS MEMBRANES AND DEEP TISSUES
CAN RESULT IN DEATH ON PENETRATION TO VITAL AREAS.
MATERIAL PERMIT NO: NR  STK NO: NOT FOUND
STATUS: 10-APPROVED FOR USE
PROD. NAME: SULFURIC ACID 66 DEGREE
COMMON NAME: NR
CHEM. NAME: NR

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SECTION VI HEALTH HAZARDS (CONTINUATION)
******************************************************************************

EMERGENCY FIRST AID:

SKIN....
IMMEDIATELY FLUSH EXPOSED AREA WITH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE. DISCARD CONTAMINATED SHOES

EYES....
IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. LIFTING UPPER AND LOWER LIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION. IF PHYSICIAN IS NOT IMMEDIATELY AVAILABLE, CONTINUE FLUSHING WITH WATER. DO NOT USE CHEMICAL ANTIDOTE.

SWALLOWED....
DO NOT INDUCE VOMITING. VOMITING WILL CAUSE FURTHER DAMAGE TO THE THROAT. DILUTE BY GIVING WATER. GIVE MILK OR MAGNESIA. KEEP WARM. QUIET. GET MEDICAL ATTENTION IMMEDIATELY.

BREATHED....
IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, MINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

******************************************************************************
SPECIAL INSTRUCTIONS:
ADDITION TO WATER RELEASES HEAT WHICH CAN RESULT IN VIOLENT BOILING AND SPATTERING. ALWAYS ADD SLOWLY AND IN SMALL AMOUNTS. NEVER USE HOT WATER.

NEVER ADD WATER TO ACIDS. ALWAYS ADD ACIDS TO WATER.

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMDTIED. SINCE EMDTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL
HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

DISCLAIMER....
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

******************************************************************************
SECTION VII SPECIAL PROTECTION INFORMATION
******************************************************************************

RESPIRATORY PROTECTION:
IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT
**SECTION VII  SPECIAL PROTECTION INFORMATION**  

(SPECIALITY) ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

*VENTILATION TYPE:*

PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV.

*HAND PROTECTION:*

WEAR RESISTANT GLOVES SUCH AS NEOPRENE, POLYVINYL CHLORIDE.

*EYE PROTECTION:*

CHEMICAL SPLASH GOGGLES AND FACE SHIELD (8" MIN.) IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED. HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER).

*PERSONAL PROTECTION:*

PREVENT SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

**SECTION VIII  SPECIAL PRECAUTIONS AND SPILL PROCEDURES**

<table>
<thead>
<tr>
<th>DOT PROPER SHIPPING NAME: NR</th>
<th>DOT HAZARD CLASS: NR</th>
<th>RESPONSIBLE GUIDE NO: NR</th>
<th>CONVERSION FACTOR: NR</th>
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</thead>
</table>

*STORAGE PRECAUTIONS:*

ADDITION TO WATER RELEASES HEAT WHICH CAN RESULT IN VIOLENT BOILING AND SPATTERING. ALWAYS ADD SLOWLY AND IN SMALL AMOUNTS. NEVER USE HOT WATER.

NEVER ADD WATER TO ACIDS. ALWAYS ADD ACIDS TO WATER.

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHENemptied. SINCEemptied CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
**EMERGENCY RESPONSE**

**EMERGENCY PERMIT NO:** NR  **STK NO:** NOT FOUND

**STATUS:** 10-APPROVED FOR USE

**PROD. NAME:** SULFURIC ACID 66 DEGREE

**COMMON NAME:** NR

**CHEM. NAME:** NR

******************************************************************************

**SECTION VIII  SPECIAL PRECAUTIONS AND SPILL PROCEDURES (CONTINUATION)**

**SPILL RESPONSE:**

**SMALL SPILL:**

COVER THE CONTAMINATED SURFACE WITH SODIUM BICARBONATE OR A SODA ASH/SLAKE LIME MIXTURE (50-50). MIX AND ADD WATER IF NECESSARY TO FORM A SLURRY.

SCOOPE UP SLURRY AND WASH SITE WITH SODA ASH SOLUTION.

PROPER MIXING PROCEDURES ARE ESSENTIAL, TRAINED PERSONNEL SHOULD CONDUCT THIS PROCEDURE. UNTRAINED PERSONNEL SHOULD BE REMOVED FROM THE SPILL AREA.

**LARGE SPILL:**

ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED.

STOP SPILL AT SOURCE, PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER. PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED.

PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT TRANSFER CONTAMINATED ABSORBENT SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.

EVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURRED.

******************************************************************************

**WASTE DISPOSAL:**

DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
CHEMICAL PERMIT NO: NR      STK NO:        P4P681009158
STATUS: 10-APPROVED FOR USE
PROD. NAME: PHOS SODA TRI ANHY GR 100#
COMMON NAME: NR
CHEM. NAME: TRISODIUM PHOSPHATE ANHYDROUS

**************************************************
SECTION I   PRODUCT/MANUFACTURER INFORMATION
**************************************************
MFG NAME: HARCROS CHEMICALS, INC.
ADDRESS: 5200 SPEAKER RD
CT/ST/ZP: KANSAS CITY, KS 66106
TEL #: 913-321-3131
MFG PROD #: 16-07473-0

CAS NO: 7601-54-9   TRADE SECRET: NR (Y/N)
FORMULA: NA(3)PO(4)
CHEM. FAMILY: PHOSPHATES


**************************************************
SECTION II   HAZARDOUS INGREDIENTS
**************************************************
PRINCIPLE COMPONENT:
TRISODIUM PHOSPHATE, ANHYDROUS

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* HAZARD INGREDIENTS INFORMATION:

NONE REPORTED

**************************************************
SECTION III   PHYSICAL AND CHEMICAL CHARACTERISTICS
**************************************************
BOILING PT: 2732.00 F   FREEZING PT: NR   MELTING PT: NR
MOLECULAR WEIGHT: NR   VAPOR PRESSURE: NR (mm/HG)
PH: 11.9   VAPOR DENSITY: NR (AIR=1)
REACTIVITY IN WATER: NR   SPECIFIC GRAVITY: NR (H2O=1)
EVAPR RATE: NA   SOLUBILITY IN H2O: 14%AT 77 DEG
PERCENT VOLATILE BY VOLUME: NON-VOLATILE %

HAZARD CLASSIFICATION

SOURCE: NPCA   FLAMMABLE: 0   HEALTH: 2   REACTIVITY: 0   SPECIAL: NR

* APPEARANCE AND ODOR:
WHITE GRANULES, CRYSTALS (DODECAHYDRATE), OR POWDER; ODORLESS.

**************************************************
SECTION IV   FIRE AND EXPLOSION DATA
**************************************************
FLASH POINT: NA   TEST METHOD: NA
SECTION IV  FIRE AND EXPLOSION DATA

DA *

FLAMMABLE LIMITS LOWER: NA  UPPER: NA
EXTINGUISHING MEDIA: APPROPRIATE FOR SURROUND FIRES
AUTO-IGNITION POINT: NR

-----------------------------------------------  DB *

SPECIAL FIRE FIGHTING PROCEDURES:
NA

-----------------------------------------------  DC *

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NA

SECTION V  PHYSICAL HAZARDS

EA *

STABILITY  STABLE: Y (Y/N)
HAZARDOUS POLYMERIZATION  MAY OCCUR: N (Y/N)

-----------------------------------------------  EB *

PHYSICAL HAZARDS INFORMATION:
INCOMPATIBILITY: CAN BE CORROSIVE TO ALUMINUM DUE TO HIGH PH. SEALED CONTAINERS SHOULD BE KEPT FREE OF WATER BECAUSE OF CORROSIVITY WHEN WET/
HAZARDOUS DECOMPOSITION PRODUCTS: PHOSPHORUS OXIDES

SECTION VI  HEALTH HAZARDS

FA *

CARCINOGENIC INFORMATION
NTP: N  IARC: N  OSHA: N  ACGIH: NR  RTECS: NR (Y/N/S/NA/NE)

-----------------------------------------------  FB *

EXPOSURE ACUTE/CHRONIC:
EYES: LOCAL IRRITATION AND POSSIBLE CONJUNCTIVITIS. EYE IRRITATION
(RABBIT): (FSHA) CORROSIVE.
INHALATION: SMALL AMOUNTS OF DUST VERY IRRITATING. LARGE EXPOSURE MAY SEVERELY IRRITATE NOSE AND THROAT AND CAUSE TISSUE BURNS.
INGESTION: MODERATELY TOXIC DUE TO HIGH ALKALINITY. SMALL DOSE: 4150 MG/KG. SLIGHTLY TOXIC. INGESTION MAY INJURE MOUTH, THROAT, AND STOMACH.
CHRONIC EXPOSURE: ALTHOUGH NO LONG TERM HUMAN STUDIES HAVE BEEN REPORTED, CHRONIC EXPOSURE TO DUST MAY CAUSE RESPIRATORY IRRITATION. RECOMMENDED CONTROL MEASURES REQUIRED TO AVOID IRRITATION FROM AIRBORNE DUST.
EMERGENCY FIRST AID:

EYES: FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN: FLUSH WITH WATER WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. FOLLOW BY WASHING WITH SOAP AND WATER. DO NOT REUSE CLOTHING OR SHOES UNTIL CLEANED. IF IRRITATION PERSIST, GET MEDICAL ATTENTION.

INHALATION: REMOVE FROM EXPOSURE. IF BREATHING IS DIFFICULT OR DISCOMFORT PERSISTS, OBTAIN MEDICAL ATTENTION.

INGESTION: RINSE MOUTH WITH WATER, GIVE WATER TO CAUSE PARTICLES TO DISSOLVE. DO NOT CAUSE VOMITING.

NOTES TO PHYSICIAN:

STRONGLY ALKALINE. MAY REMOVE PERIORAL OR GEL LEAVING SKIN UNPROTECTED AND MAY CAUSE CHEMICAL BURNS. ACCESSIBLE EXPOSED TISSUES SHOULD BE FLUSHED PROMPTLY WITH WATER, AND ANY COLORED FLUID SHOULD BE CONSULTED OR AN OPHTHALMOLOGIST.

IF POISONED, RINSE MOUTH WITH WATER, VOMIT, AND SEEK MEDICAL ATTENTION. DO NOT INGEST.

ESOPHAGUS: ATTEMPT TO NEUTRALIZE INGESTED MATERIAL WITH ACIDS MAY CAUSE

IMMEDIATE DRINKING OF COLD WATER OR MILK IS ADVISED.

FURTHER INSTRUCTIONS: INFORMATION MAY OCCUR AFTER INGESTION OR INJURY.

IF INFLAMMABLE OR EXPLOSIVE PEROXIDATION COMPOUNDS ARE PRESENT, REACT PROPERLY.

CONTAINMENT: THOUGH NOT LIKELY, THE USE OF AIR OPERATED OR WATER BREATHER EQUIPMENT IS RECOMMENDED.

SECTION VI

HEALTH HAZARDS

(CONTINUATION)
CHEMICAL CONTROL SYSTEM

MATERIAL SAFETY DATA SHEET

RUN DATE: 12/16/97
RUN TIME: 1654

STK NO: D426A1009158

CVA: 10-APPROVED FOR USE

PROD NAME: PHOS SODA TRT ANHY OR 100%

COMMON NAME: NR

CHEM NAME: TRISODIUM PHOSPHATE ANHYDROUS

SECTION VII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
USE HIGH APPROVED EQUIPMENT SUITABLE FOR NUISANCE DUST OR MIST IN
SOLUTION. WHEN AIRBORNE EXPOSURE IS EXCESSIVE, CONSULT RESPIRATOR
MANUFACTURER TO DETERMINE APPROPRIATE TYPE EQUIPMENT FOR GIVEN APPLICATION.

VENTILATION TYPE:
REQUIRED: PROVIDE VENTILATION TO MINIMIZE EXPOSURE. LOCAL EXHAUST
VENTILATION PREFERRED IN ENCLOSED AREA WHERE DUST OR MIST GENERATED.

HAND PROTECTION:
WEAR IMPERVIOUS GLOVES.

EYE PROTECTION:
IN DUSTY AREAS, WEAR ACID-TYPE GOGGLES.

IRRIGATION:
AID PROTECTIVE CLOTHING TO PREVENT SKIN CONTACT.
SAFETY SHOWER, EYE BATH AND WASHING FACILITIES SHOULD BE AVAILABLE.
VENTILATE SKIN CONTACT WASH WITH COLD AND WATER BEFORE TREATING, PREVENTING
SMOKING OR USING TOILET FACILITIES.

SECTION VIII SPECIAL PRECAUTIONS AND SPILL PROCEDURES

DOT HAZARD CLASS: NA

DOT TD NO: NR

RESPONSIBLE GUIDE NO: NR

CONVERSION FACTOR: NR

STORAGE PRECAUTIONS:

EMPTY CONTAINER RETAINS PRODUCT RESTOR. OBSERVE ALL LABELLED SAFEGUARDS
UNTIL CONTAINER IS CLEANED, RECONDITIONED OR DESTROYED.

SPILL RESPONSE:

CONTAMINATED MATERIAL AND PLACE IN CONTAINERS FOR RECOVERY OR DISPOSAL. IF
POSSIBLE, COMPLETE CLEANUP ON A DRY BASIS. AFTER ALL PRACTICAL DRY CLEANUP
COMMON NAME: NR
CHEM. NAME: TRISODIUM PHOSPHATE ANHYDROUS

SECTION VIII SPECIAL PRECAUTIONS AND SPILL PROCEDURES | CONTINUATION

HAS BEEN DONE, RESIDUAL CONTAMINATION CAN BE FLUSHED WITH PLENTY OF WATER.

WASTE DISPOSAL:

WASTE DISPOSAL MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS. IF THIS SUBSTANCE IS A HAZARDOUS SUBSTANCE IN THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OR THE HAZARDOUS WASTE REVOCATION OF THE CLEAN WATER ACT) WITH A REPORTABLE QUANTITY OF

CONSULT YOUR ATTORNEY OR APPROPRIATE REGULATORY OFFICIALS FOR INFORMATION RELATING TO SPILL REPORTING.
COMMON NAME: SODIUM PHOSPHATE
USES: WATER TREATMENT, COATINGS, CLEANING, FOOD ADDITIVES

SECTION VII SPECIAL PROTECTION INFORMATION

HAND PROTECTION:
WEAR PROTECTIVE GLOVES TO MINIMIZE SKIN CONTACT. OVERALLS RECOMMENDED.

FACE PROTECTION:
USE A PROTECTIVE FACE MASK AND EYE PROTECTIVE GEAR.

OTHER PROTECTION:
SAFETY SHOES: EYE BATH AND WASHING FACILITIES SHOULD BE AVAILABLE.

SECTION VIII SPECIAL PRECAUTIONS AND SPILL PROCEDURES

USE LEATHER GLOVES - LEATHER GLOVES - LEATHER GLOVES
USE WOOD ENDED TONGS - WOOD ENDED TONGS - WOOD ENDED TONGS

Hazard Class: NR
Packaging Group: NR
Responsibility Code: NR
Conversion Factor: NR

Storage Precautions:
NR

Spill Response:

CONTAMINATED MATERIAL AND PLACE IN CONTAINERS. IF POSSIBLE, COMPLETELY DILUTE RESIDUAL CONTAMINATION CAN BE DILUTED WITH PLENTY OF WATER.

Waste Disposal:

STATE: FEDERAL REGULATIONS

THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) MAY REQUIRE THE NOTIFICATION OF THE NATIONAL RESPONSE CENTER (Dd. (202) 260-0000)

ATTENTION OR APPROPRIATE REGULATORY AUTHORITIES FOR INFORMATION RELATING TO SPILL REPORTING.
COMMON NAME: NR

CHEM. NAME: DISODIUM PHOSPHATE; DISODIUM orthophosphate; SODIUM PHOSPHATE

SECTION VIII SPECIAL PRECAUTIONS AND SPILL PROCEDURES : CONTINUATION :