1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: NALCO 2833
APPLICATION: CORROSION/SCALE INHIBITOR
COMPANY IDENTIFICATION: ONDEO Nalco Company
ONDEO Nalco Center
Naperville, Illinois
60563-1198

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

NFPA 704M/HMIS RATING
HEALTH: 1/2 FLAMMABILITY: 1/1 REACTIVITY: 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).

Hazardous Substance(s) | CAS NO | % (w/w)
--- | --- | ---
Sodium Hydroxide | 1310-73-2 | 0.1 - 1.0
Sodium Nitrite | 7632-00-0 | 10.0 - 30.0
Sodium Molybdate | 7631-95-0 | 1.0 - 5.0

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

**WARNING**
Contains sodium nitrite. May be harmful or fatal if swallowed. Substances in the product can lead to the formation of methemoglobin. Unborn children are particularly sensitive to methemoglobinemia. May cause skin and eye irritation.

Do not get in eyes, on skin, on clothing. Do not take internally. Keep container tightly closed. 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. If swallowed, seek medical advice immediately and show this container or label.

Wear suitable protective clothing, gloves and eye/face protection.
Not flammable or combustible. If product is allowed to dry, the sodium nitrite is an oxidizing agent and can initiate the combustion of other materials. 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:
Can cause mild to moderate irritation.

SKIN CONTACT:
Can cause mild to moderate irritation.

INGESTION:
Not a likely route of exposure. Large exposures may be fatal. Ingestion of sodium nitrite can cause methemoglobinemia which can lead to cyanosis and possible death. Pregnant women and their fetuses are particularly sensitive to the effects of methemoglobinemia.

INHALATION:
Not a likely route of exposure. Aerosols or product mist may irritate the upper respiratory tract.

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:
Sodium Nitrite. Pregnant women are particularly sensitive to methemoglobinemia.

HUMAN HEALTH HAZARDS - CHRONIC:
Repeated ingestion of small amounts of sodium nitrite causes drops in blood pressure, rapid pulse, headaches and visual disturbances. It may also react with organic amines in the body to form carcinogenic nitrosamines.

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. For a large splash, flood body under a shower. Get immediate medical attention.

INGESTION:
Induce vomiting if the patient is fully conscious. If conscious, washout mouth and give water to drink. Get immediate medical attention.

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

NOTE TO PHYSICIAN:
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition. Measures against circulatory shock, respiratory depression and convulsions may be needed.
5.  **FIRE FIGHTING MEASURES**

**FLASH POINT:** None

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

**FIRE AND EXPLOSION HAZARD:**
Not flammable or combustible. If product is allowed to dry, the sodium nitrite is an oxidizing agent and can initiate the combustion of other materials. 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. 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:**
Keep in dry place. Store the containers tightly closed. Store separately from acids.
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)
- Sodium Hydroxide
  CEILING: 2 mg/m³
- Molybdenum, soluble compounds, as Mo
  TWA: 5 mg/m³

OSHA/PEL:
Substance(s)
- Sodium Hydroxide
  CEILING: 2 mg/m³
- Molybdenum, soluble compounds, as Mo
  TWA: 5 mg/m³

ENGINEERING MEASURES:
General ventilation is recommended.

RESPIRATORY PROTECTION:
Respiratory protection is not normally needed. If significant mists, vapors or aerosols are generated an approved respirator is recommended. An approved respirator must be worn if the occupational exposure limit is likely to be exceeded. In confined spaces, use a breathing apparatus.

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

SKIN PROTECTION:
Wear standard protective clothing.

EYE PROTECTION:
Wear chemical splash goggles.

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

PHYSICAL STATE
Liquid
10. STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions.

HAZARDOUS POLYMERIZATION:
Hazardous polymerization will not occur.

CONDITIONS TO AVOID:
Freezing temperatures.

MATERIALS TO AVOID:
Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) may generate heat, fires, explosions and toxic vapors. Do not mix with amines. Sodium nitrite can react with certain amines to produce N-nitrosamines, many of which are cancer-causing agents to laboratory animals.

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

11. TOXICOLOGICAL INFORMATION

The following results are for the hazardous components.

ACUTE ORAL TOXICITY:
Species: LD50
Rat: 180 mg/kg
Rating: Toxic

Tested Substance: Sodium Nitrite

CARCINOGENICITY:
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).
HUMAN HAZARD CHARACTERIZATION:
Based on our hazard characterization, the potential human hazard is: High

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS:
The following results are for a similar product.

ACUTE FISH RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>Tested Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainbow Trout</td>
<td>96 hrs</td>
<td>35 mg/l</td>
<td>Similar Product</td>
</tr>
<tr>
<td>Fathead Minnow</td>
<td>96 hrs</td>
<td>&gt; 320 mg/l</td>
<td>Similar Product</td>
</tr>
</tbody>
</table>

Rating: Slightly toxic

ACUTE INVERTEBRATE RESULTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Exposure</th>
<th>LC50</th>
<th>EC50</th>
<th>Tested Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>48 hrs</td>
<td>630 mg/l</td>
<td></td>
<td>Similar Product</td>
</tr>
</tbody>
</table>

Rating: Essentially non-toxic

PERSISTENCY AND DEGRADATION:

Total Organic Carbon (TOC): 36,000 mg/l

Chemical Oxygen Demand (COD): 150,000 mg/l

Biological Oxygen Demand (BOD):

<table>
<thead>
<tr>
<th>Incubation Period</th>
<th>Value</th>
<th>Tested Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,275 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

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

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

13. DISPOSAL CONSIDERATIONS

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

Hazardous Waste: D002
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:

**LAND TRANSPORT:**

<table>
<thead>
<tr>
<th>Proper Shipping Name :</th>
<th>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name(s) :</td>
<td>SODIUM HYDROXIDE</td>
</tr>
<tr>
<td>UN/ID No :</td>
<td>UN 3266</td>
</tr>
<tr>
<td>Hazard Class - Primary :</td>
<td>8</td>
</tr>
<tr>
<td>Packing Group :</td>
<td>III</td>
</tr>
<tr>
<td>Flash Point :</td>
<td>None</td>
</tr>
<tr>
<td>DOT Reportable Quantity (per package) :</td>
<td>400 lbs</td>
</tr>
<tr>
<td>DOT RQ Component :</td>
<td>SODIUM NITRITE</td>
</tr>
</tbody>
</table>

**AIR TRANSPORT (ICAO/IATA):**

<table>
<thead>
<tr>
<th>Proper Shipping Name :</th>
<th>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name(s) :</td>
<td>SODIUM HYDROXIDE</td>
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<td>8</td>
</tr>
<tr>
<td>Packing Group :</td>
<td>III</td>
</tr>
<tr>
<td>IATA Cargo Packing Instructions :</td>
<td>820</td>
</tr>
<tr>
<td>IATA Cargo Aircraft Limit :</td>
<td>60 L (Max net quantity per package)</td>
</tr>
</tbody>
</table>

**MARINE TRANSPORT (IMDG/IMO):**

<table>
<thead>
<tr>
<th>Proper Shipping Name :</th>
<th>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name(s) :</td>
<td>SODIUM HYDROXIDE</td>
</tr>
<tr>
<td>UN/ID No :</td>
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<td>Hazard Class - Primary :</td>
<td>8</td>
</tr>
<tr>
<td>Packing Group :</td>
<td>III</td>
</tr>
</tbody>
</table>

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 Hydroxide: Irritant
Sodium Nitrite: Target Organ Effect - Kidney, Target Organ Effect - Blood, Target Organ Effect - Nervous system
Sodium Molybdate: Exposure Limit - Compound Class

CERCLA/SUPERFUND, 40 CFR 117, 302:
If a reportable quantity of product is released, it requires notification to the NATIONAL RESPONSE CENTER, WASHINGTON, D.C. (1-800-424-8802). This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product.

RQ Substance | RQ
--- | ---
Sodium Nitrite | 400 lbs

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

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

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

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

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

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
This product contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Nitrite</td>
<td>7632-00-0</td>
<td>10.0 - 30.0</td>
</tr>
</tbody>
</table>

TOXIC SUBSTANCES CONTROL ACT (TSCA):
The chemical substances in this product are on the TSCA 8(b) Inventory (40 CFR 710).

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 / formerly Sec. 311:
This product contains the following substances listed in the regulation:
MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 2833

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

Substance(s)                   Citations
Sodium Hydroxide:            Sec. 311
Sodium Nitrile:              Sec. 311

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:

Sodium Hydroxide: 1310-73-2
Sodium Nitrile:    7632-00-0
Water:            7732-18-5
Sodium Molybdate: 7631-95-0
Acrylate Polymer: 20507700000-5033P

NATIONAL REGULATIONS, CANADA:

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

WHMIS CLASSIFICATION:
E - Corrosive Material, D1B - Materials Causing Immediate and Serious Toxic Effects - Toxic Material

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):
All substances in this product 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
F104629/104630/104631/104632

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
Date issued: 06/01/2000
Replaces: 04/14/2000