



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 4360

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 4360**

COMPANY IDENTIFICATION :
Ondeo Nalco Company
Ondeo Nalco Center
Naperville, Illinois
60563-1198

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NFPA 704M/HMIS RATING

HEALTH : 3/3 FLAMMABILITY : 1/1 REACTIVITY : 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).

Hazardous Substance(s)	CAS NO	% (w/w)
1,3-Dichloro-5,5-Dimethylhydantoin	118-52-5	60.0
1-Bromo-3-Chloro-5,5-Dimethyl-Hydantoin	16079-88-2	27.4
1,3-Dichloro-5-Ethyl-5-Methylhydantoin	89415-87-2	10.6

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

HARMFUL IF SWALLOWED. HIGHLY CORROSIVE. Causes eye and skin damage. Irritating to nose and throat. Avoid breathing dust. Use with adequate ventilation. Do not get in eyes, on skin or on clothing. Wear rubber gloves and chemical goggles 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.



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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.

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 : 287 °F / 142 °C (COC)



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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



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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)
1,3-Dichloro-5,5-Dimethylhydantoin TWA: 0.2 mg/m³, 0.2 mg/m³
STEL: 0.4 mg/m³, 0.4 mg/m³

OSHA/PEL :

Substance(s)
1,3-Dichloro-5,5-Dimethylhydantoin TWA: 0.2 mg/m³
STEL: 0.4 mg/m³

Manufacturer's

Recommendation :

Substance(s)
1,3-Dichloro-5-Ethyl-5-Methylhydantoin TWA: 0.2 mg/m³

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.

HUMAN EXPOSURE CHARACTERIZATION :

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



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9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE Briquettes

APPEARANCE White

ODOR Slight, Pungent

SOLUBILITY IN WATER Partial

pH (1 %) 3.6

MELTING POINT 248 - 298 °F / 120 - 148 °C

EVAPORATION RATE < 1

VOC CONTENT 61.87 %

10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Moisture

Avoid temperatures greater than 165 °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

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ACUTE DERMAL TOXICITY :

Species LD50
Rabbit > 2,000 mg/kg
Rating : Non-Hazardous

Test Descriptor
Active Substance

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

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL EFFECTS :**

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

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	0.5 mg/l	Product
Bluegill Sunfish	96 hrs	1.2 mg/l	Product
Sheepshead Minnow	96 hrs	1.4 mg/l	Product
Fathead Minnow	96 hrs	0.71 mg/l	Product

Rating : Very toxic

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	0.4 mg/l		Product
Mysid Shrimp (A. bahia)	96 hrs	0.93 mg/l		Product
American Oyster	96 hrs	0.84 mg/l		Product

Rating : Very toxic

AQUATIC PLANT RESULTS :

Species	Exposure	EC50	Test Descriptor
Green Algae (Selenastrum capricornutum)	72 hrs	0.12 mg/l	Active Substance (1,3-Dichloro-5-Ethyl-5-Methylhydantoin)

Rating :

AVIAN RESULTS :

Species	Exposure	LC50	Test Descriptor
Bobwhite Quail		> 5,620 mg/kg	Similar active ingredients
Mallard Duck		> 5,620 mg/kg	Similar active ingredients



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ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

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

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

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

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it 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.

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:

LAND TRANSPORT :

Proper Shipping Name :	OXIDIZING SOLID, N.O.S.
Technical Name(s) :	BROMOCHLORO-5,5-DIMETHYLHYDANTOIN, 1,3-DICHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No :	UN 1479
Hazard Class - Primary :	5.1
Packing Group :	II
Flash Point :	142 °C / 287 °F

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	OXIDIZING SOLID, N.O.S.
Technical Name(s) :	BROMOCHLORO-5,5-DIMETHYLHYDANTOIN, 1,3-DICHLORO-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)



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MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	OXIDIZING SOLID, CORROSIVE, N.O.S.
Technical Name(s) :	BROMOCHLORO-5,5-DIMETHYLHYDANTOIN, 1,3-DICHLORO-5,5-DIMETHYLHYDANTOIN
UN/ID No :	UN 3085
Hazard Class - Primary :	5.1
Hazard Class - Secondary :	8
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.

1,3-Dichloro-5,5-Dimethylhydantoin : Corrosive, Dermal Sensitizer
1-Bromo-3-Chloro-5,5-Dimethyl-Hydantoin : Corrosive, Oxidizer
1,3-Dichloro-5-Ethyl-5-Methylhydantoin : Corrosive, 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 EPA hazard categories:

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



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

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

This product does not contain 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 WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR / 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.

<u>Substance(s)</u>	<u>Concentration</u>	<u>EFFECTS</u>
Bromoform	< .002 %	Causes Cancer

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

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



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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: Moderate

* The environmental risk is: Moderate

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

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

REFERENCES

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

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

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

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

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

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

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

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

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



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