

**MATERIAL SAFETY DATA SHEET****PRODUCT****TOWERBROM® 960****EMERGENCY TELEPHONE NUMBER(S)****(800) 424-9300 (24 Hours) CHEMTREC****1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****PRODUCT NAME :** TOWERBROM® 960**APPLICATION :** BIOCIDEBIOCID**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 :** 2 / 2 **OTHER :** OXIDIZER
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 Dichloroisocyanurate	2893-78-9	60.0 - 100.0
Sodium Bromide	7647-15-6	5.0 - 10.0

3. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW******DANGER**

CORROSIVE. CAUSES EYE AND SKIN DAMAGE. IRRITATING TO NOSE AND THROAT. HARMFUL OR FATAL IF SWALLOWED. Prolonged ingestion of large amounts may cause adverse central nervous system effects. Strong Oxidizer.

Do not get in eyes, on skin, on clothing. Remove contaminated clothing and wash before reuse.

Wear goggles and face shield and rubber gloves when handling.

Not flammable but can act as an oxidizing agent, enhancing the burning rate of other materials. Water Reactive; material will react with water and may release a flammable or toxic gas. In addition, nitrogen trichloride, which can present an explosion hazard, can be generated slowly by the reaction of small quantities of water with a high concentration of this product. Decomposes; flammable and/or toxic gases will form at elevated temperatures (thermal decomposition).

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin



MATERIAL SAFETY DATA SHEET

PRODUCT

TOWERBROM® 960

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

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.

INGESTION :

Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Can cause central nervous system depression, nausea, dizziness, vomiting, or unconsciousness.

INHALATION :

Not a likely route of exposure. Irritating, in high concentrations, to the eyes, nose, throat and lungs. Toxic by inhalation.

SYMPTOMS OF EXPOSURE :

Acute :

A review of available data does not identify any symptoms from exposure not previously mentioned.

Chronic :

Excessive exposure may cause central nervous system effects, nausea, vomiting, anesthetic or narcotic effects.

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.



MATERIAL SAFETY DATA SHEET

PRODUCT

TOWERBROM® 960

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :

Use water spray to cool containers exposed to fire and massive quantities of water to dilute material involved in a fire or spilled from containers. Do not use ABC or other dry chemical fire extinguishers since there is the potential for a violent reaction.

FIRE AND EXPLOSION HAZARD :

Not flammable but can act as an oxidizing agent, enhancing the burning rate of other materials. Water Reactive; material will react with water and may release a flammable or toxic gas. In addition, nitrogen trichloride, which can present an explosion hazard, can be generated slowly by the reaction of small quantities of water with a high concentration of this product. Decomposes; flammable and/or toxic gases will form at elevated temperatures (thermal decomposition).

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). DO NOT allow water to come into contact with this material.

ENVIRONMENTAL PRECAUTIONS :

This product is toxic to fish. Do not discharge effluent containing this active ingredient into lakes, streams, ponds, estuaries, oceans or other waters, unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

7. HANDLING AND STORAGE

HANDLING :

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating dusts. Keep the containers closed when not in use.

STORAGE CONDITIONS :

Store the containers tightly closed. Store in suitable labelled containers. Store separately from bases. Keep in dry place. Store away from organic chemicals and other oxidizable materials, reducing agents, acids and alkalis. DO NOT allow water to come into contact with this material.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**OCCUPATIONAL EXPOSURE LIMITS :**

This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :

General ventilation is recommended. 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: Low

9. PHYSICAL AND CHEMICAL PROPERTIES**PHYSICAL STATE** Crystalline, Granular**APPEARANCE** White**ODOR** Slight Pungent**SOLUBILITY IN WATER** Moderate

pH (1 %) 6 - 7

MELTING POINT Decomposes 460 - 480 °F / 240 - 250 °C**Nalco Company** 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000For additional copies of an MSDS visit www.nalco.com and request access

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VOC CONTENT 0.0 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY**STABILITY :**

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Moisture

Avoid temperatures greater than 400 °F

MATERIALS TO AVOID :

Do not bring in contact with organic materials and reducing agents. DO NOT allow water to come into contact with this material.

HAZARDOUS DECOMPOSITION PRODUCTS :

Oxides of nitrogen (NO_x), disodium oxide, bromine, and traces of phosgene (under fire conditions); chlorine (released in presence of moisture) and other chlorine containing compounds; hypobromous acid, hypochlorous acid, and cyanuric acid (released when dissolved in water); nitrogen trichloride, an explosion hazard (generated slowly by the reaction of small quantities of water with high concentration of this product).

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :

Species	LD50	Test Descriptor
Rat	710 mg/kg	

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	> 2g/kg	

ACUTE INHALATION TOXICITY :

Species	LC50	Test Descriptor
Rat	0.6 mg/l (4 hrs)	

PRIMARY SKIN IRRITATION :

Draize Score	Test Descriptor
7.2 / 8.0	

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This product is not expected to be a sensitizer.

CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: Moderate

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL EFFECTS :**

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

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	0.7 mg/l	50% Active Ingredient
Sheepshead Minnow	96 hrs	3.42 mg/l	
Inland Silverside	96 hrs	2.7 mg/l	50% Active Ingredient

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	2.5 mg/l		50% Active Ingredient
Mysid Shrimp (Mysidopsis bahia)	48 hrs	3.54 mg/l		
Mysid Shrimp (Mysidopsis bahia)	96 hrs	4.4 mg/l		50% Active Ingredient
Ceriodaphnia dubia	48 hrs	1.02 mg/l		Product

MOBILITY :

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models. If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	50 - 70%	30 - 50%

The portion in water is expected to float on the surface.

BIOACCUMULATION POTENTIAL

This preparation or material is not expected to bioaccumulate.

Nalco Company 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000For additional copies of an MSDS visit www.nalco.com and request access

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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.

Hazardous Waste: D001, D003

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

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :	DICHLOROISOCYANURIC ACID, SALTS, MIXTURE
Technical Name(s) :	Sodium Dichloroisocyanurate
UN/ID No :	UN 2465
Hazard Class - Primary :	5.1
Packing Group :	II
Flash Point :	None

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	DICHLOROISOCYANURIC ACID, SALTS, MIXTURE
Technical Name(s) :	Sodium Dichloroisocyanurate
UN/ID No :	UN 2465
Hazard Class - Primary :	5.1
Packing Group :	II
IATA Cargo Packing Instructions :	511
IATA Cargo Aircraft Limit :	25 KG (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO) :**Nalco Company** 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000For additional copies of an MSDS visit www.nalco.com and request access

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Proper Shipping Name :

Technical Name(s) :

UN/ID No :

Hazard Class - Primary :

Packing Group :

DICHLOROISOCYANURIC ACID, SALTS, MIXTURE

Sodium Dichloroisocyanurate

UN 2465

5.1

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.

Sodium Dichloroisocyanurate : Oxidizer, Irritant

Sodium Bromide : Eye irritant

CERCLA/SUPERFUND, 40 CFR 117, 302 :

Notification of spills of this product is not required.

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

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :

This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

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

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

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

This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :

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

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :

NSF Registration number for this product is : 121816

Nalco Company 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000For additional copies of an MSDS visit www.nalco.com and request access

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This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :

EPA Reg. No. 935-71-1706

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.

Heterocyclic salt

Proprietary

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :

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

WHMIS CLASSIFICATION :

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.

INTERNATIONAL CHEMICAL CONTROL LAWS

EUROPE

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

16.	OTHER INFORMATION
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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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For additional copies of an MSDS visit www.nalco.com and request access

9 / 11



MATERIAL SAFETY DATA SHEET

PRODUCT

TOWERBROM® 960

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Moderate

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

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

REFERENCES

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

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

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

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

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

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

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

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

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



MATERIAL SAFETY DATA SHEET

PRODUCT

3D TRASAR 3DT189

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

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.

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Prepared By : Product Safety Department

Date issued : 02/14/2007

Version Number : 1.6