SAFETY DATA SHEET

M31040 - ANSI - EN

Towerbrom® 60M Granules

SDS No.: M31040 **SDS Revision Date:** 06-Apr-2017

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**Towerbrom® 60M Granules**
Synonyms:	Towerbrom® 60M Microbiocide; Dichlor / Sodium Bromide Blend; Dichloroisocyanuric Acid Salts, Mixture; Sodium dichloroisocyanurate; Sodium dichloro-s-triazinetrione; Dichlor; 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione,1,3-dichloro-, sodium salt; Troclosene sodium; SDCC; NaDCC; Dichloroisocyanuric acid sodium salt
Product Use:	Algaecide, Disinfectant, Sanitizer, Bactericide, Fungicide, Microbiocide/Microbiostat
Uses Advised Against:	This is a pesticide product; do not use it in a pesticide application that is not included on its label

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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EMERGENCY OVERVIEW:

Color: White
Physical State: Solid
Appearance: Crystals, Granules
Odor: Slight chlorine odor, Bromine odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. CAUSES SERIOUS EYE DAMAGE. TOXIC IF INHALED (SEE SECTION 11 FOR INHALATION EXPLANATION). HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS: OXIDIZING AGENT. Contact with water slowly liberates irritating and hazardous chlorine containing gases. Contamination with moisture, organic material, or other incompatible chemicals may start a reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion. Contact with acids liberates toxic gas. Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes. When involved in a fire, will release chlorine and equally toxic gases. Do not get water inside container. Damp or wet material may generate nitrogen trichloride, an explosion hazard.

AQUATIC TOXICITY: Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS: Do not breathe dust; see inhalation explanation in Section 11 for additional information. Wear protective gloves, protective clothing, eye, and face protection. Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not get water inside container, an explosion hazard. Keep away from heat/ sparks/ open flames/ hot surfaces. - No smoking. Keep away from combustible materials. Take any precaution to avoid mixing with combustibles, acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds.

ADDITIONAL HAZARD INFORMATION: This material is corrosive. Product has strong buffering capability. Use dilution. May cause burns to moist skin if not promptly removed. There is no specific antidote. Sodium bromide at high doses affects the thyroid, adrenals and testes; may be an endocrine disruptor. The NOEL for sodium bromide is 300 mg/kg diet.

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GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Oxidizing Solid - Category 2 - May intensify fire; oxidizer
GHS: CONTACT HAZARD - SKIN:	Category 1C - Causes severe skin burns and eye damage

GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 3 - Toxic if inhaled
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 1 - Very toxic to aquatic life
HAZARDOUS TO AQUATIC ENVIRONMENT - CHRONIC HAZARD:	Category 1 - Very toxic to aquatic life with long lasting effects
GHS: SUPPLEMENTAL HAZARD:	• Contact with acids liberates toxic gas • Damp or wet material may generate nitrogen trichloride, an explosion hazard • Sodium bromide at high doses affects the thyroid, adrenals and testes; may be an endocrine disruptor. The NOEL for sodium bromide is 300 mg/kg diet • Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

***Acute Toxicity - Inhalation:** See inhalation explanation in Section 11 for additional information

UNKNOWN ACUTE TOXICITY: Not applicable. 100% of this product consists of ingredient(s) of known acute toxicity.

GHS SYMBOL: Oxidizer, Corrosion, Skull and Crossbones, Environmental hazard

GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
• May intensify fire; oxidizer

GHS - Health Hazard Statement(s)
• Causes severe skin burns and eye damage
• Causes serious eye damage
• Toxic if inhaled
• Harmful if swallowed

GHS - Environmental Hazard Statement(s)
• Very toxic to aquatic life with long lasting effects

GHS - Precautionary Statement(s) - Prevention
• Do not breathe dust; see inhalation explanation in Section 11 for additional information
• Wear protective gloves, protective clothing, eye and face protection

• Wash skin and contaminated clothing thoroughly after handling
• Do not eat, drink or smoke when using this product
• Use only outdoors or in a well-ventilated area
• Avoid release to the environment
• Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• Keep away from combustible materials
• Take any precaution to avoid mixing with combustibles, acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds

GHS - Precautionary Statement(s) - Response
• IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower
• IF EXPOSED (skin): Immediately call a POISON CENTER OR PHYSICIAN
• Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
• Wash contaminated clothing before reuse
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• IF EXPOSED (eyes): Immediately call a POISON CENTER OR PHYSICIAN
• IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
• Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
• IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
• Rinse mouth if ingested
• Do NOT induce vomiting
• In case of fire: Use flooding with copious amounts of water to extinguish. Do not use ABC fire extinguishers. Do not use dry chemicals, carbon dioxide, or halogenated extinguishing agents
• Collect spillage

GHS - Precautionary Statement(s) - Storage
• Store in a well-ventilated place. Keep container tightly closed
• Store in a secure manner

GHS - Precautionary Statement(s) - Disposal
• Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Physical Hazards Not Otherwise Classified
• Contact with acids liberates toxic gas
• Damp or wet material may generate nitrogen trichloride, an explosion hazard
• Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

Health Hazards Not Otherwise Classified
• Contact with acids liberates toxic gas
• Sodium bromide at high doses affects the thyroid, adrenals and testes; may be an endocrine disruptor. The NOEL for sodium bromide is 300 mg/kg diet
• Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent [%]	CAS Number
Dichloroisocyanuric acid, sodium salt	89 - 90	2893-78-9
Sodium bromide (NaBr)	7	7647-15-6
Water	0.5 - 3	7732-18-5
Sodium Chloride	0.1 - 1.5	7647-14-5

SECTION 4. FIRST AID MEASURES

INHALATION: IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

SKIN CONTACT: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF EXPOSED: Immediately call a POISON CENTER OR PHYSICIAN. Wash contaminated clothing before reuse.

EYE CONTACT: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

INGESTION: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

Most Important Symptoms/Effects (Acute and Delayed):

Acute Symptoms/Effects:

Inhalation (Breathing): Respiratory System Effects. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure. Please refer to Section 11 for additional information.

Skin: Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.

Ingestion (Swallowing): Gastrointestinal Effects. Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Delayed Symptoms/Effects:

Repeated and prolonged skin contact may cause a dermatitis.

Interaction with Other Chemicals Which Enhance Toxicity: None known.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as: eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Avoid contact with skin and eyes. Do not ingest. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Treat as a corrosive substance. This material is more irritating to the skin and eyes in the presence of water. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. There is no antidote. Cyanuric acid is readily removed from the body via the renal system, and is not bioaccumulated. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: Negligible fire hazard. If heated by outside source to temperatures above 240 °C (464 °F), this product will undergo decomposition with the evolution of noxious gases but no visible flame. Wet material may generate nitrogen trichloride, an explosion hazard.

Extinguishing Media: Flood with copious amounts of water, Do not use ABC fire extinguishers, Do not use dry chemicals, carbon dioxide, or halogenated extinguishing agents

Fire Fighting: Consider evacuation of personnel located downwind. Keep unnecessary people away, isolate hazard area and deny entry. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. DO NOT attempt to reseal contaminated drums. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Hazardous Combustion Products: Chlorine, Nitrogen, Nitrogen trichloride, Cyanogen chloride, Oxides of carbon, Phosgene

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not flammable

Upper Flammability Level (air): Not flammable

Flash point: Not applicable

Auto-ignition Temperature: Not determined

GHS: PHYSICAL HAZARDS:
- Oxidizing Solid - Category 2 - May intensify fire; oxidizer

Physical Hazards Not Otherwise Classified
- Contact with acids liberates toxic gas
- Damp or wet material may generate nitrogen trichloride, an explosion hazard
- Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and

gas including toxic fumes

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Environmental Precautions:
This material is very toxic to aquatic life. This material is very toxic to aquatic life with long lasting effects. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

Methods and Materials for Containment and Cleaning Up:
DO NOT add water to spilled material. DO NOT use floor sweeping compounds to clean up spills. Sweep and scoop spilled material into clean, dedicated equipment. Every attempt should be made to avoid mixing spilled material with other chemicals or debris when cleaning up. DO NOT attempt to reseal contaminated drums. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Additional Disaster Prevention Measures:
No information available.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling:
Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or dust when opening container. Avoid creation of dust. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. NEVER add water to this product. Always add product to large quantities of water. Use clean, dry utensils. Do not add the product to any dispensing device containing residuals of other products.

Safe Storage Conditions:
Store only in original container. Store and handle in accordance with all current regulations and standards. (NFPA Oxidizer Class 2). Do not allow water to get in container. If liner is present, tie after each use. Keep container tightly closed and properly labeled. Store containers on pallets. Keep away from food, drink and animal feed. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Product has an indefinite shelf life if stored in original container in a cool, dry place.

Incompatibilities/ Materials to Avoid:
acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds

GHS: PHYSICAL HAZARDS:
- Oxidizing Solid - Category 2 - May intensify fire; oxidizer

Physical Hazards Not Otherwise Classified
- Contact with acids liberates toxic gas
- Damp or wet material may generate nitrogen trichloride, an explosion hazard
- Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): None. This product does not contain any components that have regulatory occupational exposure limits (OEL's).

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PELCeiling
Sodium Chloride 7647-14-5	------	-----	-----

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S):
• This product does not have any components that have ACGIH - TLVs and/or OSHA's stayed OELs
• Listed below is Manufacturer Recommended Exposure Level (REL)
- *The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).*

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Recommended Exposure Limits (REL's) are non-regulatory occupational exposure limits that the manufacturer has established based on health effects data

Manufacturer [OXY] Recommended Exposure Limit (REL):	0.5 mg/m^3 = recommended 8-hour Time Weighted Average (TWA) - (Manufacturer recommended Occupational Exposure Limit)

Additional Advice:
1. Bromine may be found in slight amounts in the head space of containers of this product

ENGINEERING CONTROLS: Use only in well-ventilated areas. Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When potential for contact with dry

material exists, wear disposable coveralls suitable for dust exposure, such as Tyvek®. Contaminated clothing should be removed and laundered before reuse.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove manufacturer for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types:
Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC), Tyvek®

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. The added protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. Acid gas cartridges with N95 filters are required when fumes or vapor may be generated. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Crystals, Granules
Color:	White
Odor:	Slight chlorine odor, Bromine odor
Odor Threshold [ppm]:	Not Available.
Molecular Weight:	220
Molecular Formula:	C3N3O3Cl2Na
Decomposition Temperature:	486 °F (252 °C)
Boiling Point/Range:	Not applicable
Freezing Point/Range:	Not applicable.
Melting Point/Range:	Decomposes without melting @ 252 °C
Vapor Pressure:	<0.06 Pa @ 20 °C
Vapor Density (air=1):	Not applicable
Relative Density/Specific Gravity (water=1):	1.98 g/mL @ 25 °C
Density:	No data available
Bulk Density:	55 - 57 lbs/ft3 (loose)
Water Solubility:	24.3 g/100 g @ 25 °C
pH:	6 - 7 @ 25 °C (1% solution)
Volatility:	Not applicable
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	Kow = 0
Flash point:	Not applicable
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Auto-ignition Temperature:	Not determined
Viscosity:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Not reactive under normal temperatures and pressures.

Possibility of Hazardous Reactions: Do not get water inside container. Wet material may generate nitrogen trichloride, an explosion hazard. Avoid contact with easily oxidizable organic material. Contact with acids liberates toxic gas.

Conditions to Avoid: (e.g., static discharge, shock, or vibration) -. None known.

Incompatibilities/ Materials to Avoid: acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds.

Hazardous Decomposition Products: Chlorine, nitrogen, nitrogen trichloride, cyanogen chloride, Oxides of Carbon, Phosgene

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

IRRITATION DATA: PRIMARY SKIN IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)
PRIMARY EYE IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)

TOXICITY DATA:

PRODUCT TOXICITY DATA: TOWERBROM® 60M GRANULES

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
1823 mg/kg (Rat)	>2000 mg/kg (Rabbit)	0.27 - 1.17 mg/L (4 hr - Rat)

COMPONENT TOXICITY DATA:
Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

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POTENTIAL HEALTH EFFECTS:

Eye contact: Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of eye.

Skin contact: Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns. Dry material is less irritating than wet material. This material is not a skin sensitizer based on studies with guinea pigs.

Inhalation: This material in the form as sold is NOT expected to produce respiratory effects. Particles of respirable size are generally not encountered. The respirable fraction is typically less than 0.1% by weight for the granular and extra granular grades. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

Ingestion: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to epiglottis, mucus membranes of the mouth, esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Chronic Effects: None identified for the parent chemical. Based on animal studies, exposure to concentrations of monosodium cyanurate, a stable degradate of this product, at the solubility limit may cause cardiovascular, kidney and urinary bladder effects. SODIUM BROMIDE: Based on animal studies, exposure to concentrations of sodium bromide may cause reversible effects to the reproductive system. Repeated skin contact may cause dermatitis. Repeated oral intake of bromides may affect the Central Nervous System (CNS).

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure. Please refer to Section 11 for additional information.
Skin: Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.
Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.
Ingestion (Swallowing): Gastrointestinal Effects. Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

TOXICITY:
Monosodium cyanurate was administered via drinking water to rats for 104 weeks at concentrations of 0, 400, 1200, 2400, and 5375 ppm (solubility limit). No compound-related effects on body weights, clinical signs of toxicity or food or water consumption were noted during the study. An increased incidence of gross lesions in the urinary tract, calculi in the kidney and lesions in the heart were observed in males receiving the highest dose level of 5375 ppm (solubility limit). The health effects seen in this study were due to precipitation of the test substance in the urinary tract when the test substance was fed at the solubility limit. Adverse health effects were not seen at lower doses where precipitation did not occur.

Interaction with Other Chemicals Which Enhance Toxicity: None known.

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GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed.

GHS: ACUTE TOXICITY - INHALATION: Category 3 - Toxic if inhaled.
*Acute Toxicity - Inhalation: See inhalation explanation in Section 11 for additional information

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CONTACT HAZARD - SKIN: Category 1C - Causes severe skin burns and eye damage.

CARCINOGENICITY COMMENT: This product is not classified as a carcinogen by NTP, IARC or OSHA.

MUTAGENIC DATA:
Not classified as a mutagen per GHS criteria. Not mutagenic in 5 Salmonella strains and 1 E. coli strain with or without mammalian microsomal activation.

REPRODUCTIVE TOXICITY:
Not classified as a reproductive toxin per GHS criteria. SODIUM BROMIDE: A 7-month diet rat study with sodium bromide, followed with a 3-month control diet in the reversibility group, showed complete infertility at the highest dose. No treatment-related effects were observed in reproductive performance, viability and bodyweight of the offspring in the second and third generations. Results of the reversibility group showed clearly that the effects of sodium bromide on reproduction are reversible.

Health Hazards Not Otherwise Classified
• Contact with acids liberates toxic gas
• Sodium bromide at high doses affects the thyroid, adrenals and testes; may be an endocrine disruptor. The NOEL for sodium bromide is 300 mg/kg diet
• Heating over 210 °C (410 °F) can initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

SECTION 12. ECOLOGICAL INFORMATION

Product Information:
Sodium Dichloroisocyanurate/Sodium Bromide formulation: This material is believed to be highly toxic to aquatic life.

ECOTOXICITY DATA:

Fish Toxicity:
LC50 Bluegill sunfish: 0.25-1.0 mg/L (96 hour)Rainbow trout: 0.13-0.36 mg/L (96 hour)Inland silversides: 1.21 mg/L (96 hour)

Algae Toxicity:
EC50 Selenastrum: 0.3 mg/L (96 hour)

Invertebrate Toxicity:
LC50 Water flea: 0.196 mg/L (48 hour)Mysid shrimp: 1.65 mg/L (96 hour)

Other Toxicity:
LD50 Mallard duck (oral): 1,916 mg/kgN. Bobwhite Quail (oral): 1,732 mg/kgMallard duck (diet): >10,000 ppmN. Bobwhite Quail (diet): >10,000 ppm

FATE AND TRANSPORT:

BIODEGRADATION: This material is subject to hydrolysis. Cyanuric acid produced by hydrolysis is biodegradable.

PERSISTENCE: This material is believed not to persist in the environment. Free available chlorine is rapidly consumed by reaction with organic and inorganic materials to produce chloride ion. The stable degradation products are chloride ion and cyanuric acid.

BIOCONCENTRATION: This material hydrolyses in water liberating free available chlorine and cyanuric acid. These products are not bioaccumulative.

ADDITIONAL ECOLOGICAL INFORMATION: This product is very toxic to fish and aquatic organisms. This product is very toxic to aquatic life with long lasting effects. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of appropriate regulatory requirements (e.g. permit and the permitting authority has been notified in writing prior to discharge). Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your local or regional regulatory water boards and/or other appropriate regulatory offices.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Use or reuse if possible. This material is a registered pesticide. May be subject to disposal regulations. Dispose in accordance with all applicable regulations. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Container Management:
See product label for container disposal information. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

Status: Regulated. For ground or air shipments only, non-bulk packages are regulated as

	oxidizers. Bulk Packaging or Shipment by Vessel: Regulated additionally as a Marine Pollutant as follows:.
UN NUMBER:	UN2465
PROPER SHIPPING NAME:	Dichloroisocyanuric Acid Salts, Mixture, Marine Pollutant, (Sodium dichloroisocyanurate)
HAZARD CLASS/ DIVISION:	5.1
PACKING GROUP:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
MARINE POLLUTANT:	Sodium dichloroisocyanurate

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status:	Regulated. For ground or air shipments only, non-bulk packages are regulated as oxidizers. Bulk Packaging or Shipment by Vessel: Regulated additionally as a Marine Pollutant as follows:.
UN NUMBER:	UN2465
SHIPPING NAME:	Dichloroisocyanuric Acid Salts, Mixture, Marine Pollutant, (Sodium dichloroisocyanurate)
CLASS OR DIVISION:	5.1
PACKING/RISK GROUP:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
CAN. MARINE POLLUTANT:	Sodium dichloroisocyanurate

MARITIME TRANSPORT (IMO / IMDG) :

Status - IMO / IMDG:	Shipment by Vessel: Regulated
UN NUMBER:	UN2465
PROPER SHIPPING NAME:	Dichloroisocyanuric Acid Salts, Mixture, Marine Pollutant, (Sodium dichloroisocyanurate)
HAZARD CLASS / DIVISION:	5.1
Packing Group:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
MARINE POLLUTANT:	Sodium dichloroisocyanurate

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
Not regulated.

SARA EHS Chemical (40 CFR 355.30)
Not regulated

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Reactive Hazard, Acute Health Hazard

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):
Physical Hazard - Oxidizer
Physical Hazard - HNOC
Health Hazard - Acute Toxin
Health Hazard - Skin Corrosive / Irritant
Health Hazard - Eye Corrosive / Irritant
Health Hazard - HNOC

EPCRA SECTION 313 (40 CFR 372.65):
Not regulated

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated

FIFRA REGULATIONS: Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA Reg. No. 935-71 (Towerbrom® 60M Granules)

FIFRA LABELING REQUIREMENTS: - This chemical is a pesticide product registered by the United States Environmental Protection Agency (EPA) and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.
- FIFRA Signal Word - DANGER
- Corrosive
- Causes irreversible eye damage
- Causes skin irritation
- Harmful if swallowed
- This pesticide is toxic to fish and aquatic organisms
- Strong oxidizing agent
- Contact with water slowly liberates irritating and hazardous chlorine containing gases
- Decomposes at temperatures above 464 °F with liberation of harmful gases
- When ignited will burn with the evolution of chlorine and equally toxic gases
- NEVER add water to product
- Always add product to large quantities of water
- Use only clean and dry utensils
- DO NOT add this product to any dispensing device containing remnants of any other product
- Such use may cause a violent reaction leading to fire or explosion
- Contamination with moisture, organic material, or other incompatible chemicals may start a reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

Towerbrom® 60M Granules

SDS No.: M31040 **SDS Revision Date:** 06-Apr-2017

Component	DSL	NDSL
Dichloroisocyanuric acid, sodium salt 2893-78-9	Listed	Not Listed
Sodium bromide (NaBr) 7647-15-6	Listed	Not Listed
Sodium Chloride 7647-14-5	Listed	Not Listed

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Dichloroisocyanuric acid, sodium salt 2893-78-9	Not Listed	Not Listed	Not Listed	Not Listed	1694	Not Listed
Sodium bromide (NaBr) 7647-15-6	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Chloride 7647-14-5	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Dichloroisocyanuric acid, sodium salt 2893-78-9	Not Listed	Listed	Not Listed	Not Listed	Listed
Sodium bromide (NaBr) 7647-15-6	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Chloride 7647-14-5	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

CANADIAN REGULATIONS

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

Component	Canadian Chemical Inventory:	NDSL:	WHMIS - Classifications of Substances:
Dichloroisocyanuric acid, sodium salt	Listed		C,D1B,D2B
Sodium bromide (NaBr)	Listed		D2A
Sodium Chloride	Listed		Uncontrolled product according to WHMIS classification criteria

WHMIS Hazard Class:

• Material is regulated as a pesticide, therefore is not regulated under WHMIS

PCP Registration:

- This product is registered as a pesticide in Canada under PCP Reg No. 27275

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 06-Apr-2017

Reason for Revision:
• Updated Uses Advised Against information: SEE SECTION 1
• Revised Hazard(s) Identification information: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Updated First Aid Measures: SEE SECTION 4
• Modified Fire Fighting Measure Recommendations: SEE SECTION 5
• Revised Handling and Storage Recommendations: SEE SECTION 7
• Removed exposure level that was not applicable: SEE SECTION 8
• Toxicological Information has been revised: SEE SECTION 11
• Updated Disposal Considerations. SEE SECTION 13
• Removed NFPA/HMIS ratings from format: SEE SECTION 16
• A component has been added to the formulation. SEE SECTION 2.

IMPORTANT:
The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet