



MATERIAL SAFETY DATA SHEET

Product Name **Azure Black Algae Destroyer**
Product id 9716A-AZ
Revision date 25/01/2007

Revision: 1

1. Identification of the substance & the company

Chemical name Trichloro-s-triazinetriene

Synonym(s) Trichloroisocyanuric Acid; TCCA; Trichlor; Trichloro-s-triazinetriene; Symclosene

Chemical formula $C_3Cl_3N_3O_3$

Chemical family Chloroisocyanurate

Molecular weight 232.41

Type of product and use For formulation into end-use products intended for disinfectants, sanitizers, fungicides, bactericides and algaecides for pools, spas, hot tubs

Supplier NAVA Water Products
95 MacCorkle Ave. SW, South Charleston, WV 25303, USA
Tel: (304) 746-3000

Emergency Telephone Chemtrec (800)424-9300
Medical 1-800-420-9236

2. Composition / information on ingredients

Components CAS	Weight %	ACGIH-TLV Data	OSHA (PEL) Data
Trichloroisocyanuric Acid 87-90-1	96-100	Not determined	Not determined
Dichloroisocyanuric Acid 2782-57-2	0-4	Not determined	Not determined



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3. Hazards identification

Emergency overview	<i>White granuls or tablet-form product</i> <i>Causes irreversible eye damage and skin burns</i> <i>May be fatal if inhaled</i> <i>May be fatal if absorbed through skin</i> <i>Oxidizer</i>
Potential environmental effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Potential Health Effects:	
- Eye Contact	Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.
- Skin contact	Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Repeated skin exposure may cause tissue destruction due to the corrosive nature of the product.
- Inhalation	Irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema that can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage from the corrosive action of the lung.
- Ingestion	Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation. Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration.
NFPA Ratings (Scale 0-4)	Health = 3, Fire = 0, Reactivity = 2. Special Hazard Warning: OXIDIZER
HMIS Ratings (Scale 0-4)	Health = 3, Fire = 0, Reactivity = 2.



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4. First-aid measures

Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advise.
Skin contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advise.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advise.
Ingestion	Call poison control center, or doctor immediately for treatment advise. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
Note to physician	Probable mucosal damage may contraindicate the use of gastric lavage.

5. Fire - fighting measures

Flash point	Not applicable
Auto-ignition temperature	Not applicable
Suitable extinguishing media	Water
Extinguishing media not to be used	Do not use dry chemical extinguisher containing ammonia compounds.
Fire fighting procedure	Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode. Cool containers with water spray. On small fires, use water spray or fog. On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished.
Unusual fire and explosion hazards	When heated to decomposition, may release poisonous and corrosive fumes of nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide and carbon dioxide.



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6. Accidental release measures

Personal precautions

For small spills in a well-ventilated areas, wear a NIOSH approved half-face or full face tight fitting respirator or a loose fitting powered air purifying respirator equipped with chlorine cartridges. Chemical goggles should be worn when using a half-face respirator. In addition to respiratory protection, wear coveralls; chemical resistant gloves; chemical resistant footwear; and chemical resistant headgear for overhead exposure.

For clean-up of large spills, or small dry spills in confined areas, wear full-face respirator with chlorine cartridges or a positive pressure supplied air respirator. Additionally, body protection should be impervious clothing covering entire body to prevent personal contact with material.

CAUTION - Protection concerns must also address the following: If this material becomes damp/wet or contaminated in a container, the formation of nitrogen trichloride gas may occur and an explosive condition may exist.

Methods for cleaning up

Hazardous concentrations in air may be found in local spill area and immediately downwind. If spill material is still dry, do not put water directly on this product as a gas evolution may occur.

- Soil

Do not contaminate spill material with any organic materials, ammonia, ammonium salts or urea.

Clean up all spill material with clean, dry dedicated equipment and place in a clean dry container.

- Water

This material is heavier than and soluble in water. Stop flow of material into water as soon as possible. Begin monitoring for available chlorine and pH immediately.

- In air

Vapors may be suppressed by the use of water fog.

7. Handling and storage

Handling

Avoid bodily contact.

Do not take internally.

Upon contact with skin or eyes, wash off with water.



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Storage	Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid"). Product has an indefinite shelf-life limitation. Do not store at temperatures above 60°C/140°F. Available chlorine loss can be as little as 0.1% per year at ambient temperatures.
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8. Exposure controls / personal protection

Ventilation requirements	Use local exhaust ventilation to minimize dust and chlorine levels where industrial use occurs. Otherwise, ensure good general ventilation.
Personal protective equipment:	
- Respiratory protection	When dusty conditions are encountered, wear a NIOSH/OSHA full-face respirator with chlorine cartridges for protection against chlorine gas and dust/mist pre-filter.
- Hand protection	Neoprene gloves
- Eye protection	Use chemical safety glasses to avoid eye contact. Where industrial use occurs, chemical goggles may be required.
- Skin and body protection	Body covering clothes and boots
Hygiene measures	Avoid contact with skin, eyes and clothing.

9. Physical and chemical properties

Appearance	White granules or tablet-form product
Odor	Sharp, chlorine-like, bleach odor
Melting point/range	225-230°C (decomposes)
Boiling point/range	Not applicable (decomposes)
Vapour pressure	Not applicable under standard conditions
Vapor density	Not applicable under standard conditions
Evaporation rate (ether=1)	Not applicable under standard conditions
Solubility:	
- Solubility in water	1.2 g/100ml at 25°C
Bulk density	Granular - 0.89-1.1 g/cc Tablet - 1.16-1.9 g/cc
Specific gravity	>1
pH	2.7-2.9 (1% solution)
Decomposition temperature	225 °C (437°F)



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10. Stability and reactivity

Stability	Stable under normal conditions Do not package in paper or cardboard. NOTE:Contact with small amounts of water may result in an exothermic reaction with the liberation of toxic fumes.
Materials to avoid	Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases, oils, grease, sawdust, dry fire extinguishers containing monoammonium compounds.
Conditions to avoid	Heating above decomposition temperature
Hazardous decomposition products	Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide.
Hazardous polymerization	Will not occur

11. Toxicological information

Acute toxicity:	
- Rat oral LD50	490 mg/kg
- Rabbit dermal LD50	>2000 mg/kg
- Eye irritation (rabbit)	Corrosive
- Dermal irritation (rabbit)	Corrosive
- Dermal sensitization	Not a sensitizer
Chronic toxicity	Prolonged exposure may cause damage to the respiratory system. Chronic inhalation exposure may cause impairment of lung function and permanent lung damage.
Mutagenicity	Not mutagenic in five Salmonella strains and one E.coli strain with or without mammalian microsomal activation.
Carcinogenicity	Not classified by IARC, OSHA, EPA. Not included in NTP 11th Report on Carcinogens.
Reproductive toxicity	There are no known or reported effects on reproductive function or fetal development. Toxicological investigation indicates it does not effect reproductive function of fetal development.



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12. Ecological information

Aquatic toxicity :

- 96 Hour-LC50, Fish 0.32 mg/l (Rainbow trout)
0.30 mg/l (bluegill sunfish)
- 48 Hour-LC50, Daphnia magna 0.21 mg/l

Avian toxicity:

- Oral LD50, Mallard duck 1600 mg/kg
- Dietary LC50, Mallard duck >10,000 ppm
- Dietary LC50, Bobwhite quail 7422 ppm

Germany, water endangering classes (WGK) 3

13. Disposal considerations

Waste disposal

Observe all federal, state and local environmental regulations when disposing of this material. If this product becomes waste, it will be a hazardous waste that is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.
Care must be taken to prevent environmental contamination from the use of this material.

14. Transportation information

UN No. 2468

DOT Proper shipping name: Trichloroisocyanuric Acid Dry
Label: OXIDIZER (5.1)
Class: 5.1 - Oxidizing substances
Emergency Guide No.140
Packing Group: II

IMO Proper shipping name: Trichloroisocyanuric Acid Dry
Class: 5.1 - Oxidizing substances
Label: OXIDIZING AGENT (5.1)
Packing Group: II



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ICAO/IATA	Proper shipping name: Trichloroisocyanuric Acid Dry Class: 5.1 Label: OXIDIZER (5.1) Packing group: II
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15. Regulatory information

USA	Reported in the EPA TSCA Inventory This product is registered under FIFRA.
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Sara (311, 312) hazard class	This product is categorized as an immediate health hazard, and fire and reactivity physical hazard This product does not contain a chemical listed at or above de minimis concentrations.
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- Massachusetts right-to-know list	Listed
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- New Jersey right-to-know list	Listed
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- Pennsylvania right to know list	Listed
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- WASTE CLASSIFICATIONS	If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.
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- Workplace Classification	This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).
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Canada	Listed in DSL
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WHMIS hazard class	D2B toxic materials C oxidizing materials D1B toxic materials
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EU	Reported in EINECS
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Japanese METI	ENCS No: 5-1044
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Australia	Listed in AICS
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China inventory	Listed
Korea	KE-34101
Philippines	Listed in PICCS

16. Other information

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product.

This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product.

Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Clearon at the phone number listed below to make certain that this sheet is current.

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, NAVA Water Products makes no representations as to the completeness or accuracy thereof.

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

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End of safety data sheet