



MATERIAL SAFETY DATA SHEET

Product Name **Azure 1" Chlorinating Tablets**
Product id 9716-1-AZ
Revision date 23/03/2006

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 232.5

Type of product and use For disinfectant, sanitizers, fungicides, bactericides and algacides for pools, spas and 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

3. Hazards identification

Emergency overview *White tablet*
Strong oxidizing agent
Corrosive. Causes irreversible eye damage or skin burns
May be fatal if inhaled
May be fatal if absorbed through skin



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets	
Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

Potential environmental effects The product is toxic to fish and aquatic organisms

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 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.
Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.

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.

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.



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets	
Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

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.



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets
Product id	9716-1-AZ
Revision date	23/03/2006

Revision: 1

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.



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets	
Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

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 tablet
Odor	Sharp, chlorine-like, bleach odor
Melting point/range	Not applicable
Boiling point/range	Not applicable
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 Tablets - 1.16-1.9 g/cc
Specific gravity	>1
pH	2.7-2.9 (1% solution)
Decomposition temperature	225 °C (437°F)



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets	
Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

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
- Rat inhalation LC50	Approx.0.68 mg/l/4 hour - (nose only)
- Eye irritation (rabbit)	Corrosive
- Dermal irritation (rabbit)	Corrosive
Target organ effects	This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract. There are no known or reported effects from repeated exposure. Toxicological investigation indicates it does not produce significant effects from chronic exposure.
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 included in NTP 11th Report on Carcinogens. Not classified by IARC, OSHA, EPA.



MATERIAL SAFETY DATA SHEET

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Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

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

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.
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14. Transportation information

UN No.	2468
DOT	Proper shipping name: Trichloroisocyanuric Acid Dry Class: 5.1 - Oxidizing substances Label: OXIDIZER (5.1) Packing Group: II Emergency Guide No.140



MATERIAL SAFETY DATA SHEET

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Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

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
Sara 313	Not listed
Sara (311, 312) hazard class	This product is categorized as an immediate health hazard, and fire and reactivity physical hazard
- 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.
- Workplace Classification	This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).
EU	Reported in EINECS
Australia	Listed in AICS
China inventory	Listed
Korea	KE-34101
Philippines	Listed in PICCS



MATERIAL SAFETY DATA SHEET

Product Name	Azure 1" Chlorinating Tablets	
Product id	9716-1-AZ	
Revision date	23/03/2006	Revision: 1

16. Other information

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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End of safety data sheet