



MATERIAL SAFETY DATA SHEET

Product Name	1" Chlorinating Tablets	
Product id	9716-1C	
Revision date	15/12/2008	Revision: 4
Supersedes	19/10/2005	

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. Hazards identification

Emergency overview	<i>White granuls or tablet-form product</i> <i>Oxidizer</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>
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.



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- 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.

Potential environmental effects Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

3. Composition / information on ingredients

Components	CAS No.	Weight %
Trichloroisocyanuric Acid	87-90-1	96-100
Dichloroisocyanuric Acid	2782-57-2	0-4

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.



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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

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.

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

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.

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
Trichloroisocyanuric Acid 87-90-1	Not determined	Not determined
Dichloroisocyanuric Acid 2782-57-2	Not determined	Not determined



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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)
Flash point	Not applicable
Auto-ignition temperature	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
Decomposition temperature	225 °C (437°F)

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



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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

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.

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)

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13. Disposal considerations

Waste disposal 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. Observe all federal, state and local environmental regulations when disposing of this material.

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
IMO	Proper shipping name: Trichloroisocyanuric Acid Dry Class: 5.1 - Oxidizing substances Label: OXIDIZING AGENT (5.1) Packing Group: II
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) This product is categorized as an immediate health hazard, and fire and reactivity physical hazard
- Massachusetts right-to-know list Listed
- New Jersey right-to-know list Listed
- Pennsylvania right to know list Listed
- Rhode Island right-to-know list Listed

- 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).

Canada Listed in DSL
-WHMIS hazard class C oxidizing materials
D1B toxic materials
D2B toxic materials

EU Reported in EINECS

Japan ENCS no. 5-1044
ISHL no. 5-1044

Australia Listed in AICS

New Zealand Inventory Listed in NZIoC

China inventory Listed

Korea KE-34101

Philippines Listed in PICCS



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16. Other information

This data sheet contains changes from the previous version in section(s)

2, 4, 7, 9, 11, 12, 15

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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.

End of safety data sheet