



MATERIAL SAFETY DATA SHEET

Product name **Nava Chlorinating Sticks**
Product id 9716C
Revision date 08/05/2011
Supersedes 17/05/2007

Revision: 5

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 disinfectant, sanitizers, fungicides, bactericides and algaecides 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 *White granuls or tablet-form product*
Oxidizer
Causes irreversible eye damage and skin burns
May be fatal if inhaled
May be fatal if absorbed through skin

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

HMS 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



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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.
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 Reacts with various metal powders, with risk of fire and explosion.

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.

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

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

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

Odour

Sharp, chlorine-like bleach odor

Boiling point/range

Not applicable (decomposes)

Melting point/range

225-230°C (decomposes)

Flash point

Not applicable

Auto-ignition temperature

Not applicable

Vapour pressure

Not applicable under standard conditions

Evaporation rate (ether=1)

Not applicable under standard conditions

Vapor density

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)



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9. Physical and chemical properties

Explosive properties Not available
Oxidising properties Oxidiser

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 809 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 affect reproductive function or 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
Class: 5.1 - Oxidizing substances
Label: Oxidizing substances (5.1)
Packing Group: II
Emergency Guide No.140
Note: Inner packages containing 2.2 pounds [1kg] or less are renamed "Consumer Commodity" and reclassified as "ORM-D". Labeling and placarding are not required for these shipments.



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

ICAO/IATA Proper shipping name: Trichloroisocyanuric Acid Dry
Label: Oxidizing substances (5.1)
Class: 5.1
Packing group: II

15. Regulatory information

USA Reported in the EPA TSCA Inventory. This product is registered under FIFRA.

- SARA 313 Not listed

- SARA (311, 312) 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.

- Massachusetts right-to-know list Listed

- New Jersey right-to-know list Listed

- Pennsylvania 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



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Japanese METI ENCS No: 5-1044
Australia Listed in AICS
New Zealand Inventory Listed in NZIoC
China inventory Listed in IECSC
Korea KE-34101
Philippines Listed in PICCS
Switzerland Listed in Giftliste 1 (G-3934)

16. Other information

GHS

GHS classification Ox. Sol. 2 H272
Acute Tox. 4 H302
Eye Irrit. 2 H319
STOT SE 3 H335
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Label elements



Signal word Danger

Hazard statements H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335- May cause respiratory irritation
H410 - Very toxic to aquatic life with long lasting effects
EUH031- Contact with acids liberates toxic gas



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Precautionary statements P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTER or doctor/physician.

This data sheet contains changes from the previous version in section(s)
1, 3, 4, 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