



SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)

Product name	Star Plus 3" Chlorinating Tablets	
Product id	AS_9716-3C_SP	
Revision date	18/12/2013	Revision: 5
Supersedes	21/11/2010	

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 algacides for pools, spas and hot tubs
Supplier	NAVA Water Products 95 MacCorkle Ave. SW, South Charleston, WV 25303, USA Toll Free Number: 1-800-811-2327
Emergency Telephone	Chemtrec (800)424-9300 Medical (800)420-9236

2. Hazards identification

GHS classification	Ox. Sol. 2 H272, May intensify fire; oxidiser. Acute Tox. 4, H302 Harmful if swallowed Eye Irrit. 2, H319 Causes serious eye irritation USA: Eye Irrit. 2A, Causes serious eye irritation STOT SE 3, H335 May cause respiratory irritation Aquatic Acute 1, H400 - Very toxic to aquatic life Aquatic Chronic 1, H410 - Very toxic to aquatic life with long lasting effects
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Signal Word	DANGER
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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
Precautionary statements	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P221 - Take any precaution to avoid mixing with combustibles/other chemicals P261 - Avoid breathing dust/fume/gas/mist/vapors/spray P280 - Wear protective gloves/protective clothing/eye protection/face protection P273 - Avoid release to the environment P391 - Collect spillage P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell P330 - Rinse mouth P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337 + P313 - If eye irritation persists: Get medical advice/attention. P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing P312 - Call a POISON CENTER or doctor/physician if you feel unwell P220 - Keep/Store away from clothing/ combustible materials P264 - Wash hands thoroughly after handling P270 - Do not eat, drink or smoke when using this product P271 - Use only outdoors or in a well-ventilated area P370 + P378 - In case of fire: Use water for extinction P405 - Store locked up P403 + P233 - Store in a well-ventilated place. Keep container tightly closed P501 - Dispose of contents/container in accordance with national and international regulations
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



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Components	CAS No.	Weight %
Trichloroisocyanuric Acid	87-90-1	99

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 advice.

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 advice.

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 advice.

Ingestion Call poison control center, or doctor immediately for treatment advice. 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.

Most important symptoms and effects, acute or delayed

- 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.



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- 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.
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Note to physician	Probable mucosal damage may contraindicate the use of gastric lavage. Corrosive No specific antidote. In case of ingestion DO NOT induce vomiting. Treat symptomatically and supportively.
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Medical conditions aggravated by exposure	Asthma, respiratory and cardiovascular diseases.
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5. Fire - fighting measures

Suitable extinguishing media	Water. Large amounts of water may be needed and the flow of water should not be stopped until the fire/reaction has stopped.
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Extinguishing media not to be used	Do not use dry chemical extinguisher containing ammonia compounds.
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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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Fire fighting procedure	Cool containers with water spray. Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode. 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.
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6. Accidental release measures



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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.
Environmental precautions	Prevent entry into sewers and watercourses
- 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.
- 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.

8. Exposure controls / personal protection

Exposure Limits :



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Components	ACGIH-TLV Data	OSHA (PEL) Data
Trichloroisocyanuric Acid 87-90-1	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 Do not eat, smoke or drink where material is handled, processed or stored. Wash hands thoroughly after handling and before eating or smoking. Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance White granules or tablet-form product
Odor Sharp, chlorine-like bleach odor
Odor threshold Not determined
pH 2.7-2.9 (1% solution)
Melting point/range 225-230°C (decomposes)
Boiling point/range Not applicable (decomposes)
Flash point Not applicable
Evaporation rate (ether=1) Not applicable under standard conditions
Vapor pressure Not applicable under standard conditions
Vapor density Not applicable under standard conditions
Solubility:
- **Solubility in water** 1.2 g/100ml at 25°C
- **Solubility in other solvents** Not available
Auto-ignition temperature Not applicable
Decomposition temperature 225 °C (437°F)
Viscosity No data available
Bulk density Granular - 0.89-1.1 g/cc
Tablet - 1.16-1.9 g/cc
Specific gravity >1
Explosive properties Not available
Oxidising properties Oxidiser



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Particle size	Not available	

10. Stability and reactivity

Reactivity	Contact with small amounts of water may result in an exothermic reaction with the liberation of toxic fumes.
Stability	Stable under normal conditions
Possibility of hazardous reactions	Decomposes when heated, releasing poisonous and corrosive fumes.
Conditions to avoid	Heating above 225°C (437°F).
Materials to avoid	Do not package in paper or cardboard. Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases, oils, grease, sawdust, dry fire extinguishers containing monoammonium compounds.
Hazardous decomposition products	Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide.

11. Toxicological information

Likely Routes of Exposure	Skin Inhalation Eye contact Ingestion
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.



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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 12th 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.

12. Ecological information

Aquatic toxicity :

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

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

Persistence and degradability	Expected to biodegrade (Lit.)
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Bioaccumulative potential	Not expected to bioaccumulate (Lit.)
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Mobility in soil	Expected to be highly mobile in soil (Lit.)
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Germany, water endangering classes (WGK)	3
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13. Disposal considerations



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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.
Disposal of Packaging	Empty containers should be disposed of in accordance with all applicable laws and regulations

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: Certain shipping modes or package sizes may have exceptions from the transport regulations and may be classified as Consumer Commodity and Limited Quantity. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.
IMDG	Proper shipping name: Trichloroisocyanuric Acid Dry Class: 5.1 - Oxidizing substances Label: Oxidizing substances (5.1) Packing Group: II Mark: MARINE POLLUTANT
ICAO/IATA	Proper shipping name: Trichloroisocyanuric Acid Dry Label: Oxidizing substances (5.1) Class: 5.1 Packing group: II Marking: Environmentally hazardous substance

15. Regulatory information

USA	Reported in the EPA TSCA Inventory. This product is registered under FIFRA
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- EPA Registration no.	69470-19-75217	
- Emergency overview in accordance to EPA Master Label	DANGER Hazards to humans and domestic animals Corrosive Causes irreversible eye damage or skin burns May be fatal if inhaled May be fatal if absorbed through skin Strong oxidizing agent This pesticide is toxic to fish and aquatic organisms.	
- 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 Hazardous Substances list	Listed	
- New Jersey Right-to-Know Hazardous Substances list	Listed	
- Pennsylvania Right-to-Know Hazardous Substances 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 material causing immediate and serious toxic effects D2B Toxic materials causing other toxic effects	
EU	Reported in EINECS	
EC No.	201-782-8	
Japan	ENCS no. 5-1044 ISHL no. 5-1044	
Australia	Listed in AICS	



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New Zealand Inventory	Listed in NZIoC
China	
- China inventory	Listed in IECSC
Mexico	Listed in the National Inventory of Chemical Substances (INSQ).
Korea	Listed in the Korea Existing Chemicals Inventory (KECI), number KE-34101
Philippines	Listed in PICCS

16. Other information

This data sheet contains changes from the previous version in section(s)
2, 3, 5, 9, 10, 11, 12, 14, 15

All sections reformatted in accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)

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End of safety data sheet