



Paramount Pools & Spas

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If you have a Chemical Emergency phone 111 and ask for Fire
In case of Poisoning contact The National Poisons Centre on 0800 POISON (0800 764 766)
The most current version of this document is available online at www.poolquip.co.nz

MATERIAL SAFETY DATA SHEET (MSDS)

1.0 Product & Company Information

Revision Date: April 2011

Product Name: **Trichloroisocyanuric Acid, Dry**

Other Names: Tri-Chlor Tablets 200g, Tri-Chlor Pills 20g, TCIA, Chlorine Puck, TCIA,
1,3,5-TRICHLORO-s-TRIAZINE-2,4,6-TRIONE; TCCA.

Uses: Swimming Pool Water Sanitization

Distributor Details: As per header at top of page and any of our authorised retailers and distributors.

2.0 Hazard Data

Classified as Dangerous Goods according to NZS 5433:1999
Oxidizing Corrosive Dangerous For The Environment

Risk & Safety Phrases:

R8 Contact with combustible material may cause fire

R22	Harmful if swallowed
R31	Contact with acids liberates toxic gas
R36/37	Irritating to eyes and respirator system
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S1/2	Keep locked up and out of the reach of children
S8	Keep container dry
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S41	In case of fire and/or explosion, do not breathe fumes
S60	This material and its container must be disposed of as hazardous waste
S61	Avoid release to the environment. Refer to special instructions/Material Safety Data Sheets

ERMA New Zealand Approval Code: HSR001359

HSNO Hazard Classification: 5.1. 1B 6.1D 6.3A 8.3A 9.1A 9.2D 9.3B

3.0 Composition

Chemical Name:	TRICHLOROISOCYANURIC ACID
CAS Number:	97-90-1
Percentage Rating:	> 90.0

Chemical Name:	WATER
CAS Number:	7732-18-5
Percentage Rating:	< 0.5

4.0 First Aid Measures

Description of necessary measures according to routes of exposure.

Swallowed:	Rinse mouth with water. Give plenty of water to drink. Do NOT induce vomiting. If vomiting occurs, maintain the head lower than the trunk in order to prevent aspiration of the product into the lungs. Seek medical attention immediately.
Eyes:	Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek immediate medical attention.

Skin:	Remove contaminated clothing. Wash affected area with plenty of water for at least 15 minutes. Seek immediate medical attention. Wash clothing before reuse.
Inhaled:	Remove victim from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth to mouth method. Induce artificial respiration with the aid of a pocket mask equipped with a one way valve or other proper respiratory medical device.
Advice to Doctor:	Treat symptomatically based on individual reactions of patient and judgement of doctor. Probable mucosal damage may contraindicate the use of gastric lavage. Delayed effects from exposure to chlorine (decomposition product) can include shortness of breath, violent headaches, pulmonary oedema and pneumonia. Can cause corneal burns.
Aggravated medical	Target Organs: Kidneys, Liver, Respiratory System, Eyes and Skin. May cause kidney and liver damage. Long term exposure through skin contact may result in dermatitis. Long term exposure through eye contact may result in eye damage or blindness. Long term exposure through inhalation or ingestion may result in ulcers.

5.0 Fire Fighting Measures

Extinguishing Media	Only large quantities of water should be used as an extinguishing agent. Do NOT use dry chemicals, carbon dioxide or halogenated extinguishing agents. If excess water is not available, DO NOT attempt to extinguish the fire; use available water to prevent the spread of fire to adjacent property. A fire in the vicinity of trichloroisocyanuric acid should be extinguished in the most practical manner but avoid contaminating the material with the fire-fighting agent, including water.
Hazards from Combustion Products	Powerful oxidising agent. Not combustible, but will support the combustion of other material. Contact with other material may cause fire. Incompatible materials include acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds, strong reducing agents, strong bases, moist air, water, combustible materials, strong oxidising agents, and sources of ignition. When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide, carbon monoxide, cyanogen chloride, nitrogen trichloride, chlorine and phosgene. Decomposes violently upon heating liberating oxygen. If heated by outside source to temperatures above 240°C, this product will undergo self- sustaining decomposition with the evolution of heat and dense noxious gases, but no visible flame.
Special Protective Precautions and Equipment for Fire	Powerful oxidising agent. Not combustible, but will support the combustion of other material. Contact with other material may cause fire. Incompatible materials include acids, ammonia, bases, floor

Fighters	sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds, strong reducing agents, strong bases, moist air, water, combustible materials, strong oxidising agents, and sources of ignition. When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide, carbon monoxide, cyanogen chloride, nitrogen trichloride, chlorine and phosgene. Decomposes violently upon heating liberating oxygen. If heated by outside source to temperatures above 240°C, this product will undergo self- sustaining decomposition with the evolution of heat and dense noxious gases, but no visible flame.
Flammability Conditions	Product is a non-flammable solid. However, product is an oxidizer and will support combustion of other material.
Hazchem Code	1W

6.0 Accidental Release Measures

Emergency Procedures	Personnel involved in the clean up should wear full protective clothing. Prevent skin and eye contamination and inhalation of vapours; air supplied mask is recommended for large spills to avoid inhalation of toxic chlorine gas which is liberated when material is exposed to water. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use clean, non-sparking tools and equipment.
Methods and Materials for Containment and Clean Up	Contain and sweep/shovel up spills. DO NOT add water to spilled material. DO NOT use floor sweeping compounds to clean up spills. Avoid contact with other material. DO NOT return spilled material to original container. Collect and transfer to large volume of water - DO NOT use a metal container. Do NOT attempt to reseal contaminated drums. Do NOT transport wet/damp material. Damp material should be neutralised to a non-oxidising state. Do NOT use combustible materials such as paper towels to clean up spill. Keep combustibles away from spilled material. To Neutralise: Add sodium sulphite (3.5Kg/Kg of product). If no active chlorine remains, add soda ash (2.0Kg/Kg pf product) to effect complete neutralisation. Where a spill has occurred in a confined space or an inadequately ventilated enclosure and the material is damp and evolving chlorine, the rate of chlorine evolution can be reduced by covering the thinly spread solid with soda ash.

7.0 Handling & Storage

Precautions for Safe Handling	This product is highly reactive. Handle with extreme care. Do NOT drop, roll or skid containers. Avoid contaminating with any other materials, including other chlorine containing pool chemicals. Scoops, containers
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and other implements must be clean, dry and reserved for this material only. Do NOT allow water to get inside container. If liner is present, tie after each use. Never add water to this product. Always add product to large quantities of water. Do NOT add the product to any dispensing device containing residuals of other products. Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with skin, eyes and clothing. Do NOT inhale product dust/vapour. Use only in a chemical fume hood.

Conditions for Safe Storage (Including any compatibles)

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials including acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds, strong reducing agents, strong bases, moist air, water, combustible materials, strong oxidising agents, and sources of ignition. Protect from heat, fire, high humidity, sparks, direct sunlight and moisture. Product is hygroscopic (absorbs moisture from the air). Store under inert atmosphere. Store away from foodstuffs. Ensure pallets are clean and free from oil. Do NOT store in corrosives area. **This product has a UN Classification of 2468 and a Dangerous Goods Class 5.1 (Oxidiser) according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.**

Container Type

Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001.

8.0 Exposure Controls / Personal Protection

National Exposure Standards

Chlorine may be found in slight amounts in the head space of containers of this product. TRICHLORO-S-TRIAZINETRIONE: 0.5mg/m³ recommended TWA 8 hour(s) (ACL Salts)(Internal Occupational Exposure Limit); 1.5mg/m³ recommended STEL 15 minute(s) (ACL Salts)(Internal Occupational Exposure Limit) CHLORINE: 1ppm (3mg/m³) OSHA ceiling 0.5ppm (1.5mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 1ppm (3mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 0.5ppm ACGIH TWA 1ppm ACGIH STEL 1ppm (3mg/m³) MEXICO TWA 3ppm (9mg/m³) MEXICO STEL

Biological Limit Values

No information available on biological limits for this product.

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Protection

RESPIRATOR: Wear an approved N95 dust/fume/mist respirator if

vapours are generated and engineering controls are inadequate (AS1715/1716). EYES: Chemical safety goggles (AS1336/1337). HANDS: Butyl rubber gloves (AS2161). CLOTHING: Chemical-resistant coveralls, rubber apron and safety footwear (AS3765/2210).

9.0 Physical and Chemical Properties

Appearance	200g or 20g Tablets / Pills or White to Cream Crystalline Granules
Formula	C3Cl3N3O3
Odour	Chlorine odour
Vapour Pressure	Not Applicable
Vapour Density	Not applicable
Boiling Point	Not Available
Melting Point	225 – 251 Deg C
Solubility in Water	12g/L
Specific Gravity	2.07 (20 Deg C) (Water = 1)
Flash Point	225 Deg C (Test Unknown)
pH	2.8 – 3.5
Rate of Solid Materials	Not Applicable
Decomposition Temperature	225 – 230 Deg C
Additional Information	Molecular Weight: 232.41g/mol Bulk Density : 63-66 lbs/ft3 (loose)

10.0 Stability and Reactivity

Chemical Stability	Product is stable under directed conditions of use, storage and temperature. Strong Oxidising agent. Hygroscopic (absorbs moisture from the air).
Conditions to Avoid	Avoid excessive heat, sparks, flame, direct sunlight, static charges, generating dust, moisture, and high temperatures.
Incompatible Materials	Incompatible materials include acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds, strong reducing agents, strong bases, moist air, water, combustible materials, strong oxidising agents, and sources of ignition.
Hazardous Decomposition Products	When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide, carbon monoxide, cyanogen chloride, nitrogen trichloride, chlorine and phosgene. Decomposes violently upon heating liberating oxygen. If heated by outside source to temperatures above 240'C, this product will undergo self-sustaining decomposition with the evolution of heat and dense noxious gases, but no visible flame.
Hazardous Reactions	Hazardous polymerization has not been reported. Mixture with combustible materials (eg, wood, straw, cotton, paper, sugar or oil) are

readily ignited and may burn fiercely. On contact with alkaline materials or with nitrogen compounds, nitrogen trichloride fumes can form, which are very explosive. Wet material may also generate nitrogen trichloride. Reaction with water may lead to drum rupture. Reacts with water and acids to form toxic chlorine gas. This product may form explosive mixtures with calcium hypochlorite. Decomposes violently upon heating liberating oxygen.

11.0 Toxicological Information

Toxicity Data	Oral LD50 Rat : 406mg/Kg Oral LD50 Rat : 809mg/Kg Dermal LD50 Rabbit : 7600mg/Kg Draize test, rabbit, eye : 500mg Severe; Draize test, rabbit, skin: 500mg/24hr Moderate Primary Skin Irritation : Slightly corrosive (rabbit/24hr) Primary Eye Irritation : Corrosive (rabbit/24hr) DOT Skin Corrosion : Not corrosive (rabbit/24hr) Metabolic Studies (mice) : No tendency to accumulate in tissue, organs or glands. Carcinogenicity Studies : Not tumorigenic or carcinogenic under the conditions expected in sanitising swimming pools. Mutagenicity Studies : Non-mutagenic. Teratogenicity tests with the aqueous sodium salt (sodium cyanurate) on rats and rabbits were negative.
Health Effects – Acute	
Swallowed	Harmful if swallowed. Ingestion may cause immediate pain and severe burns of the mucous membranes. There may be discolouration of the tissues. Swallowing and speech may be difficult at first and then almost impossible. The effects on the esophagus and gastrointestinal tract may range from irritation to severe corrosion. Edema of the epiglottis and shock may occur.
Eye	Irritating to eyes. Direct eye contact may result in severe irritation, pain and burns, possibly severe, and permanent damage including blindness. The degree of injury depends on the concentration and duration of the contact. Repeated or prolonged contact may result in conjunctivitis.
Skin	Direct skin contact with wet material or moist skin may cause severe irritation, pain and possibly burns. This material is not considered to be a skin sensitiser, based on studies with guinea pigs. Repeated or prolonged contact may result in dermatitis.
Inhaled	Irritating to the respiratory system. This material in the form as sold is not expected to produce respiratory effects. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. May cause severe irritation of the respiratory tract with coughing, choking, pain, and possibly burns of the mucous membranes. In some cases, pulmonary edema may develop, either immediately or more often within a period of 5-72 hrs. The symptoms may include tightness in the chest, dyspnea, frothy sputum, cyanosis and dizziness. Physical findings may include moist rales, low blood pressure and high pulse pressure. Severe cases may be fatal. Repeated or prolonged exposure may cause inflammatory and ulcerative changes in the upper respiratory tract.

12.0 Ecological Information

Ecotoxicity	No data available
Persistence and Degradability	This material is subject to hydrolysis. Cyanuric acid produced by hydrolysis is biodegradable. This material is believed not to persist in the environment. Hydrolysis reaction occurs in minutes. None of the hydrolysis products are bioaccumulative or persistent. Photoreactivity of free available chlorine is 30 minutes at 30'C (pH7). Half-life increases to as much as 8 hours in the presence of cyanuric acid.
Mobility	No information available on mobility for this product
Environmental Fate (Exposure)	Do NOT let product reach waterways, drains and sewers. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Bioaccumulative Potential	This material is believed not to bioaccumulate.

13.0 Disposal Considerations

Disposal	Use or reuse if possible. This material is a registered pesticide. Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility. Do NOT put product, spilled product, or filled or partially filled containers into the trash or waste compactor. Contact with incompatible materials could cause a reaction and fire. Do NOT transport wet or damp material. Damp material should be neutralised to a non-oxidising state.
Special Precautions for Land Fill or Incineration	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'.

14.0 Transport Information

Land and Sea Transport

UN Number	2468
Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Dangerous Goods Class	5.1 Oxidising Agent
Packing Group	II
Hazchem Code	1W

15.0 Regulatory Information

Classified as hazardous according to The Australian Safety and Compensation Council (ASCC) and Annex I European Directive 67/548/EEC. EINECS No: 231-908-7 Calcium Hypochlorite

Poisons Schedule	5
EPG	31
AICS Name	1,3,5-TRIAZINE-2,4,6(1H,3H,5H)-TRIONE,1,3,5-TRICHLORO-
NZ Toxic Substance	4
HSNO Hazard Classification	5.1.1B 6.1D 6.3A 8.3A 9.1A 9.2D 9.3B
ERMA Approval Code	HSR001359

16.0 Other Information

None