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MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Revision Date JULY 2011

Product Name PUREX STABILIZED CHLORINE

Other Names SODIUM DICHLOROISOCYANURATE; TROCLOSENE SODIUM, DIHYDRATE; SODIUM DICHLORO-S-TRIAZINE TRIONE; SDIC.

Uses Used as the active ingredient in dry bleaches, dishwashing compounds, scouring powders, detergent sanitisers, swimming pool disinfectants, water and sewage treatment, replacement for calcium hypochlorite. Also used as an anti-felting treatment for wool and a textile printing pre-treatment.

Contact Information

Organisation	Location	Telephone	Ask For
Price Chemicals Pty Ltd	10 Pile Rd Somersby NSW 2250 Australia	+61 2 97333000	Technical Officer
Poison Information Centre	Westmead NSW Australia	131126	
Chemcall 24 Hour Emergency Number	Australia	1800-127406	
	New Zealand	0800-243622	
National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

Hazardous according to criteria of NOHSC/ASCC.
Dangerous According to the Australian Code for the Transport of Dangerous Goods.
Classified as Dangerous Goods According to NZS 5433:1999.
HARMFUL DANGEROUS FOR THE ENVIRONMENT

Risk Phrases

R22	Harmful if swallowed.
R31	Contact with acids liberates toxic gas.
R36/37	Irritating to eyes and respiratory system.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S2	Keep out of 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 HSR003823

HSNO Hazard Classification 6.1D 6.4A 9.1A 9.3C

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA Web Site should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	CAS Number	Proportions (%)
SODIUM DICHLOROISOCYANURIC ACID DIHYDRATE	[51580-86-0]	100.0

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure.
Swallowed Rinse mouth with water. Give water to drink provided victim is conscious. Do NOT induce vomiting. If vomiting occurs naturally, rinse mouth and repeat administration of water. Seek medical attention immediately.

Eye Immediately flush eyes with water for at least 15 minutes. Do NOT interrupt flushing. Take care not rinse contaminated water into the non-affected eye or onto the face. Seek immediate medical attention.

Skin Immediately flush skin with soap and water for at least 15 minutes. Do NOT interrupt flushing. Under running water, remove contaminated clothing. Transport to the nearest medical facility for treatment.

Inhaled Remove victim from exposure to fresh air. If not breathing, apply artificial respiration using a mask. If breathing is difficult, give oxygen. Seek medical attention immediately.

Advice to Doctor Treat symptomatically based on individual reactions of patient and judgement of doctor. Establish a patient airway with suction where necessary. Watch for signs of respiratory insufficiency and assist ventillation as necessary. Administer oxygen by non-rebreather mask at 10-15L/min. Monitor and treat, where necessary, for pulmonary odema and shock. Anticipate Seizures. Do NOT use emetics. Where ingestion is suspected, rinse mouth and give up to 200ml water (5mL/Kg Recommended) for dilution where patient is able to swallow, has strong gag reflex and does not drool. ADVANCED TREATMENT: Consider orotracheal or nasotracheal intubation for airway control in unconcious patient or where respiratory arrest has occurred. Positive pressure ventillation using a bag-valve mask might be of use. Monitor and treat as necessary for arrhythmias. Start an IV D5W TKO. If signs of hypo- volaemia are present, use lactated Ringers solution. Fluid overload may create complications. Drug therapy should be considered for pulmonary oedema. Hypo- tension with signs of hypovalaemia requires the cautious administration of

Aggravated medical conditions caused by exposure fluids. Fluid overload might create complications. Treat seizures with diazepam. Proparacaine hydrochloride should be used to assist eye irrigation. Effects from exposure to chlorine gas include pulmonary oedema which may be delayed. Observation in hospital for 48hrs is recommended. If burn is present, treat as any thermal burn, after decontamination. Excellent warning properties force rapid escape of personnel from chlorine gas thus most inhalations are mild to moderate. Severe inhalation should result in hospitalisation and treat- ment for respiratory emergency. Any chlorine inhalation in an individual with compromised pulmonary function (COPD) should be regarded as a severe inhalation and respiratory emergency. Diagnosed asthmatics and those people suffering from certain types of chronic bronchitis should receive medical approval before being empolyed. AGGRAVATED MEDICAL CONDITIONS CAUSED BY EXPOSURE: Long term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There is some evidence from animal testing that exposure to this material may result in toxic effects to the unborn baby. Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on x-ray. Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis). Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as Reactive Airways Dysfunction Syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Industrial bronchitis on the other hand, is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (usually particulate in nature) and is completely reversible after exposure ceases.

5. 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 foam. If excess water is not available, DO NOT attempt to extinguish the fire. A fire in the vicinity of Sodium Dichloroisocyanurate should be extiguished in the most parctical manner but avoid contaminating this product with fire- fighting agent, including water. Decomposes on contact with water to produce toxic chlorine gas, and in the presence of small amounts of water, the explosive gas nitrogen trichloride.

Hazards from Combustion Products Powerful oxidizing solid. Will accelerate burning when involved in a fire. This strong oxidiser may cause a fire as it contacts with combustible materials. Containers may explode when heated. Incompatible with flammable, organic and combustible materials, ammonium salts, nitrogenous material, acids, water, reducing agents, strong bases, calcium hypochlorite, metals and sources if ignition. Decomposes on contact with water to produce toxic chlorine gas, and in the presence of small amounts of water, the explosive gas nitrogen trichloride. Also decomposes to hypochlorous acid and cyanuric acid. Combustion products include carbon monoxide, carbon dioxide, hydrogen chloride, phosgene, nitrogen oxides, and chlorides.

Special Protective Precautions and Equipment for Fire Fighters Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources.

Flammability Conditions Product is a strong oxidiser. The heat of reaction involving reducing agents, contaminants or combustibles may cause ignition. Oxygen provided makes the fire fierce and self-sustaining. Smothering action may not be effective for established fire. Intense heat may cause detonation.

Additional Information
Hazchem Code 2Z

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures Personnel involved in the clean up should wear full protective clothing. 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 Soak up spilled product using absorbent non-combustible material such as sand, earth, inert material or vermiculite. Do NOT use sawdust or cellulose. Avoid all contact with organic matter including fuel, solvents, paper, cloth or other incompatibles as product may be violently or explosively reactive. Do NOT return spilled material to original container, and do NOT mix fresh with recovered material. Do NOT add small amounts of water to sodium dichloroisocyanurate. Collect and transfer to large volume of water - do NOT use a metal container. To neutralise, as sodium sulfite (2.4Kg/Kg product). If no active chlorine remains, add soda ash (1.1Kg/Kg product) to effect complete neutralisation. Where a spill has occured in a confined space or an inadequately ventillated enclosure and the material is damp and evolving chlorine, the rate of chlorine evolution may be reduced by covering the thinly spread solid with soda ash.

7. HANDLING AND STORAGE

Precautions for Safe Handling 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 eyes, skin and clothing. Do not inhale product dust/fumes. Do NOT allow product to get damp. Do NOT mix with other chemicals. Use only clean utensils for handling as remnants of other products may cause a violent reaction leading to fire or explosion. Do NOT repack or return unused portions to original containers. Withdraw only sufficient amounts for immediate use. Do NOT use aluminium, galvanised, or tin-plated containers. Do NOT use unlined steel containers. Glass may be used.

Conditions for Safe Storage (Including Any Incompatibles) 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 such as flammable, organic and combustible materials, ammonium salts, nitrogenous material, acids, water, reducing agents, strong bases, calcium hypochlorite, metals and sources of ignition. Protect from direct sunlight, moisture, food and feedstuffs. Keep dry, reactive with water, may lead to drum rupture. This product is hygroscopic. This product has a UN classification of 3077 and a Dangerous Goods Class 9 (Miscellaneous) according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.

Container Type Store in original packaging as approved by manufacturer. Do NOT use aluminium, galvanised, or tin-plated containers. Do NOT use unlined steel containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the exposure standard for dust not otherwise specified is 10mg/m3 (for inspirable dust) and 3mg/m3 (for respirable dust). A time weighted average (TWA) has been established for chlorine (worksafe Aust) of 3mg/m3, (1ppm)(Peak Limitation). The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8hr working day for a 5 day working week. Peak Limitation: a ceiling concentration which should not be exceeded over a measurment period which should be as short as possible but not exceeding 15 minutes. Exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals, they are not a measure of relative toxicity.

Biological Limit Values No information available on biological limit values 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 positive pressure, full-facepiece SCBA where engineering controls are inadequate (AS1715/1716). EYES: Wear a full face shield or chemical goggles (AS1336/1337). HANDS: Wear PVC protective gloves (AS2161). CLOTHING: Wear PVC protective suit and shoes are to be protected by PVC over shoes. (AS3765/2210).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance White Crystalline Powder, Granules or Tablets.

Formula C3HCl2N3O3.2H2O.Na

Odour Slight Chlorine odour

Vapour Pressure Not applicable.

Vapour Density Not applicable.

Boiling Point Not applicable.

Melting Point 230 - 251'C deg C

Solubility in Water 25g/100mL (25'C)

Specific Gravity 0.91 - 1.00 (Water = 1)

Flash Point Test Unknown 230

pH 5.5 - 7.0 ( )

Lower Explosion Limit Not applicable.

Upper Explosion Limit Not applicable.

Ignition Temperature Not applicable.

Specific Heat Value Not applicable.

Particle Size Not applicable.

Volatile Organic Compounds (VOC) Content Not applicable.

Evaporation Rate Not applicable.

Viscosity Not applicable.

Percent Volatile Not applicable.

Octanol/Water partition coefficient Not applicable.

Saturated Vapour Concentration Not applicable.

Additional Characteristics Not applicable.

Flame Propagation/Burning Rate of Solid Materials Not applicable.

Properties of Materials That May Initiate or Contribute to Fire Intensity

Not applicable. **Potential for Dust Explosion** Dust may form explosive mixtures with the air.

Reactions that Release Flammable Gases Not applicable.

Fast of Intensely Burning Characteristics Not applicable.

Non-flammables That Could Contribute Unusual Hazards to a Fire Not applicable.

Release of Invisible Flammable Vapours and Gases Not applicable.

Decomposition Temperature 230 - 240'C

Additional Information State : Divided solid Molecular Weight : 220.95g/mol

10. STABILITY AND REACTIVITY

Chemical Stability Product is stable under directed conditions of use, storage and temperature.

Conditions to Avoid Avoid excessive heat, dusty conditions, direct sunlight, moisture, static discharges and high temperatures.

Incompatible Materials Incompatible with flammable, organic and combustible materials, ammonium salts, nitrogenous material, acids, water, reducing agents, strong bases, calcium hypochlorite, metals and sources of ignition.

Hazardous Decomposition Products Decomposes on contact with water to produce toxic chlorine gas, and in the presence of small amounts of water, the explosive gas nitrogen trichloride. Also decomposes to hypochlorous acid and cyanuric acid. Decomposes in alkaline conditions evolving carbon dioxide, nitrogen and chloramine gases. Combustion products include carbon monoxide, carbon dioxide, hydrogen chloride, phosgene, nitrogen oxides, and chlorides.

Hazardous Reactions Hazardous polymerisation will not occur. Sodium Dichloroisocyanurate reacts with water and acids evolving toxic chlorine gas and in the presence of small amounts of water, the explosive gas nitrogen trichloride. Decomposes in alkaline conditions evolving carbon dioxide, nitrogen and chloramine gases.

11. TOXICOLOGICAL INFORMATION

Toxicity Data Oral LDLo Human : 3570mg/Kg Oral LD Human : 3570mg/Kg Oral LD50 Rat : 1420mg/Kg Oral LD Rabbit : 2500mg/Kg Dermal LD50 Rabbit : 6000mg/Kg Dermal LD50 Rabbit : 3160 - 5100mg/Kg Inhalation LCLo Human : 500ppm/5 minutes Inhalation LC50 Rat : 293ppm/1 hour Eye Irritation Rabbit : 10mg/24hr - Moderate Skin Irritation Rabbit : SEVERE

Health Effects - Acute
Swallowed Harmful if swallowed. Swallowing may result in nausea, vomiting, diarrhoea, and gastrointestinal irritation. Animal experiments indicate that ingestion of less than 150g may be fatal or may produce serious damage to health of the individual. Single and repeated dose studies in animals by oral and skin routes of cyanuric acid and some cyanurates generally show a degree of toxicity. At high doses, several studies showed kidney damage. Triazine derivatives have been shown to cause structural damage to the liver in animmal studies.

Eye Irritating to eyes. This product may produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.

Skin Contact with skin may result in irritation. This material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure may cause contact dermatitis, characterised by redness, swelling and blistering.

Skin contact is not thought to produce harmful health effects. Solution of material in moiture on the skin, or perspiration may incease irritant effects. Entry into the blood-stream, through for example, cuts, abrasions or lesions may produce systemic injury with harmful effects.

Inhaled Irritating to the respiratory system. Irritant to the mucous membranes of the respiratory tract. Inhalation of high concentrations may result in shortness of breath, chest pain, severe headache and lung damage including pulmonary oedema. Effects may be delayed. Inhalation of vapour is hazardous and may be fatal. Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventillated areas. Vapour is heavier than air and may displace and replace air in the breathing zone, acting as a simple asphyxiant. This may happen with little warning of the overexposure. Inhalation of vapours and aerosols may produce toxic effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity On the basis of the available evidence concerning properties and predicted or observed environmental fate and behaviour, the material may present a danger to the structure and/or functioning of the stratospheric ozone layer. Do NOt allow product to come in conact with surface waters or to intertidal areas below the mean high water mark. If introduced in concentrations not exceeding 10mg/L, the decomposing activity of the activated sludge in an operating water treat- ment plant should not be affected. Fish Toxicity LC50/48hr : < 1mg/L CHLORINE: Hazardous Air polutant : Yes Fish LC50/96hr : 0.44mg/L Daphnia Magna EC50/48hr: 0.49mg/L The material is classed as an ecotoxin because the Fish LC50 (96hrs) is less than or equal to 0.1mg/L

Persistence and Degardability Following release of ozone-depleting substances into the atmosphere, they eventually enter the troposphere, where they persist undegraded. Subsequently, they diffuse into the stratosphere and degrade slowly. In the stratosphere, these substances react slowly with oxygen free radicals and release halogen atoms, which catalytically destroy ozone, producing irreversible damage. Use of these substances has been restricted by the Montreal Protocol on Substances that Deplete the Ozone Layer (1988) and also by US EPA Regulation 3093/94. Ozone depleters do not degrade readily in the ambient atmosphere; some have a half-life of more than 100 years for the photochemical reaction producing hydroxy radicals.

Mobility Soluble in water.

Environmental Fate (Exposure) Do NOT allow product to reach waterways, drains, sewers or soil. Dangerous for the environment.

Bioaccumulative Potential 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.

13. DISPOSAL CONSIDERATIONS

Disposal 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. Add this product into dilute solution of sodium hydroxide or soda ash while stirring gradually and neutralise that solution with reduction agents such as sodium sulphite or sodium thiosulpahte. Adjust pH with sulphuric acid or hydrochloric acid to make neutral solution and dispose.

Special Precautions for Land Fill or Incineration Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name ADG

UN Number 3077

Shipping Name PUREX STABILIZED CHLORINE, (Sodium Dichloroisocyanuric Acid Dihydrate)

Dangerous Goods Class 9 Miscellaneous Dangerous Substance

Subsidiary Risk Not applicable.

Pack Group III

Precaution for User HARMFUL DANGEROUS FOR THE ENVIRONMENT

Hazchem Code 2Z

EPG 47 LOW TO MODERATE HAZARD SUBSTANCES

Special Provision Not applicable.

Sea Transport (New Zealand)

Regulation Name IMDG

UN Number 3077

Shipping Name PUREX STABILIZED CHLORINE (Sodium Dichloroisocyanuric Acid Dihydrate)

Dangerous Goods Class 9 Miscellaneous Dangerous Substance

Subsidiary Risk Not applicable.

Pack Group III

Precaution for User HARMFUL DANGEROUS FOR THE ENVIRONMENT

Hazchem Code 2Z

EPG 47 LOW TO MODERATE HAZARD SUBSTANCES

Special Provision Not applicable.

Air Transport

Regulation Name IATA

UN Number 3077

Shipping Name PUREX STABILIZED CHLORINE. (Sodium Dichloroisocyanuric Acid Dihydrate)

Dangerous Goods Class 9 Miscellaneous Dangerous Substance

Subsidiary Risk Not applicable.

Pack Group III

Precaution for User HARMFUL DANGEROUS FOR THE ENVIRONMENT

Hazchem Code 2Z

EPG 47 LOW TO MODERATE HAZARD SUBSTANCES

Special Provision Not applicable.

Land Transport (New Zealand)

Regulation Name NZS5433

UN Number 3077

Shipping Name PUREX STABILIZED CHLORINE. (Sodium Dichloroisocyanuric Acid Dihydrate)

Dangerous Goods Class 9 Miscellaneous Dangerous Substance

Subsidiary Risk Not applicable.

Pack Group III

Precaution for User HARMFUL DANGEROUS FOR THE ENVIRONMENT

Hazchem Code 2Z

EPG 47 LOW TO MODERATE HAZARD SUBSTANCES

Special Provision Not applicable.

15. REGULATORY INFORMATION

Classified as hazardous according to The Australian Safety and Compensation Council (ASCC) and Annex I European Directive 67/548/EEC. EINECS No: 220-767-7
TROCLOSENE SODIUM
Poisons Schedule 6

EPG 47

AICS Name 1,3,5-TRIAZINE-2,4,6(1H,3H,5H)-TRIONE,1,3-DICHLORO-, SODIUM SALT, DIHYDRATE.

NZ Toxic Substance N

HSNO Hazard Classification 6.1D 6.4A 9.1A 9.3C

ERMA Approval Code HSR003823

16. OTHER INFORMATION

Literature References No data available.

Sources for Data No data available.

Legend to Abbreviations and Acronyms

< less than

> greater than

ADG Australian Dangerous Goods Code

AICS Australian Inventory of Chemical Substances

CAS Chemical Abstracts Service (Registry Number)

cm2 square centimetres

CO2 Carbon Dioxide

COD Chemical Oxygen Demand

deg C ('C) degrees Celsius

ERMA Environmental Risk Management Authority

g gram

g/cm3 grams per cubic centimetre

g/l grams per litre

HSNO Hazardous Substance and New Organism

IATA International Air Transport Association Dangerous Goods Regulations

IDLH Immediately Dangerous to Life and Health

IMDG International Maritime Dangerous Goods Code

immiscible liquids are insoluble in each other

kg kilogram

kg/m3 kilograms per cubic metre

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals

ltr Litre

m3 cubic metre

mbar millibar

mg milligram

mg/24H milligrams per 24 hours

mg/kg milligrams per kilogram

mg/m3 milligrams per cubic metre

Misc miscible

miscible liquids form one homogeneous liquid phase regardless of the amount of either component present

mm millimetre

mPa.s milli Pascal per second

N/A Not Applicable

NOHSC National Occupational Health and Safety Commission

OECD Organization for Economic Co-operation and Development

PEL Permissible Exposure Limit

ppb parts per billion

ppm parts per million

ppm/2h parts per million per 2 hours

ppm/6h parts per millionper 6 hours

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne tonne

TWA Time Weighted Average

ug/24H micrograms per 24 hours

UN United Nations (number)

wt weight