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MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Revision Date JULY 2011

Product Name PUREX BROMINE TABLETS

Other Names 2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL-; 1-BROMO-3-CHLORO-5,5-DIMETHYLIMIDAZOLIDINE-2,4-DIONE.

Uses Used as an aid in the control of bacterial, fungal, and algae slimes in evaporation condensers, heat exhcange water towers, infuent systems such as flow through filters, lagoons, etc, industrial wet scrubber systems and brewery pasteurizers. Algaecide, fungicide, bactericide and/or slimicide for recirculating cooling water systems. Anti-microbial for pulp and for manufacture of non food grades of paper and paperboard. Anti-microbial for enhaced oil recovery.

Contact Information

Organisation	Location	Telephone	Ask For
Price ChemicalsPty 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.
CORROSIVE OXIDIZING
Risk Phrases

R8 Contact with combustible material may cause fire.

R22 Harmful if swallowed.

R31 Contact with acids liberates toxic gas.

R34 Causes burns.

R43 May cause sensitisation by skin contact.

Safety Phrases

S2	Keep out of reach of children.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28:BRCHDI	After contact with skin, wash immediately with plenty of soap and water.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

ERMA New Zealand Approval Code HSR002632

HSNO Hazard Classification 5.1.1B 6.1D 6.5B 8.2B 8.3A

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 (%)
1-Bromo-3-chloro-5,5-dimethylhydantoin	[16079-88-2]	> 98.0

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. Seek medical attention immediately.

Eye Immediately flush eyes with plenty of water for 15 minutes holding eyelids open. Seek immediate medical attention.

Skin Remove contaminated clothing. Wash affected area with plenty of soap and water for 15 minutes. Wash clothing before reuse. Seek medical attetion immediately.

Inhaled Remove victim from exposure to fresh air. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth to mouth resuscitation. Seek medical attention immediately.

Advice to Doctor Treat symptomatically based on individual reactions of patient and judgement of doctor. NOTE: For advice in an emergency, contact a Poisons Information Centre (Australia 13-11-26 or New Zealand 0800-764-766).

Aggravated medical conditions caused by exposure May cause liver and kidney damage. Effects may be delayed.

5. FIRE FIGHTING MEASURES

Extinguishing Media In case of fire, the ONLY appropriate extinguishing media is WATER.

Hazards from Combustion Products Product is a strong oxidizer. Avoid generating dust. Contamination with moisture, organic matter, or other chemicals may start a chemical reaction with generation of heat, hazardous gas, and possible fire/explosion. Incompatible with strong oxidants reducing agents, combustible materials, water, acids (minerals, non-oxidizing/oxidizing, and organic), and ignition sources. When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, hydrogen bromide, or bromine, carbon dioxide, nitrogen and irritating/toxic fumes and gases.

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 non-flammable solid. Additional Information

Hazchem Code 2W

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures Personnel involved in the clean up should wear full protective clothing. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Do not allow product to reach drains, sewers or waterways. If the product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.

Methods and Materials for Containment and Clean Up Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled chemical waste container and dipose of promptly as hazardous waste. Once material pick up is complete, flush spill site with plenty of water to eliminate any residue.

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.

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 including strong oxidants, reducing agents, combustible materials, water, acids (mineral, non-oxidizing, oxidizing, and organic), and ignition sources. Protect from heat, sparks, flame, and moisture. This product has a UN classification of 3085 and a Dangerous Goods Class 5.1 (Oxidizing agent) and a Subsidiary Risk 8 (corrosive) 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. Store in original packaging as approved by manufacturer.

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).

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 effective dust mask where dusts/vapours are generated and engineering controls are inadequate (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Wear impervious gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance White or Creamish white Solid

Formula C5H6BrC1N2O2

Odour Strong halogen odour, or faint odour of bromine.

Vapour Pressure Not applicable.

Vapour Density Not applicable.

Boiling Point Not applicable.

Melting Point Not applicable.

Solubility in Water Not applicable.

Specific Gravity Not applicable.

Flash Point Not applicable.

pH 2.88 ( )

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 Possible explosion Hazard when in contact with incompatible materials.

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 158 - 162'C

Additional Information Molecular Weight: 241.5g/mol Active Bromine : 31-35% Active Chlorine : 13-17%

10. STABILITY AND REACTIVITY

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

Conditions to Avoid Avoid excessive heat, sparks, flame, direct sunlight, static charges, generating dust, moisture, and high temperatures.

Incompatible Materials Incompatible with strong oxidants, reducing agents, combustible materials, water, and ignition sources.

Hazardous Decomposition Products When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, hydrogen bromide or bromine, carbon dioxide, nitrogen, irritating and highly toxic fumes and gases.

Hazardous Reactions Hazardous Polymerization has not been reported.

11. TOXICOLOGICAL INFORMATION

Toxicity Data No toxicological information available for this product.

Health Effects - Acute

Swallowed Harmful if swallowed. This product is poisonous and may be fatal if swallowed.

Eye Irritant to eyes. Corrosive to tissues. Direct contact causes severe eye irritation. Can cause irreversible eye damage.

Skin Irritant to skin. Corrosive to tissues. Direct contact causes skin irritation.

Inhaled Irritating to nose and throat.

12. ECOLOGICAL INFORMATION

Ecotoxicity No ecological information available for this product.

Persistence and Degardability No informtaion on persistance and degradability for this product.

Mobility No information available on mobility for this product.

Environmental Fate (Exposure) Do not allow contamination of waterways, drains, and sewers.

Bioaccumulative Potential No information available on bioaccumulation for this product.

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.

Special Precautions for Land Fill or Incineration Dispose of in an incinerator or landfill approved for pesticide containers. Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name ADG Code

UN Number 3085

Shipping Name OXIDIZING SOLID CORROSIVE N.O.S (BROMOCHLORO-5, 5-DIMETHYLHYDANTOIN)

Dangerous Goods Class 5.1 Oxidising Agent (not an organic peroxide)

Subsidiary Risk 8 Corrosive Substance

Pack Group II

Precaution for User CORROSIVE OXIDIZING

Hazchem Code 2W

EPG 31 OXIDIZING SUBSTANCES

Special Provision Not applicable.

Land Transport (New Zealand)

Regulation Name NZS5433

UN Number 3085

Shipping Name OXIDIZING SOLID CORROSIVE N.O.S (BROMOCHLORO-5, 5-DIMETHYLHYDANTOIN)

Dangerous Goods Class 5.1 Oxidising Agent (not an organic peroxide)

Subsidiary Risk 8 Corrosive Substance

Pack Group II

Precaution for User CORROSIVE OXIDIZING

Hazchem Code 2W

EPG 31 OXIDIZING SUBSTANCES

Special Provision Not applicable.

Sea Transport

Regulation Name IMDG Code

UN Number 3085

Shipping Name OXIDIZING SOLID CORROSIVE N.O.S (BROMOCHLORO-5, 5-DIMETHYLHYDANTOIN)

Dangerous Goods Class 5.1 Oxidising Agent (not an organic peroxide)

Subsidiary Risk 8 Corrosive Substance

Pack Group II

Precaution for User CORROSIVE OXIDIZING

Hazchem Code No data available.

EPG 31 OXIDIZING 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: 240-230-0 1-bromo-3-chloro-5,5-dimethylimidazolidine-2,4-dione
Poisons Schedule 6

EPG 31

AICS Name 2,4-IMIDAZOLIDINEDIONE,1-BROMO-3-CHLORO-5,5-DIMETHYL-

NZ Toxic Substance N

HSNO Hazard Classification 5.1.1B 6.1D 6.5B 8.2B 8.3A

ERMA Approval Code HSR002632

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

This MSDS summarises Price Chemicals Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Price Chemicals Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.

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