



Infosafe No™	1CH1E	Issue Date : June 2020	RE-ISSUED by CHEMSUPP
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Product Name : **BROMINE**

Classified as hazardous

1. Identification

GHS Product Identifier	BROMINE	
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)	
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia	
Telephone/Fax Number	Tel: (08) 8440-2000	
Emergency phone number	CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)	
Recommended use of the chemical and restrictions on use	Manufacture of ethylene dibromide (antiknock gasoline), organic synthesis, inorganic salts, bleaching, water purification, solvent, intermediate for fumigants (methyl bromide), analytical reagent, fire-retardant for plastics, dyes, pharmaceuticals, photography, shrink-proofing wool and laboratory reagent.	
Other Names	<u>Name</u>	<u>Product Code</u>
	BROMINE Liquid AR	BA039
	BROMINE Liquid LR	BL039

Other Information

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Hazardous to the Aquatic Environment - Acute Hazard: Category 1 Acute Toxicity - Inhalation: Category 2 Skin Corrosion/Irritation: Category 1A Eye Damage/Irritation: Category 1
Signal Word (s)	DANGER
Hazard Statement (s)	H314 Causes severe skin burns and eye damage. H330 Fatal if inhaled. H400 Very toxic to aquatic life.
Pictogram (s)	Skull and crossbones, Corrosion, Environment



Precautionary statement – Prevention	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment.
Precautionary statement – Response	P280 Wear protective gloves/protective clothing/eye protection/face protection. P284 Wear respiratory protection. P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P363 Wash contaminated clothing before reuse. 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. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Precautionary statement – Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P404 Store in a closed container.



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Precautionary statement – Disposal P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Chemical Characterization	Liquid				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Bromine	7726-95-6	3.2-100 %		
Other Information	Bromine water contains approximately 3.2 g bromine in 100 g water.				

4. First-aid measures

Inhalation	Remove victim to fresh air. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek urgent medical assistance.
Ingestion	Rinse mouth thoroughly with water immediately. Give plenty of water to drink. Do not induce vomiting. Seek immediate medical assistance.
Skin	Wash affected areas with copious quantities of water. Remove contaminated clothing and wash before re-use. Seek immediate medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential. Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor at once.

5. Fire-fighting measures

Hazards from Combustion Products	Liberates toxic fumes in fire including hydrogen bromide gas.
Specific Methods	Small fire: Use dry chemical, CO ₂ or water spray. If safe to do so, move undamaged containers from fire area. Large fire: Use dry chemical, CO ₂ , foam or water spray - Do not use water jets. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.
Specific hazards arising from the chemical	Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Containers may explode when heated.
Hazchem Code	2XE
Precautions in connection with Fire	Wear SCBA and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for these materials.

6. Accidental release measures

Spills & Disposal	ELIMINATE all ignition sources (no smoking, flares, sparks or flames) within at least 50m. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Cover with DRY earth, sand or other non-combustible material followed by plastic sheet to minimize spreading or contact with rain. DO NOT GET WATER INSIDE CONTAINERS.
Personal Precautions	Evacuate the area of all non-essential personnel. Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms. Wear respiratory protection.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)



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Clean-up Methods - Small Spillages - Absorb or contain liquid with sand, earth or spill control material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.

Clean-up Methods - Large Spillages - Seek expert advice on handling and disposal.

Environmental Precautions - Avoid release to the environment.

7. Handling and storage

Precautions for Safe Handling - Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid prolonged or repeated contact with skin and clothing. Contaminated clothing should be removed and washed before reuse.

Conditions for safe storage, including any incompatibilities - Keep container tightly closed in a dry, well-ventilated place away from direct sunlight and other sources of heat or ignition. Store at room temperature (15 - 25 °C). May develop pressure. Open carefully. Do not use polyethylene.

Corrosiveness - Attacks most metals, including platinum and palladium. Reacts vigorously with aluminium and explosively with potassium. Dry bromine does not attack lead, nickel, magnesium, tantalum, iron or zinc.

Storage Regulations - Refer Australian Standard AS 3780 - 1994 'The storage and handling of corrosive substances'.

Other Information - Vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks).

8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	Bromine	2	0.3	0.66	0.1	
Other Exposure Information	<p>These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace 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.</p> <p>A time weighted average (TWA) has been established for Bromine (Safe Work Australia) of 0.66 mg/m3, (0.1 ppm). The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. A Short term exposure limit (STEL) has been established for Bromine (Worksafe aust) of 2 mg/m3, (0.3 ppm). The exposure value at the STEL is the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.</p>					
Appropriate engineering controls	Provide sufficient ventilation to keep airborne levels below the exposure limit. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required.					
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.					
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.					
Hand Protection	Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.					
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.					
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.					



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Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals. Recommendation: Acid-resistant clothing.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Liquid
Appearance	Dark reddish-brown liquid.
Odour	Pungent, suffocating odour.
Melting Point	-7 - -7.2 °C
Boiling Point	58.8 °C
Solubility in Water	Slightly soluble (42 g/L @ 20 °C)
Solubility in Organic Solvents	Soluble in common organic solvents.
Specific Gravity	3.12
Vapour Pressure	220 mmHg @ 20 °C
Vapour Density (Air=1)	5.5 g/L @ 20 °C
Viscosity	(dynamic, 20 °C): 1 mPa*s (kinetic, 20 °C): 0.314 mm ² /s
Flammability	Non combustible material. Vigorously supports combustion.
Molecular Weight	159.81
Other Information	Refractive index: 1.647 @ 15 °C Specific heat: 0.107 cal/g Dielectric constant: 3.2

10. Stability and reactivity

Chemical Stability	Stable under normal use conditons.
Conditions to Avoid	Sensitive to heating. Incompatibles.
Incompatible Materials	Combustible material, strong oxidizing agents, alcohols, aldehydes, aluminium, amides, amines, ammonia, arsenites, azides, carbides, ketones, organic nitro compounds, organic substances/reducing agents, ethers, phenols, fluorine, phosphides, alkali hydroxides, alkali oxides, halogen oxides, halogen-halogen compounds, hydrides, lithium silicide, metals, non-metals, ozone, metallic salts, ferrous salts, mercurous salts, hypophosphites, phosphorus and potassium.
Hazardous Decomposition Products	Liberates toxic fumes in fire including hydrogen bromide gas.
Possibility of hazardous reactions	Reacts violently with many organic compounds, many metals and phosphorus. Reacts vigorously with aluminium and explosively with potassium.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 2600 mg/kg.
Acute Toxicity - Inhalation	LC50 (rat): 2700 mg/m ³ .
Ingestion	Can be absorbed into the body by ingestion. May cause sore throat, vomiting, diarrhea and abdominal spasm. Burns of mucous membranes.
Inhalation	Very toxic by inhalation. Substance may be absorbed into the body by inhalation. Corrosive to the respiratory tract. May cause sore throat, irritation, coughing, shortness of breath, laboured breathing, dizziness, headache, lacrimation, epistaxis, feeling of oppression, pneumonia and lung edema. After a latency period: cyanosis, cardiovascular failure, respiratory arrest and lung edema; symptoms aggravated by physical effort.
Skin	Causes severe burns. May cause redness, pain, irritation, necrosis, poorly healing wounds and measles-like eruptions. May be absorbed through the skin.



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Eye	Causes severe burns. May cause redness, irritation, pain and blurred vision.
Respiratory sensitisation	Not classified based on available information.
Skin Sensitisation	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Not classified based on available information.
Reproductive Toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Repeated or prolonged skin contact may cause chronic dermatitis.
Serious eye damage/irritation	Eye Damage/Irritation: Category 1
Mutagenicity	Eye Damage/Irritation: Category 1

12. Ecological information

Ecotoxicity	Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment.
Persistence and degradability	Not readily degradable.
Environmental Fate	Behaviour in environmental compartments: Distribution: log P (o/w): 1.03
Bioaccumulative Potential	No appreciable bioaccumulation is to be expected (log P(o/w) 1-3).
Other Precautions	Prevent fire-fighting water from entering surface water or groundwater. Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.
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14. Transport information

Transport Information	Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.
U.N. Number	1744
UN proper shipping name	BROMINE or BROMINE SOLUTION
Transport hazard class(es)	8
Sub.Risk	6.1
Hazchem Code	2XE
Packaging Method	3.8RT5
Packing Group	I
EPG Number	8C5
IERG Number	37

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	S7
Hazard Category	Very Toxic, Corrosive, Dangerous for the environment



chem-supply

Safety Data Sheet

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16. Other Information

Literature	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia.
References	Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Chemical Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'. Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
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