

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name HYDROGEN BROMIDE
Synonym(s) 053 - SDS NUMBER • PRODUCT CODES: 160, 175

1.2 Uses and uses advised against

Use(s) CHEMICAL REAGENT

1.3 Details of the supplier of the product

Supplier name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA
Telephone 131 262, (02) 8874 4400
Fax 132 427 (24 hours)
Website <http://www.boc.com.au>

1.4 Emergency telephone number(s)

Emergency 1800 653 572 (24/7) (Australia only)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s) Acute Toxicity: Inhalation: Category 3
Skin Corrosion/Irritation: Category 1A
Gases Under Pressure: Liquefied gas
Specific Target Organ Systemic Toxicity (Single Exposure): Category 3

2.2 Label elements

Signal word DANGER

Pictogram(s)



Hazard statement(s)

H280 Contains gas under pressure; may explode if heated.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.

Prevention statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

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Response statement(s)

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.
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P321 Specific treatment is advised - see first aid instructions.
P363 Wash contaminated clothing before reuse.

Storage statement(s)

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Disposal statement(s)

P501 Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
HYDROGEN BROMIDE	10035-10-6	233-113-0	>99.8%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion Due to product form and application, ingestion is considered unlikely.

First aid facilities No information provided.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Irritating to the upper and lower respiratory tract. May have fatal consequences as a result of spasm, inflammation and oedema of the larynx and bronchi, chemical pneumonitis and pulmonary oedema. Direct contact with the liquefied material or escaping compressed gas may cause cold burns similar to frostbite injury.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use water fog to cool containers from protected area.

5.2 Special hazards arising from the substance or mixture

Non flammable. Cylinders may explode if heated.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Cylinders may explode if heated. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

2RE

2 Fine Water Spray.

R Wear liquid-tight chemical protective clothing and breathing apparatus. Dilute spill and run-off.

E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS.

6.2 Environmental precautions

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.3 Methods of cleaning up

Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

7.2 Conditions for safe storage, including any incompatibilities

Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters**Exposure standards**

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Hydrogen bromide	SWA (AUS)	3	9.9	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls**Engineering controls**

Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

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PPE

- Eye / Face** Wear safety glasses.
- Hands** Wear leather gloves.
- Body** Wear coveralls and safety boots.
- Respiratory** Wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	COLOURLESS LIQUID OR GAS (WILL FUME IN MOIST AIR)
Odour	PUNGENT SUFFOCATING ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	-66.7°C
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT APPLICABLE
Solubility (water)	SOLUBLE
Vapour pressure	2,500 kPa @ 25°C
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

Critical temperature	89.8°C
Density	2.81 (Air = 1)
% Volatiles	100 %
Critical pressure	8,510 kPa

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactions with water will form hydrobromic acid.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources. Avoid exposure to moisture.

10.5 Incompatible materials

Incompatible with strong oxidising agents (e.g. hypochlorites), strong alkalis, ammonia, fluorine, metals (copper, brass, and zinc). May react instantaneously with ozone to cause an explosion.

10.6 Hazardous decomposition products

This material will not decompose to form hazardous products other than that already present.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Toxic if inhaled. May cause irritation of upper respiratory tract after short exposure. More severe exposures result in pulmonary oedema and often laryngeal spasm.
	HYDROGEN BROMIDE LC50 (Inhalation): 2858 ppm / 1 hour (rat)
Skin	Causes severe burns. Contact may result in irritation, redness, pain, rash, dermatitis and possible burns. Direct contact with the liquefied material or escaping compressed gas may cause frost-bite injury.
Eye	Causes severe burns. Contact may result in irritation, lacrimation, pain, redness and corneal burns with possible permanent eye damage. Direct contact with the liquefied material or escaping compressed gas may cause frost-bite injury.
Sensitization	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	Not classified as a carcinogen.
Reproductive	Not expected to be a reproductive hazard.
STOT – single exposure	Toxic - corrosive. Over exposure may result in irritation of the nose and throat, coughing and shortness of breath (dyspnoea). High level exposure damages the respiratory system resulting in ulceration of the respiratory tract, lung tissue damage, symptoms and signs of accumulation of fluid in the lung (pulmonary oedema).
STOT – repeated exposure	Not classified as causing organ effects from repeated exposure.
Aspiration	Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

This product is not readily biodegradable.

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



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	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	1048	1048	1048
14.2 Proper Shipping Name	HYDROGEN BROMIDE, ANHYDROUS	HYDROGEN BROMIDE, ANHYDROUS	HYDROGEN BROMIDE, ANHYDROUS
14.3 Transport hazard classes	2.3, 8	2.3, 8	2.3, 8
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code 2RE
GTEPG 2B8
EMS F-C, S-U

Other information Ensure cylinder is separated from driver and foodstuffs.

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes C Corrosive
 T Toxic
 Xi Irritant

Risk phrases R23 Toxic by inhalation.
 R35 Causes severe burns.
 R37 Irritating to respiratory system.

Safety phrases S1/2 Keep locked up and out of reach of children.
 S7/9 Keep container tightly closed and in a well ventilated place.
 S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
 S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
 All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.

APPLICATION METHOD: Gas withdrawal: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m ³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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