BOC
A Member of The Linde Group

MATERIAL SAFETY DATA SHEET

 # 2333

Product Name **877 PPM HYDROGEN CHLORIDE, BALANCE NITROGEN**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name	**BOC LIMITED (AUSTRALIA)**
Address	10 Julius Avenue, North Ryde, NSW, AUSTRALIA, 2113
Telephone	131 262, (02) 8874 4400
Fax	132 427 (24 hours)
Emergency	1800 653 572 (24/7) (Australia only)
Web Site	http://www.boc.com.au/
Synonym(s)	2-COMPONENT GAS MIXTURE • 2333 - MSDS NUMBER • PRODUCT CODE: 1607D
Use(s)	CALIBRATION • INSTRUMENTATION
SDS Date	15 Feb 2010

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

RISK PHRASES

R36/37/38 Irritating to eyes, respiratory system and skin.

SAFETY PHRASES

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

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).

S9 Keep container in a well ventilated place.

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

UN No.	1956	**DG Class**	2.2	**Subsidiary Risk(s)**	None Allocated
Packing Group	None Allocated	**Hazchem Code**	2TE	**EPG**	2C1

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content v/v
HYDROGEN CHLORIDE	Cl-H	7647-01-0	0.0877%
NITROGEN	N2	7727-37-9	remainder

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

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 Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

Skin Flush exposed area continuously with running water.

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

Advice to Doctor Treat symptomatically

First Aid Facilities Eye wash facilities and safety shower are recommended.

5. FIRE FIGHTING MEASURES

Flammability Non flammable.

Fire and Explosion Temperatures in a fire may cause cylinders to rupture. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot.

Extinguishing Use water fog to cool containers from protected area.

Hazchem Code 2TE

6. ACCIDENTAL RELEASE MEASURES

Spillage If the cylinder is leaking evacuate area of personnel. Inform manufacturer/supplier of leak. Wear appropriate PPE and carefully move it to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices.

7. STORAGE AND HANDLING

Storage If stored in cylinders, store securely, in separate area in an upright position in cool (<45°C), dry, well ventilated area. Ensure cylinders are labelled, protected from physical damage and valves closed when not in use.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation.The uncontrolled release of a gas under pressure may cause physical harm.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds

Ingredient	Reference	TWA		STEL	
		ppm	mg/m3	ppm	mg/m3
Hydrogen chloride	ASCC (AUS)	5	7.5	--	--
Nitrogen	ASCC (AUS)	Asphyxiant			

Biological Limits No biological limit allocated.

Engineering Controls Use with adequate ventilation. In poorly ventilated areas, mechanical extraction ventilation is recommended.

PPE Wear safety boots, leather gloves and safety glasses. In poorly ventilated areas or where a significant inhalation risk exists (ie. oxygen deficient atmosphere), wear a Full-face Air-line respirator or Self Contained Breathing Apparatus (SCBA). When handling large gas cylinders, the wearing of eye, hand and foot protection is recommended.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	**Solubility (Water)**	NOT SOLUBLE
Odour	SLIGHTLY ACIDIC ODOUR	**Specific Gravity**	NOT APPLICABLE
pH	NOT APPLICABLE	**% Volatiles**	100 %
Vapour Pressure	NOT AVAILABLE	**Flammability**	NON FLAMMABLE
Vapour Density	0.97 (Air = 1)	**Flash Point**	NOT APPLICABLE
Boiling Point	NOT RELEVANT	**Upper Explosion Limit**	NOT RELEVANT
Melting Point	NOT RELEVANT	**Lower Explosion Limit**	NOT RELEVANT
Evaporation Rate	NOT APPLICABLE		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.
Material to Avoid	Incompatible with alkalis (eg. hydroxides). May be corrosive to most metals.
Decomposition	This material will not decompose to form hazardous products.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Asphyxiant gas - irritant. May replace oxygen in the inhaled air and cause asphyxiation. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate may accelerate and the rate and volume of breathing may increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may result in no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may result in nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. Hydrogen chloride causes eye and respiratory irritation. High level exposure may result in incoordination, vomiting, mental instability, lung damage, convulsions, coma and death.
Eye	Irritant. Contact may result in irritation, lacrimation, pain and redness.
Inhalation	Irritant gas - asphyxiant. Effects are proportional to oxygen displacement with symptoms of air hunger, rapid breathing, elevated heart rate, drowsiness and loss of mental alertness. Hydrogen chloride causes eye and respiratory irritation. High level exposure may result in incoordination, vomiting, mental instability, lung damage, convulsions, coma and death.
Skin	Irritant.
Ingestion	Ingestion is considered unlikely due to product form. Inhalation may lead to irritation of mouth and throat.
Toxicity Data	HYDROGEN CHLORIDE (7647-01-0) LC50 (Inhalation): 3124 ppm/1 hour (rat)

12. ECOLOGICAL INFORMATION

Environment	Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

13. DISPOSAL CONSIDERATIONS

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

Transport Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.

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

Shipping Name	COMPRESSED GAS, N.O.S. (Contains Nitrogen)				
UN No.	1956	**DG Class**	2.2	**Subsidiary Risk(s)**	None Allocated
Packing Group	None Allocated	**Hazchem Code**	2TE	**EPG**	2C1

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

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 regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

ASPHYXIANT GASES: Asphyxiant gases may displace oxygen, leading to oxygen deficiency. Where oxygen content is low, effects may include: 12-16% oxygen: increased breathing/ pulse rate, lack of coordination; 10-14%: mental disturbance, fatigue, breathing stress; 6-10%: vomiting, collapse and possible unconsciousness; 0-6%: convulsions, respiratory collapse and death.

ASPHYXIANTS (1): When present in the atmospheres in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide adequate sensory warning of danger and most simple asphyxiants are odourless. Therefore it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (eg. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.

ABBREVIATIONS:
ADB - Air-Dry Basis.
BEI - Biological Exposure Indice(s)
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EINECS - European INventory of Existing Commercial chemical Substances.
IARC - International Agency for Research on Cancer.
M - moles per litre, a unit of concentration.
mg/m3 - Milligrams per cubic metre.
NOS - Not Otherwise Specified.
NTP - National Toxicology Program.
OSHA - Occupational Safety and Health Administration.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
TWA/ES - Time Weighted Average or Exposure Standard.

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 Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this Chem Alert 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.

Report Status

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

It is based on information concerning the product which has been provided to RMT by the manufacturer 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.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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End of Report