Material Safety Data Sheet

HYDROGEN containing Compressed Gas Mixture (Hydrogen >2.5%)

Infosafe™ No.	8AE8L	**Issue Date**	May 2009	**Status**	ISSUED by AIRLIQUI	BS: 1.9.40

Not classified as hazardous

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name	HYDROGEN containing Compressed Gas Mixture (Hydrogen >2.5%)
Product Use	Welding applications.
Company Name	Air Liquide Australia Limited (ABN 57 004 385 782)
Address	Level 9, 380 St. Kilda Road Melbourne Victoria 3004
Emergency Tel.	1800 812588 (24hr)
Telephone Number/Fax	Tel: (03) 9697 9888 Fax: (03) 9690 7107
Other Names	Not Available

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	**Name**	**CAS**	**Proportion**
	Nitrogen	7727-37-9	20-60 %
	Argon	7440-37-1	80-97.5 %
	Hydrogen	133-74-0	2.5-40 %

3. HAZARDS IDENTIFICATION

	Extremely Flammable.
Chronic Effects	Long term exposure to this mixture has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.
Inhalation	Non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly deficiency are; 10-14%: emitional upset, abnormal fatigue, disturbed respiration; 6-10%: nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.
Ingestion	Not applicable to gases.
Skin	Not irritating to the skin.
Eye	Not irritating to the eye.

4. FIRST AID MEASURES

Inhalation	Prompt medical attention is mandatory in all cases of underexposure to oxygen. Seek medical attention. If inhaled, remove affected person from contaminated area. Keep at rest until recovered.
Ingestion	Not applicable for gases.
Skin	Wash affected area thoroughly with soap and water. If symptoms develop seek medical attention.
Eye	Seek medical attention if any effects of exposure persist, or immediately if extending from physical injury.
First Aid Facilities	Eyewash and normal washroom facilities must be provided, and a safety shower is strongly recommended.
Advice to Doctor	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use carbon dioxide, dry chemical, foam, water fog or water mist.
Specific Hazards	This mixture is highly flammable. Container may rupture when heated. Spontaneously flammable in air.
Precautions in connection with Fire	Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.
Flash Point	Not available

Ignition Temperature	Not available
Flammable Limits UEL	75%
Flammable Limits LEL	4%
Flammability	Highly flammable. Spontaneously flammable in air. Avoid all ignition sources.

6. ACCIDENTAL RELEASE MEASURES

Evacuate the spill area of unprotected personnel. In enclosed areas rescue personnel should wear AS 1715/1716 approved self contained breathing apparatus. Remove all sources of ignition, heat and naked flames. Allow gas to escape to the external atmosphere, or preferably in a fume cupboard or well ventilated, remote area. Do not touch any spilled material. Prevent mixture from entering confined spaces. Leak checking may be done by pressure drop test or by using soapy water on joints and outlets. Shut cylinder valve to stop gas leaks from equipment if possible and safe to do so. If cylinder or cylinder valve is leaking then put on personal protective equipment, shut the cylinder valve, depressurise the equipment, disconnect cylinder from equipment and move the cylinder to a well ventilated area, preferably outdoors, and position to allow gas, rather than liquid to escape. If not possible, allow any liquid to vapourize. Use of a flammable gas monitor will warn of gas build-up in locality. Notify all relevant local, state and federal government occupational and environmental authorities. If possible, repair the leak or allow the cylinder to vent in external atmosphere. Mark empty cylinders 'defective'. Return all faulty cylinders to supplier/manufacturer.

7. HANDLING AND STORAGE

Handling	Use away from all sources or heat and ignition. Avoid skin and eye contact and breathing of gas. Post 'NO SMOKING' signs in area of use. Avoid release of gas into workplace air. Use smallest possible amounts in designated areas with adequate ventilation. Simple asphixiant. Primary health concern is the displacement of oxygen in air. Maintain oxygen concentration above 18% by volume. Have emergency equipment (for fires, leaks, etc.) readily available. Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.
Storage	Protect containers against physical damage. Store in a cool, dry, well-ventilated place, low fire risk area. Protect from extremes of temperature and weather. Do not allow any part of a cylinder to be exposed above 55°C. Storage areas should be kept clean and free from flammable and combustible materials. Ensure that containers are properly vented to prevent build up of pressure. Refer to commonwealth, state and territory legislation for requirements, which affect compressed gas storage and transport.
Packaging	Gas mixtures containing hydrogen are supplied in high pressure cylinders. CYLINDER COLOUR: AS 2700 T53 Peacock Blue on AS 2700 N63 Pewter/AS 2700 R13 Signal Red Band. CYLINDER VALVE OUTLET:

INDUSTRIAL: AS 2473 Type 20.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	No exposure standards have been established for the mixture by the National Occupational Health & Safety Commission (NOHSC). However, over-exposure to some chemicals may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions and should be kept to the least possible levels. As with all chemicals, exposure should be kept to the lowest possible levels. Hydrogen, Argon and Nitrogen are simple asphyxiants.
Respiratory Protection	If engineering controls are not effective in controlling airborne exposure then self-contained breathing apparatus (S.C.B.A) should be used.
Eye Protection	Safety glasses with side shields or chemical goggles should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.
Hand Protection	Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.
Footwear	Personnel engaged in the movement of gas cylinders shall be provided with safety footwear.
Body Protection	Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled. Industrial clothing should conform to the specifications detailed in AS/NZS 2919: Industrial clothing.
Eng. Controls	Provide adequate local exhaust and dilution (general) ventilation and supply sufficient replacement air to maintain oxygen concentration above 18%.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless, odourless, tasteless.
Melting Point	Not available
Boiling Point	Not applicable
Solubility in Water	Not applicable
Specific Gravity (H2O=1)	Not available
pH Value	Not applicable
Vapour Pressure	Not applicable
Vapour Density (Air=1)	0.8 to 1.37 at 15°C(Air=1)
Density	Density of Gas (101.3 kPa, 15°C): 0.98 to 1.68

Flash Point	Not available
Flammability	Highly flammable. Spontaneously flammable in air. Avoid all ignition sources.
Ignition Temperature	Not available
Flammable Limits LEL	4%
Flammable Limits UEL	75%
Other Information	Critical Temperature: Not applicable

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of storage and handling.
Hazardous Polymerization	Will not occur
Hazardous Decomposition Products	Not applicable
Conditions to Avoid	Heat, direct sunlight, open flames or other sources of ignition.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	Not available
Inhalation	Non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly deficiency are; 10-14%: emitional upset, abnormal fatigue, disturbed respiration; 6-10%: nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.
Ingestion	Not applicable to gases.
Skin	Not irritating to the skin.
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Chronic Effects	Long term exposure to this mixture has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

12. ECOLOGICAL INFORMATION

Environment Protection	Not applicable

Mobility	Not available
Persistence / Degradability	Not available
Ecotoxicity	Not available

13. DISPOSAL CONSIDERATIONS

Dispose of waste according to applicable local and national regulations.

14. TRANSPORT INFORMATION

This material is classified as a Class 2.1 (Flammable Gases) Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road or Rail.
Class 2.1 Dangerous Goods are incompatible in a placard load with any of the following:
- Class 1, Explosives
- Class 3, Flammable Liquids, if both the Class 2.1 and Class 3 dangerous goods are in bulk
- Class 4.1, Flammable Solids
- Class 4.2, Spontaneously Combustible Substances
- Class 4.3, Dangerous When Wet Substances
- Class 5.1, Oxidising Agents
- Class 5.2, Organic Peroxides
- Class 7, Radioactive Substances

U.N. Number	1954
Proper Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S. - (CONTAINS HYDROGEN)
DG Class	2.1
Hazchem Code	2SE
Packaging Method	P200
Packing Group	
EPG Number	2A1
IERG Number	04

15. REGULATORY INFORMATION

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.
Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Risk Phrase

R12 Extremely Flammable.

Safety Phrase S16 Keep away from sources of ignition - No smoking.

Poisons Schedule	Not Scheduled
Packaging & Labelling	Gas mixtures containing hydrogen are supplied in high pressure cylinders. CYLINDER COLOUR: AS 2700 T53 Peacock Blue on AS 2700 N63 Pewter/AS 2700 R13 Signal Red Band. CYLINDER VALVE OUTLET: INDUSTRIAL: AS 2473 Type 20.
Hazard Category	Extremely Flammable

16. OTHER INFORMATION

Contact Person/Point	24 HOUR EMERGENCY CONTACT: The Operator: 1800 812 588 Regional Offices: Victoria 40 Bunnett Street, North Sunshine 3020. Tel. (03) 9290 1100 Fax (03) 9290 1199 New South Wales 43-47 Pine Road, Fairfield 2165. Tel. (02) 9892 9777 Fax (02) 9892 1454 4 Kullara Close, Beresfield. 2322. Tel (02) 4949 1700 Fax (02) 4949 1750 Lot 5, Shellharbour Road, Port Kembla 2505. Tel. (02) 4274 4044 Fax (02) 4276 3879 South Australia 164 Philip Highway, Elizabeth 5112. Tel. (08) 8209 3600 Fax (08) 8255 9885 Queensland 759 Progress Road, Wacol 4076. Tel. (07) 3246 6363 Fax (07) 3271 2589 Ingham Road, Cnr. Dundee Street, Bohle, Townsville, 4818 Tel. (07) 4774 8276 Fax (07) 4774 8313 Featherstone Street, Parkhurst Rockhampton, 4702. Tel. (07) 4936 1066 Fax (07) 4936 1024 68 Bunda Street, Cairns 4870. Tel. (07) 4031 1566 Fax (07) 4051 4293 Tasmania 11 Windsor Street, Invermay 7248. Tel. (03) 6334 9666 Fax (03) 6334 9600 Air Liquide W.A. Pty Ltd A.B.N. 52 008 694 166 Wesfarmers Energy Building, Campus Drive (off Murdoch Drive), Murdoch, WA 6150 Tel. (08) 9312 9111 Fax (08) 9313 8108 AIR LIQUIDE AUSTRALIA LIMITED A.B.N. 57 004 385 782 Head Office: 380 St. Kilda Road, Melbourne, Victoria 3004, Australia. Tel. (03) 9697 9888 Fax (03) 9690 7107 www.airliquide.com.au
SDS History	Date Reviewed: May 2009 Supersedes: July 2004
Poisons Schedule	Not Scheduled
Hazard Category	Extremely Flammable

End of MSDS

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