



Material Safety Data Sheet

0-10PPM HYDROGEN CYANIDE IN NITROGEN

Infosafe™ No. 2CA07

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AIRLIQUI

BS: 1.9.40

Not classified as hazardous

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

Product Name 0-10PPM HYDROGEN CYANIDE IN NITROGEN

Product Use Calibration gas mixture.

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	>99.99%
	Hydrogen cyanide	74-90-8	0-10ppm

3. HAZARDS IDENTIFICATION

Not classified as Hazardous according to criteria of Australian National Occupational Health & Safety Commission (NOHSC), Australia.

Classified as Dangerous Goods, according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Risk Phrases:

Not applicable

Safety Phrases:

Not applicable

Chronic Effects	Chronic exposure to this level of hydrogen cyanide containing mixture is not considered to result in any specific effects.
Inhalation	Mixture is not expected to be hazardous as supplied. When handled as this data sheet indicates and in accordance with all regulations, the amount of hydrogen cyanide present in the gas mixture is not expected to present a health hazard, and the nitrogen is a simple asphyxiant. Whilst being non-toxic as supplied, the release of large amounts of mixture either through accident or poor work practice, could displace atmospheric oxygen to hazardous levels, or lead to a build up of hydrogen cyanide in confined and/or poorly ventilated spaces to hazardous levels. Due caution must be exercised and all exposure standards for components rigorously observed, and atmospheric oxygen levels maintained above 18%.
Ingestion	Not applicable to gases; unlikely route of exposure.
Skin	May cause frostbite injuries in contact with skin or physical injury arising from sudden or uncontrolled gas release.
Eye	May cause frostbite injuries in contact with eyes or physical injury arising from sudden or uncontrolled gas release.
Other Information	Effects of exposure to high concentrations of an asphyxiant containing mixture sufficient to displace the oxygen in respired air, may include the following: -Loss of balance, -Tightness in the frontal area of the forehead, -Tingling of the tongue, fingertips and toes, -Weakened speech leading to the inability to utter sounds, -Rapid reduction in the ability to perform movements, -Reduced consciousness of the surroundings, -Loss of tactile sensations, -Heightened mental activity. It should be recognized that it is possible that none of the above symptoms may occur in gas asphyxia, so that there are no definite warning signs or symptoms. Early symptoms of exposure to hydrogen cyanide are; irritation to eyes, nose and throat, headaches, nausea, initial rapid respiration followed by a sense of vomiting, a cherry red complexion, loss of consciousness, cessation of breathing and possible death.

4. FIRST AID MEASURES

Inhalation	Prompt medical attention is mandatory in all cases of overexposure to hydrogen sulphide, or asphyxiant containing substances. Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. Apply artificial respiration if not breathing. Seek medical attention.
Ingestion	Ingestion is not considered a potential route of exposure.
Skin	Remove all contaminated clothing and wash contaminated skin with soap and water.
Eye	Immediately flush contaminated eyes with lukewarm, gently flowing water for several minutes, after removing any contact lenses, and holding the eyelids open. Seek medical attention.
First Aid Facilities	Eyewash station and normal washroom facilities must be provided, and a safety shower is strongly recommended.

Advice to Doctor Treat symptomatically.

Other Information The amount of hydrogen cyanide present in this gas mixture is expected to present no adverse health effects, but the following information is provided as an aid to any possible treatment. The antidote for cyanide poisoning is the intravenous administration of dicobalt edetate (trade name - Kelocyanor). This should only be administered when absorption of cyanide is beyond doubt due to adverse anaphylactic (allergic) reactions which can occur in the absence of poisoning. Cyanide poisoning occurs rapidly after exposure, and the conscious patient who after the usual time taken to reach hospital indicates exposure to cyanide either in inhalation, ingestion or skin contamination is unlikely to have absorbed a significant amount of cyanide. In these circumstances the patient should be observed carefully with particular attention being given to the state of consciousness. For advice, contact the Poisons Information Centre (Australia 131 126).

5. FIRE FIGHTING MEASURES

Extinguishing

Media Use extinguishing agents suitable for the surrounding environment.

Specific Hazards Fire fighters to wear self-contained breathing apparatus if there is a risk of exposure to vapour or products of combustion. Gas mixture is non-flammable at this level of hydrogen cyanide concentration, but nitrogen component is an asphyxiant, and due caution must be exercised.

Flash Point Hydrogen Cyanide component: -17.8°C

Ignition Temperature

Hydrogen Cyanide component: 538°C

Flammable Limits

UEL Not Applicable for mixture; (40.0% Hydrogen Cyanide component).

Flammable Limits

LEL Not Applicable for mixture; (5.6% Hydrogen Cyanide component).

Flammability

Non flammable gas Class. Although not flammable at this level of hydrogen cyanide, good work practice would be to keep material away from sparks, flames and other ignition sources.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal Evacuate unprotected personnel from danger area. Shut off all possible sources of ignition. Increase ventilation. Wear appropriate protective clothing. Restrict access of all unnecessary personnel to leak area until completion of cleanup. Ventilate leak area to prevent depletion of oxygen levels to hazardous levels, (See 'Health Effects - Other Information'). Ensure clean-up is conducted by trained personnel and they wear AS 1715/1716 approved personal protective equipment. Extinguish or remove all ignition sources as a precaution. If possible and safe, turn leaking cylinder off or position so that gas escapes rather than liquid. Use water spray/fog to reduce any gas cloud from serious leak or spill. Do not direct water at source of leak or spill. Isolate area until gas has dispersed. Move cylinders to exhaust hood or safe outdoor area for venting. If any liquid waste is present neutralise with alkaline ferrous sulphate solution, use adsorbent (soil or sand, or inert material, e.g. vermiculite) to absorb and prevent contamination of drains and waterways. Collect and seal in properly labelled drums for disposal. Mark empty cylinders 'defective'.

7. HANDLING AND STORAGE

Handling

Only experienced and properly trained personnel should handle compressed gases. Supplier identification labels must not be removed or defaced. Ascertain the identity of the gas before using it. A knowledge of cylinder colour codes and the properties and hazards associated with each gas is required prior to using the product. Before using compressed gases, establish plans to cover any emergency situations that might arise. Before connecting the cylinder for use ensure that back feed from the system into the cylinder is prevented, if necessary by the use of a check valve or traps. Before connecting cylinder, check the complete gas system for suitability particularly for pressure rating, (a reducing regulator may be necessary for low pressure lines), and materials compatibility, etc.

When doubt exists as to the correct handling procedure for a particular gas contact the supplier.

Storage

The product is a scheduled poison and must therefore be stored, maintained and used in accordance with the relevant State Poisons Act. Limit quantity of material in storage. Restrict access to storage area. Post appropriate warning signs. Keep storage area separate from populated work areas. Inspect periodically for deficiencies. Consider leak detection and alarm systems, as required. Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources. Store away from incompatible materials such as oxidizing materials and strong acids. Structural materials and lighting and ventilation systems in storage area should be corrosion resistant. Store cylinders upright on a level, fireproof floor, secured in position. Protect from damage. Keep cylinder valve cover on. Store full cylinders separately from empty ones, employing a 'first-in' 'first-out' inventory system. Label empty cylinders. Comply with all applicable regulations for the storage and handling of compressed gases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	Name	STEL (mgm3)	STEL (ppm)	TWA (mgm3)	TWA (ppm)	FootNote
	Nitrogen					Asphyxiant
	Hydrogen cyanide			11	10	Peak limitation

Other Exposure Information

No exposure standards have been established for this product by the Australian National Occupational Health And Safety Commission (NOHSC), however, the exposure limits for individual ingredients are listed above. Nitrogen component is a simple asphyxiant having no exposure standard, but the oxygen concentration at 18% by volume (137 mmHg of oxygen), must be maintained. Atmospheres at less concentrations of oxygen do not provide sufficient sensory indications of deficiency, and can rapidly become life threatening.

Respiratory Protection

If engineering controls and work practices are not effective in controlling exposure to hydrogen cyanide component, then wear suitable personal protective equipment including AS 1715/1716 approved respiratory protection. Provide supplied air or self-contained breathing apparatus for emergency or non routine situations where gas concentration is excessive. A complete respiratory protection program including selection, fit testing, training, maintenance and inspection, must be instituted.

Eye Protection

The use of chemical goggles or safety glasses with side shield protection complying with AS/NZS 1337 is recommended.

Hand Protection

Chemical resistant or thermal protection gloves complying with AS/NZS 2161 is recommended.

Footwear	Personnel engaged in the movement of gas cylinders shall be provided with safety footwear.
Body Protection	Overalls or similar protective apparel.
Eng. Controls	Maintain concentration below recommended exposure limit. Use with adequate ventilation. Local exhaust ventilation system may be required. These mixtures are non-corrosive and may be used with all materials of construction.
Hygiene Measures	Good work hygiene practice must be followed when handling this substance; that is, always wash face and hands before eating, drinking, smoking, toilet breaks, and at the end of shifts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless gas with a possible very slight bitter almond odour.
Melting Point	Hydrogen Cyanide component: -16.8°C
Boiling Point	Hydrogen Cyanide component: 26.0°C
Solubility in Water	Hydrogen Cyanide component; soluble in water.
Specific Gravity (H₂O=1)	0.97 @ 21 °C (Air = 1)
Vapour Pressure	Not available; above the critical temperature.
Vapour Density (Air=1)	Not available
Flash Point	Hydrogen Cyanide component: -17.8°C
Flammability	Non flammable gas Class. Although not flammable at this level of hydrogen cyanide, good work practice would be to keep material away from sparks, flames and other ignition sources.
Ignition Temperature	Hydrogen Cyanide component: 538°C
Flammable Limits LEL	Not Applicable for mixture; (5.6% Hydrogen Cyanide component).
Flammable Limits UEL	Not Applicable for mixture; (40.0% Hydrogen Cyanide component).

10. STABILITY AND REACTIVITY

Stability	Stable
Hazardous Polymerization	Will not occur.
Materials to Avoid	Alkaline substances, caustics, amines, acids and acetaldehyde.

11. TOXICOLOGICAL INFORMATION

Toxicology	No information available for the mixture as supplied, but is available
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Information	for the hydrogen cyanide component: Inhalation LC50(rat): 850 mg/m3/1min. Inhalation Lowest Lethal concentration(human): 200 mg/m3/10min.
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Skin	May cause frostbite injuries in contact with skin or physical injury arising from sudden or uncontrolled gas release.
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Chronic Effects	Chronic exposure to this level of hydrogen cyanide containing mixture is not considered to result in any specific effects.

12. ECOLOGICAL INFORMATION

Persistence / Degradability	Not available
Bioaccumulation	Not available
Ecotoxicity	Not available

13. DISPOSAL CONSIDERATIONS

Waste Disposal	Waste treatment procedures must be performed by trained, experienced personnel with appropriate protective equipment in approved treatment facilities, and in accordance with all federal, state and local government requirements. Reuse or recycling may also be possible and should be investigated. Alternately, return properly labelled cylinders to the supplier with all valve outlet plugs, caps and protection caps secured, for proper disposal.
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14. TRANSPORT INFORMATION

Product is classified as a UN Number 1956, Dangerous Good Class 2.2 Compressed Gas, N.O.S., (CONTAINS 0-10ppm HYDROGEN CYANIDE), according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

U.N. Number	1956
Proper Shipping Name	COMPRESSED GAS, N.O.S. - (CONTAINS 0-10ppm HYDROGEN CYANIDE in Nitrogen)
DG Class	2.2
Hazchem Code	2T

Packaging Method 3.8.2

Packing Group

EPG Number 2C1

IERG Number 06

15. REGULATORY INFORMATION

Risk Phrase

Poisons Schedule S7

16. OTHER INFORMATION

Contact 24 HOUR EMERGENCY CONTACT: The Operator: 1800 812 588

Person/Point

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

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Wesfarmers Energy Building, Campus Drive (off Murdoch Drive), Murdoch, WA 6150

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380 St. Kilda Road, Melbourne, Victoria 3004, Australia. Tel. (03) 9697

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www.airliquide.com.au

Manufacturers Advice

Cylinder Colour (AS4484): Body: Pewter; 1st Band: Golden Yellow; 2nd Band: Golden Yellow

Cylinder Valve Outlet (AS2473): Type 40

References

- L'Air Liquide Gas Encyclopedia - Elsevier Scientific Publishing Co. Amsterdam

- Australian Code for the Transport of Dangerous Goods by Road and Rail; 6th Edition

- List of Designated Hazardous Substances [NOHSC:10005(1994)]

- Exposure Standards for Atmospheric Contaminants in the Occupational

- Environment [NOHSC:3008(1995) and NOHSC:1003(1995)]
- Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]
 - EPG Cards; or SAA/SNZ HB76 Initial Emergency Response Guide
 - Matheson Gas Data Book, 6th Edition, Matheson 1980
 - Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
 - Tomes Database, Micromedev

SDS History

MSDS Reviewed: February 2005
Supersedes: January 2000

Poisons Schedule S7

End of MSDS

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