

1. Identification of Substance & Company

Product

Product name	Nonflammable Gas Mixture: Hydrogen/Nitrogen/Oxygen
Product code	003019
HSNO approval	Not applicable – non hazardous compressed gas.
Approval description	NA
UN number	1956
DG class	2.2
Proper Shipping Name	COMPRESSED GAS, N.O.S.(Air, Hydrogen)
Packaging group	NA
Hazchem code	2T
Uses	Calibration of monitoring and research equipment

Company Details

Company	Accurate Instruments NZ Ltd
Address	P.O Box 25586 St Heliers Auckland New Zealand
Telephone	0800 500 380
Website	www.accurate.kiwi

2. Hazard Identification

Approval

This product is not considered hazardous under the Hazardous Substances and New Organisms Act (HSNO), according to the criteria in the Hazardous substances (Hazard Classification) Notice 2020. It is transported as a Dangerous Good – COMPRESSED GAS N.O.S. (contains Air, Hydrogen)

GHS 7 Classes

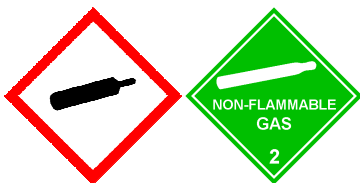
Compressed Gas

Hazard Statements

H280 - Contains gas under pressure; may explode if heated.

SYMBOLS

WARNING



Other Classifications

OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary Statements

Prevention	P103 - Read label before use.
Response	No response statements
Storage	P410+P403 - Protect from sunlight. Store in a well-ventilated place.
Disposal	No disposal statements

3. Composition / Information on Ingredients

Component	CAS/ Identification	Concentration
Nitrogen	7727-37-9	72.5-80.5%
Oxygen	7782-44-7	19.5-23.5%
Hydrogen	1333-74-0	0.0001-4%

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

4. First Aid

General Information

You should call the National Poisons Centre if you feel that you may have been harmed, burned or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

Recommended first aid facilities Ready access to running water is recommended. Accessible eyewash is recommended.

Exposure

Swallowed	The product is not considered toxic or harmful. Ingestion is unlikely as this is a gas. In case of persistent symptoms, contact the National Poisons Centre or a Doctor.
Eye contact	Contact with eyes may result in cold burns. Immediately wash eyes with plenty of water, holding eyelids apart for 15 mins. Contact a doctor.
Skin contact	This product is non-irritating to skin, however contact may result in cold burns. Remove contaminated clothing and wash affected area with water. Do not apply direct heat to affected area. For large burns immerse in water. Contact a doctor.
Inhaled	Generally, inhalation of the gas is not considered harmful, however it is considered to be an asphyxiant. Remove victim from source of exposure without becoming a casualty by using correct PPE (see section 8). If coughing, dizziness or shortness of breath is experienced, remove the patient to fresh air immediately. If patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor. If breathing has stopped apply artificial respiration if trained. Contact a doctor immediately.

Advice to Doctor

In the case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48h hours.

5. Firefighting Measures

Fire and explosion hazards:	This gas is not classed as flammable or oxidising. The cylinders may rupture in a fire. Do not attempt to handle a cylinder that has been heated.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder or water jet. Fight larger fires with water jet or alcohol resistant foam.
Firefighting instructions	Evacuate the area. Cool cylinders with water from the maximum distance. Stop flow of gas if safe to do so. Remove cylinders from area of fire if safe to do so.
Products of combustion:	oxides of carbon, oxides of nitrogen
Protective equipment:	Use self contained breathing apparatus (SCBA) and protective clothing.
Hazchem code:	2T

6. Accidental Release Measures

Containment	This substance is a compressed gas, no secondary containment is required.
Emergency procedures	If a gas leak occurs: Isolate area. Avoid breathing gas. Avoid contact with skin and eyes. Stop leak if safe to do so.
Clean-up method	Gas will dissipate at normal air pressure. Increase ventilation.
Disposal	Empty cylinders may be returned to the manufacturer.
Precautions	In case of a fire: Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure.

7. Storage & Handling

Storage	Cylinders should be stored securely at room temperature (~20°C). Prevent cylinders from falling by using restraints.
Handling	Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this product. There is a general limit of 3mg/m³ for respirable particulates and 10mg/m³ for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA	Ceiling	WES-STEL
	nitrogen	Simple asphyxiant	-	-
	Oxygen	-	-	-
	Hydrogen	Simple asphyxiant	-	-

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

General	Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate. Clean PPE after use or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken.
Eyes	Protective eyewear is not normally necessary when using this product. However, it always prudent to use protective eyewear if leaks are likely especially when handling valves and cylinders.
Skin	Wear gloves when handling cylinders and valves.
Respiratory	Wear an Air-line respirator or self-contained Breathing Apparatus (SCBA), where a risk of inhalation exists.

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	compressed gas, clear colourless
Odour	No odour
Odour threshold	No odour
pH	not applicable
Freezing / melting point	-210°C (nitrogen)
Boiling point	-195°C (nitrogen)
Flash point	no data for the mixture – non flammable gas mixture
Flammability	non flammable
Upper & lower flammable limits	no data
Vapour pressure	not applicable
Vapour density	Highest known value: 1.1 (Air = 1) (oxygen). Weighted average: 1 (Air = 1)
Specific gravity / density	Gas density: 1.12kg/m ³
Solubility	not specified
Partition Coefficient:	no data
Auto-ignition temperature	no data
Decomposition temperature	no data
Viscosity	not applicable – compressed gas
Particle characteristics	not applicable

10. Stability & Reactivity

Stability	Stable
Conditions to be avoided	Keep from extreme heat and open flames. Keep away from moisture.
Incompatible groups	none known.
Substance Specific Incompatibility	Titanium will burn in nitrogen (the main component of this mixture). Lithium reacts with nitrogen.
Hazardous decomposition products	none known
Hazardous reactions	none known

11. Toxicological Information

Summary

IF IN EYES: contact with gas may result in cold burns.

IF ON SKIN: may cause cold burns.

IF INHALED: this gas may be an asphyxiant (cause oxygen deficient atmospheres) and may cause respiratory difficulties, ringing in the ears, headaches, shortness of breath, wheezing, dizziness, indigestion, nausea, unconsciousness and death. CHRONIC EXPOSURE: oxygen deficient atmospheres may affect the heart and the nervous system.

Supporting Data

Acute	Oral	No evidence of acute oral toxicity.
	Aspiration	This mixture is not considered an aspiration hazard.
	Dermal	No evidence of acute dermal toxicity.
	Inhaled	Nitrogen and hydrogen are simple asphyxiants.
	Eye	The mixture is not considered to be an eye irritant. Discharge of the gas may cause cold burns.
	Skin	The mixture is not considered to be a skin irritant. Discharge of the gas may cause cold burns.
Chronic	Sensitisation	No ingredient present at concentrations > 0.1% is considered a sensitizer.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	No ingredient present at concentrations > 0.1% is considered a carcinogen.
	Reproductive / Developmental	No ingredient present at concentrations > 0.1% is considered a reproductive or developmental toxicant or have any effects on or via lactation.
	Systemic	No ingredient present at concentrations > 1% is considered a target organ toxicant.
	Aggravation of existing conditions	None known.

12. Ecological Data

Summary

This mixture does not trigger ecotoxic classification.

Supporting Data

Aquatic	No evidence of aquatic ecotoxicity for the mixture.
Bioaccumulation	LogPow: Nitrogen 0.67 (low potential), oxygen 0.65 (low potential)
Degradability	Not relevant.
Soil	No evidence of soil toxicity.
Terrestrial vertebrate	This mixture is not considered harmful towards terrestrial vertebrates.
Terrestrial invertebrate	No evidence of toxicity towards terrestrial invertebrates.
Biocidal	no data
Environmental effect levels	No EELs are available for this mixture or ingredients

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply.
Disposal method	Cylinders should be returned to the supplier or manufacturer for disposal.

14. Transport Information

Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007

Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a hazardous substance for transport.

UN number:	1956	Proper shipping name:	COMPRESSED GAS, N.O.S.(Air, Hydrogen)
Class(es)	2.2	Packing group:	NA
Precautions:	non flammable, non toxic gas	Hazchem code:	2T

IMDG

UN number:	1956	Proper shipping name:	COMPRESSED GAS, N.O.S.(Air, Hydrogen)
Class(es)	2.2	Packing group:	NA
Precautions:	non flammable, non toxic gas		

IATA

UN number:	1956	Proper shipping name:	COMPRESSED GAS, N.O.S.(Air, Hydrogen)
Class(es)	2.2	Packing group:	NA
Precautions:	non flammable, non toxic gas		

15. Regulatory Information

This substance is not considered to be hazardous under HSNO.
All ingredients appear on the NZIoC.

Specific Controls

Non hazardous gases under pressure must comply with the relevant provisions of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	NA
CAS Number	Unique Chemical Abstracts Service Registry Number
EC₅₀	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
EPA	Environmental Protection Authority (New Zealand)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals, 7 th revised edition, 2017, published by the United Nations.
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
LD₅₀	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC₅₀	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
TWA	Time Weighted Average – generally referred to WES averaged over typical work day

UEL	(usually 8 hours)
UN Number	Upper Explosive Limit
WES	United Nations Number
	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring using procedures that gather air samples in the worker's breathing zone.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
Controls	EPA notices, www.epa.govt.nz , Health and Safety at Work (Hazardous Substances) Regulations 2017, www.legislation.govt.nz
WES	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz .
Other References:	Suppliers SDS

Review

Date	Reason for review
January 2024	NA – new SDS

Disclaimer

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely GHS 7 classifications for this SDS have been estimated based on general information from the supplier (e.g., hazard, toxicological). This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email info@datachem.co.nz or phone: **+64 21 1040951**.

