Safety Data Sheet

HELIUM BASED
[Compressed Gas Mixtures]

Date of Issue 25/11/2021
Version 4.
SDS Ref # 0062

SECTION 1: Identification

1.1 Product Identifier

Trade name	Helium Based Gas Mixtures					
MSDS No.	0062					
Chemical description	Nitrogen	Helium	Argon	Oxygen	Hydrogen	Carbon Dioxide
CAS No.	7727-37-9	7440-59-7	7440-37-1	7782-44-7	1333-74-0	124-38-9
EC No.	231-783-9	231-168-5	231-147-0	231-956-9	215-605-7	204-696-9
Chemical formula	N_2	He	Ar	O_2	H_2	CO_2
Synonyms	LASAL™ (53, 61, 63, 66, 83, P51, P61)					

1.2 Relevant identified uses and uses advised against

Industrial and professional. Perform risk assessment prior to use. Contact supplier for more information on uses

1.3 Details of the supplier

Name Air Liquide New Zealand Limited
Address 19 Maurice Road, Penrose
Auckland 1061,
New Zealand
Phone Phone: (09) 622 3880

1.4 Emergency telephone number

0800 156 516

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Hazardous Substances [Classification] Regulations 2001

HSNO classification(s) 2.2 - Not Hazardous
Contains gas under pressure; may explode if heated

Physical Hazards

2.2 Label Elements

Hazard pictograms

Signal word Warning

Hazard statements H280 - Contains gas under pressure; may explode if heated

Precautionary statements

Prevention None allocated
Response None allocated
Storage P410+403 - Protect from sunlight. Store in a well ventilated place.
Disposal None allocated

2.3 Other Hazards

SECTION 3: Composition/information on ingredients

3.1 Substance/Mixtures

Name	Chemical Formula	%	Product Identifier
Carbon Dioxide	CO_2	<= 100	(Cas No) 124-38-9
			(EC No) 204-696-9
Nitrogen	N_2	<= 100	(Cas No) 7727-37-9
			(EC No) 231-783-9
Argon	Ar	<= 100	(Cas No) 7440-37-1
			(EC No)231-147-0
Helium	He	Balance	(Cas No) 7440-59-7
			(EC No)231-168-5
Oxygen	O_2	<= 23.5	(Cas No) 7782-44-7
			(EC No) 231-956-9
Hydrogen	H_2	<= 2.93	(Cas No) 1333-74-0
			(EC No)215-605-7

SECTION 4: First-aid measures

4.1 Description of first-aid measures

Inhalation Adverse effects not expected from this product.

Skin contact For liquid spillage - flush with water for at least 15 minutes

Eye contact Immediately flush eyes thoroughly with water for at least 15 minutes.

Ingestion Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Refer to section 11.

4.3 Indication of any immediate medical attention and special treatment needed

None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Water spray or fog.

Unsuitable extinguishing media Do not use water jet to extinguish.

5.2 Specific hazards arising for the substance or mixture

Specific hazards Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products None

5.3 Advice for firefighters

Specific methods Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Move containers away from the fire area if this can be done without risk.

Special protective equipment for firefighters	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper personal protective equipment, including respiratory protection.
Hazchem code	2T
	2 Use fog or fine spray.
	T Wear full fire kit and breathing apparatus. Dilute spill and run-off.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Act in accordance with local emergency plan.
Stay upwind.

6.2 Environmental precautions

None.

6.3 Methods and material for containment and cleaning up

None

6.4 References to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Safe use of the product	The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consult supplier for specific recommendations. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularly) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not breathe gas. Avoid release of product into atmosphere.
Safe handling of the gas receptacle	Refer to supplier's container handling instructions. Do not allow backfeed into the container. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to transfer gases from one cylinder/container to another.
Never use direct flame or electrical heating devices to raise the pressure of a container.
Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.
Suck back of water into the container must be prevented.

7.2 Conditions for safe storage, including any incompatibilities

General	Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Segregate from flammable gases and other flammable materials in store. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials.
Approved handlers/ Location Certificates	No requirements

7.3 Specific use(s)

None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

OEL (Occupational Exposure Limits)	TWA (mg/m³) TWA (ppm) STEL (mg/m³) STEL (ppm)	22500 mg/m³ 12500 ppm 54000 mg/³ 30000 ppm
DNEL (Derived-No Effect Level)	No data available	
PNEC (Predicted No-Effect Concentration	No data available	

8.2 Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Oxygen detectors should be used when asphyxiating gases may be released.
Consider work permit system e.g. for maintenance activities.

8.3 Individual protection measures

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:.
PPE compliant to the recommended EN/ISO standards should be selected.

Eye/face protection	Wear safety glasses with side shields.
Skin protection	Wear working gloves when handling gas containers. Wear safety shoes while handling containers.
Respiratory protection	Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Thermal hazards	None necessary.

8.4 Environmental exposure controls

None necessary.

SECTION 9: Physical and chemical properties

9.1 information on basic physical and chemical properties

Appearance	
Physical state 20°C/101.3kPa	Gas
Colour	Mixture contains one or more component(s) which have the following colour(s): Colourless
Odour	No odour warning properties
Odour threshold	Odour threshold is subjective and inadequate to warn of overexposure.
pH value	Not applicable for gas mixtures
Molar mass [g/mol]	Not applicable for gas mixtures
Melting point [°C]	Not applicable for gas mixtures
Boiling point [°C]	Not applicable for gas mixtures
Flash point [°C]	Not applicable for gas mixtures
Critical temperature [°C]	Not applicable for gas mixtures
Evaporation rate (ether=1)	Not applicable for gas mixtures
Flammability range	Non flammable
Vapour pressure [20°C]	No reliable data available
Vapour pressure [50°C]	No reliable data available
Relative density, gas (air=1)	Lighter or similar to air
Solubility in water [mg/l]	Not applicable for gas mixtures
Partition coefficient n-octanol/water [log Kow]	Not applicable for gas mixtures
Autoignition temperature	Non flammable
Viscosity [20°C]	Not applicable
Explosive properties	Not applicable
Oxidising properties	Not applicable
Coefficient of oxygen equivalency (Ci)	Not applicable

9.2 Other information

None

SECTION 10: Stability and reactivity

10.1 Reactivity

No reactivity hazard other than the effects described in subsections below.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Avoid moisture in installation systems

10.5 Incompatible materials

For additional information on compatibility refer to ISO 11114.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity	No toxicological effects from this product.
Skin corrosion/irritation	No known effects from this product.
Serious eye damage/irritation	No known effects from this product.
Respiratory/skin sensitisation	
Germ cell mutagenicity	No known effects from this product.
Carcinogenicity	No known effects from this product.
Toxic for reproduction: Fertility	No known effects from this product.
Toxic for reproduction: Unborn child	No known effects from this product.
Specific target organ toxicity - Single exposure	No known effects from this product.
Specific target organ toxicity - Repeated exposure	No known effects from this product.
Aspiration hazard	Not applicable for gases and gas mixtures.

SECTION 12: Ecological information

12.1 Toxicity

No ecological damage caused by this product.

12.2 Persistence and degradability

No ecological damage caused by this product.

12.3 Bioaccumulative potential

No ecological damage caused by this product.

12.4 Mobility in soil

No ecological damage caused by this product.

12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6 Other adverse effects

Effect on ozone layer	None.
Effect on global warming	None

SECTION 13: Disposal consideration

13.1 Waste treatment methods

Cylinders should be returned to the manufacturer for disposal of contents
Vent to atmosphere in a well ventilated place. Do not discharge into any place where its accumulation could be dangerous
Discharge to atmosphere in large quantities should be avoided.

13.2 Additional information

None.

SECTION 14: Transport information

2.2 Non-flammable, non-toxic gases

14.1 Land transport

Land Transport Rule: Dangerous Goods 2005: NZS 5433:2012

UN Number	1956
UN proper shipping name	COMPRESSED GAS, N.O.S (HELIUM, CARBON DIOXIDE)
Transport hazard class(es)	2.2
Packing group	Not applicable
Environmental hazards	None

14.2 Transport by sea

IMDG - International Maritime Dangerous Goods

UN Number	1956
UN proper shipping name	COMPRESSED GAS, N.O.S (HELIUM, CARBON DIOXIDE)
Transport hazard class(es)	2.2
Packing group	Not applicable
Environmental hazards	None
Emergency Schedule (EmS)	Fire F-C Spillage S-V

14.3 Transport by air

ICAO - International Civil Aviation Organisation/IATA - International Air Transport Association

UN Number	1956
UN proper shipping name	COMPRESSED GAS, N.O.S (HELIUM, CARBON DIOXIDE)
Transport hazard class(es)	2.2
Packing group	Not applicable
Environmental hazards	None

14.4 Special precautions for user

Hazchem code	2T
Special transport information	Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure there is adequate ventilation. Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

HSNO approval code	Not applicable for gas mixtures

15.2 Chemical safety assessment

A chemical safety assessment does not need to be carried out for this product.

SECTION 16: Other information

16.1 Indication of changes

Update to reflect GHS requirements

Date of first issue	May 2014
Revised date	November 2021
Superseeds	Version 3
Version	4

16.2 Training advice

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

16.3 Full text of H-statements

H280	Contains gas under pressure; may explode if heated

16.4 Disclaimer of liability

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.