Leeden NOX
Leeden National Oxygen Ltd

SAFETY DATA SHEET (SDS)

Revision Date: 3 Dec 2019

Section 1 – IDENTIFICATION

Product Name : **Carbon Dioxide, Carbon Monoxide, Hydrogen, Oxygen in Argon/Nitrogen/Helium Balance**

Product Use : **Industrial / Specialty Gas Applications**

Manufacturer : **Leeden National Oxygen Ltd**
21 Tanjong Kling Road
Singapore 628047

Emergency Phone Number : **+65 6663 0546**

Section 2 – HAZARDS IDENTIFICATION

GHS Classification:
Gas under pressure, Compressed Gas

GHS label elements
Pictogram(s):

Signal Word: Warning

Hazard Statements:
H280 – Contains gas under pressure; may explode if heated.

Precautionary Statement(s)

Prevention
None needed according to classification criteria.

Response
None needed according to classification criteria.

Storage
P403 – Store in a well-ventilated place.

Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME	CHEMICAL FORMULA	CAS #	%
Helium	He	7440-59-7	0-100
Nitrogen	N2	7727-37-9	0-100
Argon	Ar	7727-37-9	0-100
Oxygen	O2	7782-44-7	<23.5
Carbon Dioxide	CO2	124-38-9	<20
Hydrogen	H2	1333-74-0	<1
Carbon Monoxide	CO	630-08-0	<0.3

Section 4 – FIRST AID MEASURES

Inhalation:
Move exposed operator into fresh air.
If breathing stopped, give artificial respiration.
Seek immediate medical attention.

Skin Contact:
Wash exposed skin with soap and water.

Eye Contact:
Flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention.

Ingestion:
Ingestion is not considered a potential route of exposure.

Section 5 – FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:
Carbon dioxide, regular dry chemical

Specific Hazards Arising from the Chemical:
Negligible fire hazard
Pressurized container may rupture or explode if exposed to sufficient heat

Special Protective Actions for Fire Fighters:
Move container from fire area if it can be done without risk.
Cool containers with water spray until well after the fire is out.
Stay away from the ends of tanks. Stop flow of gas.

Section 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear proper personal protective clothing and equipment as needed to prevent any contamination of skin, eyes and personal clothing.

Environmental precautions
Avoid release to the environment.

Methods and materials for containment and cleaning up
Do not extinguish, unless leak can be stopped safety.
Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
Avoid heat, flames, sparks and other sources of ignition. Ventilate closed spaces before entering.
Damaged cylinder(s) should be handled by trained personnel using pre-planned procedures.

Section 7 – HANDLING AND STORAGE

Precautions for safe handling:
Operators should wear protective gloves while handling cylinders.
Avoid breathing gas. Use in outdoors or in a well-venilated area.

Conditions for safe storage, including any incompatibilities:
Store and handle in according with all current regulations and standards.
Segregate cylinder from oxidizing gases in store.
Cylinders should be stored upright and secured firmly to prevent falling.
Protect the cylinder against extreme weather and dampness from ground to prevent rusting.
Stored cylinders in well ventilated area, away from direct heat and ignition source.
Do not allow area where cylinders are stored to exceed 50^{o}C.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters/ Occupational exposure limits:

Carbon Dioxide

Singapore PEL (Long Term) = 5000ppm; 9000mg/m3
Singapore PEL (Short Term) = 30,000ppm; 54,000mg/m3

Carbon Monoxide

Singapore PEL (Long Term) = 25ppm; 29mg/m3

Appropiate engineering control measures

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limit.

Personal protection

Eye Protection: Eye protection recommended. Provide emergency eye wash fountain and quick drench shower in immediate work area.
Respirator: Under conditions of frequent use or exposure, respiratory protection may be needed.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance Physical State	Gas
Molecular weight	Not available
Colour	colorless
Odour	odorless
Odour Threshold	Not available
pH	Not available
Boiling Point	Not available
Melting Point	Not available
Flash point	Non-Flammable
Upper flammability (in Air)	Non-Flammable
Lower flammability (in Air)	Non-Flammable
Vapor Pressure	Not available
Vapor Density	Not available
Relative Density (Air = 1)	Not available
Water Solubility	Not available
Partition coefficient (n-Octanol/Water)	Not available
Auto ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available

Section 10 – STABILITY AND REACTIVITY

Chemical Stability:

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions:

Will not polymerize.

Conditions to Avoid:

Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

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Section 11 – TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity	No data available
Skin Corrosion / Irritation	No information available
Serious eye damage or irritation	No information available
Respiratory or skin sensitization	No data available.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.
Reproductive toxicity	No data available.
STOT (Single Exposure):	No data available.
STOT (Repeated Exposure):	No data available.
Aspiration Hazard:	No data available.

Section 12 – ECOLOGICAL INFORMATION

Toxicity

Fish	No data available.
Crustacea	No data available.
Invertebrate	No data available.
Persistence and Degradability	No data available.
Bioacuumulative Potential	No data available.
Mobility in Soil	No data available.

Section 13 – DISPOSAL CONSIDERATIONS

Disposal Methods

Disposal of the materials are required to adhere to environmental public health (Toxic Industrial Waste) Regulations.
Waste disposal must be in accordance with appropriate local regulations.
Never attempt to dispose off residual locally, return cylinders with residual to gas suppliers.

Section 14- TRANSPORT INFORMATION

UN NUMBER:	**UN1956**
UN PROPER SHIPPING NAME:	**Compressed gas, n.o.s**
TRANSPORT HAZARD CLASS:	**2.2**
REQUIRED LABEL(S):	**2.2**

Section 15 – REGULATORY INFORMATION

National regulations

National legisation: Ensure all national/local regulations are being observed

Section 16- OTHER INFORMATION

Date of Preparation: 3/12/2019

Key/Legend

PEL: Permissible Exposure Limit
LC50: the concentration of the chemical in air that kills 50% of the test animals during the observation period
LD50: the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals

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STOT: Specific Target Organ Toxicity

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