

Section 1. Identification of the material and the supplier

Product: **Calibration Gas**
Product Code: 5736322
Product Use: Test gas/Calibration gas

ANZ Distributor:	Getinge Australia	Getinge Australia (NZ Branch)
Address	11 Help Street Level 7, Suite 701 Chatswood NSW 2067 AUS	600 Great South Road Building A, Ground Floor, unit D Ellerslie, Auckland, 1051 NZ
Telephone	1800 438 464	0800 1 438 4643

Emergency Telephone: AUS +61 2 8014 4558
NZ +64 9 929 1483 or 0800 764 766 (National Poison Centre)

Date of SDS Preparation: 13 June 2023

Section 2. Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval Code:
Gases Under Pressure Mixtures (Oxidising Gases) Group Standard 2020 – HSR002534

Pictograms



Signal Word: **DANGER**

GHS Classification and Category	Hazard Code	Hazard Statement
Liquified Gas	H280	Contains gas under pressure may explode if heated.
Oxidising gases Cat. 1	H270	May cause or intensify fire oxidiser.
Reproductive toxicity Cat. 2	H361	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity – repeated exposure Cat. 2	H373	May cause damage to organs through prolonged or repeated exposure.
specific target organ toxicity - single exposure Cat 3 - Narcotic Effects	H336	May cause drowsiness or dizziness.

Prevention Code	Prevention Statement
P103	Read carefully and follow all instructions.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P220	Keep or store away from clothing and combustible materials.

P244	Keep valves and fittings free from oil and grease.
P260	Do not breathe fumes, gas, mist, vapours or spray.
P271	Use only outdoors or in a well-ventilated area.
P281	Use personal protective equipment as required.

Response Code	Response Statement
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P376	In case of fire: Stop leak if safe to do so.

Storage Code	Storage Statement
P405	Store locked up.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P410 + P403	Protect from sunlight.

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Nitrous oxide	20 – 76.5	10024-97-2
Oxygen	19.5 - 76	7782-44-7
Carbon Dioxide	3 – 59.5	124-38-9
Isoflurane	1 - 5	26675-46-7

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Adverse effects not expected from this product.
If on Skin	Adverse effects not expected from this product.
If Swallowed	Ingestion is not considered a potential route of exposure.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Ingestion: Not applicable.

Inhalation: May cause drowsiness or dizziness. May displace oxygen and cause rapid suffocation. May increase respiration and heart rate.

Skin: Not applicable.

Eye: Not applicable.

Chronic: Suspected of damaging fertility or the unborn child. May cause damage to organs (lungs) through prolonged or repeated exposure (inhalation).

Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

Section 5. Fire Fighting Measures

Hazard Type	Not flammable or combustible
Hazards from products	Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Suitable Extinguishing media	Use extinguishing media appropriate for surrounding fire. Do not use water jet to extinguish.
Precautions for firefighters and special protective clothing	Standard protective clothing and equipment (e.g., Self-Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
HAZCHEM CODE	2S

Section 6. Accidental Release Measures

Wear protective equipment as detailed in Section 8. Clear area of any unprotected personnel. Ensure adequate ventilation. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

Try to stop release if without risk. Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 7. Handling and Storage**Precautions for Handling:**

- Pressurized container: Do not pierce or burn, even after use. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty.
- Read carefully and follow all instructions.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep or store away from clothing and combustible materials.
- Keep valves and fittings free from oil and grease.
- Do not breathe fumes, gas, mist, vapours or spray.
- Use only outdoors or in a well-ventilated area.
- Use personal protective equipment as required.
- Do not eat, drink or smoke when using this product.

Precautions for Storage:

- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed when not in use.
- Protect from sunlight.
- Do not expose to temperatures exceeding 52 °C.
- Protect cylinders from physical damage; do not drag, roll, slide or drop.
- Store away from: Flammable materials. Combustible materials. Reducing agents.

Section 8 Exposure Controls / Personal Protection**WORKPLACE EXPOSURE STANDARDS (provided for guidance only)**

Substance		TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Nitrous oxide	[10024-97-2]	25	45	-	-
Carbon dioxide	[124-38-9]	5000	9000	30000	54000

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices APRIL 2022 13TH EDITION.

Engineering Controls

Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leaks. Consider work permit system e.g. for maintenance activities.

Personal Protection Equipment:



Eyes	Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
Hands	Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand protection.
Skin	Wear suitable protective clothing, e.g. lab coats, coveralls or flame resistant clothing. Wear safety shoes while handling containers. 29 CFR 1910.136
Respiratory	None necessary during normal and routine operations. See Sections 5 & 6.
Hygiene Measures	Wash hands before breaks and after work. Avoid contact with skin and eyes.

Section 9 Physical and Chemical Properties

Appearance	Gas
Colour	Clear, Colourless
Odour	Slightly sweet Mildly pungent ethereal odour
Odour Threshold	Not available
pH (typical)	Not available
Boiling Point	Not available
Melting Point	Not available
Freezing Point	Not available
Flash Point	Not available
Flammability	See Section 2
Oxidising Properties	Not combustible but enhances combustion of other substances. May cause or intensify fire; oxidizer.
Upper and Lower Explosive Limits	Not available
Vapour Pressure	Not available
Vapour Density	Not available
Relative Gas Density	Heavier than air
Water Solubility	Not available
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Viscosity	Not available
Particle Characteristics	Not available
Additional information	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Possibility of hazardous reactions	May react violently with reducing agents. Can form explosive mixtures with flammable materials.

Product Name: **Calibration Gas**
Date of SDS: 13 June 2023

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

Conditions to Avoid	Refer to Section 7.
Incompatible Materials	Combustible materials. Flammable materials. Reducing agents.
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Does not contain any ingredients classified as acutely toxic.
Dermal	Does not contain any ingredients classified as acutely toxic.
Inhalation	May cause drowsiness or dizziness. May displace oxygen and cause rapid suffocation. May increase respiration and heart rate.
Eye	Does not contain any ingredients classified as an eye irritant/corrosive.
Skin	Does not contain any ingredients classified as an skin irritant/corrosive.

Chronic Effects:

Carcinogenicity	Does not contain any ingredients classified as carcinogenic.
Reproductive Toxicity	Suspected of damaging fertility or the unborn child (inhalation).
Germ Cell Mutagenicity	Does not contain any ingredients classified as mutagenic.
Aspiration	Does not contain any ingredients classified as Asp Tox.
STOT/SE	Does not contain any ingredients classified as STOT SE.
STOT/RE	May cause damage to organs (lungs) through prolonged or repeated exposure (inhalation).

Acute toxicity : Not classified:

Isoflurane (26675-46-7)

LD50 oral rat	5450 µl/kg
LC50 inhalation rat (ppm)	13249.8 ppm/4h
ATE US (gases)	13249.800 ppmV/4h

Carbon Dioxide (124-38-9)

LC50 inhalation rat (ppm)	820000 ppm/4h
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Nitrous oxide (10024-97-2)

LC50 inhalation rat (ppm)	250000 ppm/4h
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Oxygen (7782-44-7)

LC50 inhalation rat (ppm)	800000 ppm/4h
ATE US (gases)	800000.000 ppmV/4h

Section 12. Ecotoxicological Information

Not classified as dangerous for the environment.

Product:													
Persistence and degradability	<table> <tr> <td colspan="2">Carbon Dioxide (124- 38-9)</td></tr> <tr> <td>Persistence and degradability</td><td>No ecological damage caused by this product.</td></tr> <tr> <td colspan="2">Nitrous oxide (10024-97-2)</td></tr> <tr> <td>Persistence and degradability</td><td>Not applicable for inorganic gases.</td></tr> <tr> <td colspan="2">Oxygen (7782-44-7)</td></tr> <tr> <td>Persistence and degradability</td><td>No ecological damage caused by this product.</td></tr> </table>	Carbon Dioxide (124- 38-9)		Persistence and degradability	No ecological damage caused by this product.	Nitrous oxide (10024-97-2)		Persistence and degradability	Not applicable for inorganic gases.	Oxygen (7782-44-7)		Persistence and degradability	No ecological damage caused by this product.
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Oxygen (7782-44-7)													
Persistence and degradability	No ecological damage caused by this product.												
Bioaccumulation	<table> <tr> <td colspan="2">Carbon Dioxide (124-38-9)</td></tr> <tr> <td>BCF fish 1</td><td>(no bioaccumulation)</td></tr> </table>	Carbon Dioxide (124-38-9)		BCF fish 1	(no bioaccumulation)								
Carbon Dioxide (124-38-9)													
BCF fish 1	(no bioaccumulation)												

	Log Pow	0.83
	Bioaccumulative potential	No ecological damage caused by this product.
	Nitrous oxide (10024-97-2)	
	Log Pow	Not applicable for inorganic gases.
	Bioaccumulative potential	No data available.
	Oxygen (7782-44-7)	
	Log Pow	Not applicable for inorganic gases.
Mobility in Soil	Bioaccumulative potential	No ecological damage caused by this product.
	Carbon Dioxide (124-38-9)	
	Ecology - soil	No ecological damage caused by this product.
	Nitrous oxide (10024-97-2)	
	Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
	Bioaccumulative potential	No data available.
	Oxygen (7782-44-7)	
Other adverse effects	Ecology - soil	No ecological damage caused by this product.
	No known effects from this product.	

Section 13. Disposal Considerations

Disposal Method:

Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Disposal methods to avoid: None known.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2020 and SNZ HB 5433:2021



Road, Rail, Sea and Air Transport

UN No	3156
Class - Primary	2.2
Subsidiary risk	5.1
Packing Group	N/A
Proper Shipping Name	COMPRESSED GAS, OXIDIZING, N.O.S.(Calibration Gas)
Marine Pollutant	No
Special Provisions	No 274

Section 15 Regulatory Information

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval Code:

Gases Under Pressure Mixtures (Oxidising Gases) Group Standard 2020 – HSR002534

Trigger quantities for this substance:

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	>50m ³ (opened) / 100m ³ (closed)
Tracking Trigger Quantities	Not required

Product Name: **Calibration Gas**
Date of SDS: 13 June 2023

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

Signage Trigger Quantities	250kg
Emergency Response Plan	100kg
Secondary Containment	100kg
Fire Extinguisher	50m ³ = 2 off
Restriction of Use	Only use for the intended purpose.

Section 16 Other Information

Glossary

EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices April 2022 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

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Please contact the New Zealand distributor, if further information is required.

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