# Calibration Gas
## Safety Data Sheet

## 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<br>Level 7, Suite 701<br>Chatswood NSW 2067 AUS | 600 Great South Road<br>Building B, Level 2<br>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.<br>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/m³** | **ppm** | **mg/m³** |
| 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 leakages. 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. |

| | |
|---|---|
| **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 |
| **Nitrous oxide (10024-97-2)** | |
| LC50 inhalation rat (ppm) | 250000 ppm/4h |
| **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** | **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. |
| **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. |
| | Bioaccumulative potential | No ecological damage caused by this product. |
| **Mobility in Soil** | **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)** | |
| | Ecology - soil | No ecological damage caused by this product. |
| **Other adverse effects** | No known effects from this product. | |

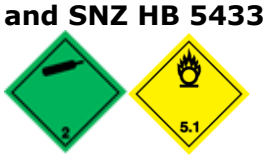
## Section 13. Disposal Considerations

**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 |

| | |
|---|---|
| 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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