


SAFETY DATA SHEET

Material Name: Nitrogen, Compressed Gas
SDS ID: UIG-N2-G01-R0

| Section 1 – Product and Company Identification | |
|---|---|
| Product Identifier: | Nitrogen |
| Other means of identification: | Nitrogen Gas, N2, GAN (Gaseous Nitrogen), Di-atomic nitrogen, Compressed Nitrogen, Food Grade Nitrogen, Nitrogen NF |
| Product Uses: | Industrial manufacturing including inerting, medical, metals processing, foods, etc. |
| Supplier Details: | Universal Industrial Gases, Inc 3001 Emrick Blvd, Suite 320 Bethlehem, PA 18020 USA |
| Emergency Phone Number: | (610) 559-7967 |

| Section 2 – Hazards Identification | |
|---|---|
| Classification in accordance with paragraph (d) of §1910.1200 | Gas Under Pressure – Compressed gas Simple asphyxiant |
| Signal word | Warning |
| Hazard statement(s) | Gas in pipelines may be under pressure, cylinders may explode if heated May displace oxygen and cause rapid suffocation |
| Symbol |  |
| Precautionary statement | Read completely and follow all Safety Data Sheets before use Colorless, odorless gas Never enter an area where nitrogen may have caused an oxygen deficiency Ensure proper ventilation Use equipment and materials rated for service Protect cylinders from sunlight, store in ventilated area Rapid release of compressed gas may cause frostbite if contacted |
| Hazards not otherwise classified | None |
| Toxicity | Non-toxic but may displace oxygen which can cause dizziness, unconsciousness and death by asphyxiation. |

| Section 3 – Compositions / Information of Ingredients | |
|--|---|
| Chemical Name & Formula | Nitrogen, N2 |
| Common Name and Synonyms | Nitrogen Gas, N2, GAN (Gaseous Nitrogen), Di-atomic nitrogen, Compressed Nitrogen, Food Grade Nitrogen, Nitrogen NF |
| CAS Number | 7727-37-9, Nitrogen Compressed |
| Purity | Nominally 100%, typically provided >99%, by volume. NOTE: Some on-site nitrogen generated gas can be as low as 95%, with balance being primarily oxygen. |

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| Section 4 – First Aid Measures | |
|--|--|
| Inhalation | Simple asphyxiant, may cause acute effects including dizziness, drowsiness, nausea, rapid breathing, unconsciousness, and death. Immediately remove victim to fresh air containing sufficient oxygen. If not breathing provide artificial respiration or oxygen by trained personnel, get immediate medical attention. Rescuers must not enter an oxygen deficient area without self contained breathing apparatus. |
| Skin Contact | No adverse effects expected from gas at normal temperature. Very cold gas may cause frostbite. |
| Eye Contact | No adverse effects normally expected from gas. Avoid high pressure or very cold gas. Remove contact lenses. Flush with water, seek medical attention if irritation persists. |
| Ingestion | Not an expected route of exposure, refer to inhalation section above. |
| Most important symptoms, effects, acute and delayed | Refer to asphyxiation acute effects as per inhalation above |
| Immediate medical attention and special treatment needed | If symptoms occur, seek medical advice and attention. |

| Section 5 – Fire Fighting Measures | |
|---|---|
| Suitable extinguishing media | Nitrogen is not flammable, will not burn. Use appropriate extinguishing media for surrounding fire. |
| Special hazards arising (e.g. nature of any hazardous combustion process) | If product under pressure in closed contained, heat from fire may cause pressure to rise and container to burst. Cool any containers with water if possible. Under certain high temperature conditions, nitrogen may react violently to form nitrides with certain metals such as lithium, titanium, magnesium. |
| Special protective equipment and precautions for firefighters | Wear appropriate protective gear and self-contained breathing apparatus. Never attempt to rescue a suspected asphyxiation victim without proper precautions, training and equipment to also avoid exposure to oxygen deficient conditions. |

| Section 6 – Accidental Release Measures | |
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| Personal precautions, protective equipment, emergency procedures | First responders should ensure oxygen concentration in area is safe (>19.5%) or be trained and use self-contained breathing apparatus before attempting to rescue a victim. Evacuate personnel to safe area, do not allow personnel to walk or drive in area that is potentially oxygen deficient. Use oxygen monitors to ensure adequate oxygen levels. Never enter suspected oxygen deficient area without being properly trained and wearing a self-contained breathing apparatus. |
| Methods and materials for containment and clean up | Isolate any leaking sources of nitrogen if it can be done safely. Ventilate the area if possible. |

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| Section 7 – Handling and Storage | |
|--|---|
| Precautions for safe handling | <p>Protect system components against physical damage.</p> <p>Use adequate ventilation.</p> <p>Avoid inhalation and potential confined space areas, use oxygen monitors where appropriate.</p> <p>Never work on a pressurized system.</p> <p>Wear gloves when moving cylinders.</p> <p>Safety glasses always recommended when working with compressed gases.</p> <p>Refer to CGA Safety Bulletin SB-2 “Oxygen Deficient Atmospheres” for additional recommendations.</p> |
| Conditions for safe storage, including any incompatibilities | <p>Use storage containers, piping, valves and fittings designed for storage and distribution of Gaseous Nitrogen.</p> <p>Protect cylinders against physical damage. Store in cool, dry, well-ventilated, fireproof area, away from flammable materials and corrosive atmospheres. Store away from heat and ignition sources and out of direct sunlight. Do not store near elevators, corridors or loading docks. Do not allow area where cylinders are stored to exceed 52°C (125°F).</p> <p>Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap in-place (where provided) until cylinder is placed into service and after it is taken out of service.</p> <p>Use designated CGA fittings and other support equipment. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.</p> |

| Section 8 – Exposure Controls / Personal Protection | |
|--|--|
| Permissible exposure limits | <p>There are no exposure limits for this product.</p> <p>Oxygen levels should be kept above 19.5% for all personnel.</p> |
| Appropriate Engineering Controls | <p>Adequate ventilation.</p> <p>Low Oxygen monitors and alarms in areas where oxygen deficiency is possible.</p> <p>Pressurized systems to have relief valves properly sized, calibrated and vented.</p> |
| Individual protection measures / personal protective equipment | <p>Use self-contained breathing apparatus for entering any suspected oxygen deficient area.</p> <p>Personnel oxygen monitors.</p> <p>Gloves and safety shoes for handling containers/cylinders.</p> <p>Safety glasses / face protection if exposure to discharged gases, eye wash station.</p> <p>Check systems regularly for leaks.</p> |

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| Section 9 – Physical and Chemical Properties | | | |
|---|-----------------|--|--|
| Property | Value | Property | Value |
| Appearance | Colorless | Upper/Lower Explosive Limit | NA |
| Odor | Odorless | Vapor Pressure | NA |
| Odor Threshold | NA | Vapor Density | 0.0725 lb/ft ³ @ 70°F 1.16 kg/m ³ @ 21.1°C |
| Molecular Weight | 28.01 g/mol | Specific Volume | 13.80 ft ³ /lb @ 70°F 0.861 m ³ /kg @ 21.1 °C |
| pH | NA | Relative Density to Air (=1) | 0.97 |
| Melting / Freezing Point | -346°F / -210°C | Solubility | Slight in water |
| Boiling Point | -321°F / -196°C | Partition Coefficient: n-octanol / water | NA |
| Flash Point | NA | Auto Ignition Temperature | NA |
| Evaporation Rate | NA | Decomposition Temperature | NA |
| Flammability | Non-flammable | Viscosity (dynamic) | 0.0175 centipoise @70°F |

| Section 10 – Stability and Reactivity | |
|--|---|
| Reactivity | Not reactive under normal conditions |
| Chemical Stability | Stable at normal temperatures and pressures |
| Possibility of Hazardous Reactions | None typically but will react with metals such as lithium, titanium, and magnesium at high temperatures. |
| Conditions to Avoid | Exposure to certain reactive metals at high temperatures High concentrations causing oxygen deficiency atmosphere leading to asphyxiation effects (see sections 4, 6, 7 & 8) |
| Incompatible Materials | None known |
| Hazardous Decomposition Products | None |


| Section 11 Toxicology Information | |
|---|--|
| Information on likely routes of exposure | No chemical toxicity Inhalation – simple asphyxiant Ingestion – not an expected route Skin – no effects expected normally, cold gas may cause frostbite Eye – no effects expected normally, cold gas may cause frostbite |
| Symptoms related to physical, chemical, toxicological characteristics | As a simple asphyxiant, the presence of high concentrations causing an oxygen deficiency in air has symptoms which include dizziness, drowsiness, nausea, unconsciousness, and death. |
| Delayed, Immediate, chronic effects from short and long term exposure | As a simple asphyxiant, the immediate effects of high concentrations causing oxygen deficiency in air include dizziness, drowsiness, nausea, unconsciousness, and death. |
| Numerical measures of toxicity | LD50 – not available LC50 – not available |
| Carcinogen Listing | Not carcinogenic |

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| Section 12 – Ecological Information | |
|--|---|
| Ecotoxicity | None |
| Persistence and degradability | Not applicable. Normal air is approximately 78% nitrogen by volume. |
| Bio-accumulative potential | No information available |
| Mobility in Soil | No information available |
| Other Adverse effects | No known other effects |

| Section 13 – Disposal Considerations | |
|---|---|
| Waste residues and disposal guidelines | Product will normally dissipate in air. Dispose of any contents or containers in accordance with applicable regulations. Cylinders should be returned in original shipping container/method with any valves closed and protective plugs or caps securely in place. |

| Section 14 – Transport Information | |
|---|---|
| US DOT UN ID Number | UN1066 |
| UN Proper Shipping Name | Nitrogen, compressed |
| DOT Transportation Hazard Class | DOT Class 2.2 (Non-Flammable compressed gas) Emergency Response Guide No. 121 |
| |  |
| Packing Group | Not Applicable |
| Environmental Hazards | None |
| Transport Bulk Codes | Not Applicable |
| Special Precautions | 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. Isolate area to avoid personnel exposure or other vehicles entering the area. High pressure gas cylinders should have outlet valves closed, with plugs/valve caps secured in place. Load space must be separated from driver compartment. Cylinders should be firmly secured from moving or falling during transport. |

| Section 15 - Regulatory Information | |
|--|--|
| US Federal TSCA 8(a) CDR - exempted | |
| US EPA SARA Title III Section 312 hazard Category: Sudden release of pressure hazard | |
| US States Right-To-Know Lists: Massachusetts, New Jersey, Pennsylvania | |

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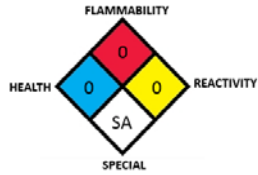
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Section 16 – Other Information

US Nation Fire Protection Agency (NFPA) hazard ratings:
 (Scale of 0 to 4, with 0 = lowest increasing to 4 = highest hazard, refer to NFPA for details related to the relative rating for each category)

Health: 0
 Fire: 0
 Reactivity: 0
 Special: SA (Simple Asphyxiant)



US Hazardous Material Information System (HMIS) ratings:
 (Scale: 0 = minimal, 1 = slight, 2= moderate, 3 = serious, 4 = severe)

| | |
|------------------|---|
| HEALTH | 0 |
| FLAMMABILITY | 0 |
| PHYSICAL HAZARDS | 3 |

New SDS: 29 June 2018 Rev 0

USE OF THIS INFORMATION:

Universal Industrial Gases, Inc. offers this information to promote the safe use of this product through awareness of hazards and safety information. Those who use or transport or sell this product to others should:

- 1) Disseminate this information internally to all workplace areas, employees, agents and contractors likely to encounter this product
- 2) Provide supplemental hazards awareness, safety information, operation and maintenance procedures to the workplace areas and employees, agents and contractors likely to encounter this product
- 3) Furnish this information to all their customers who purchase this product
- 4) Ask each purchaser or user of the product to notify its employees and customers of the product hazards and safety information.

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