1. IDENTIFICATION

Product identifier
Product Name: METHANE (<=14.3) in NITROGEN

Other means of identification
Safety data sheet number: LIND-M0120
UN/ID no.: UN1956

Recommended use of the chemical and restrictions on use
Recommended Use: Industrial and professional use.
Uses advised against: Consumer use

Details of the supplier of the safety data sheet
Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC
575 Mountain Ave.
Murray Hill, NJ 07974
Phone: 908-464-8100
www.lindeus.com

Linde Gas Puerto Rico, Inc.
Road 869, Km 1.8
Barrio Palmas, Catano, PR 00962
Phone: 787-641-7445
www.pr.lindegas.com

Linde Canada Limited
5860 Chedworth Way
Mississauga, Ontario L5R 0A2
Phone: 905-501-1700
www.lindecanada.com

* May include subsidiaries or affiliate companies/divisions.

For additional product information contact your local customer service.

Emergency telephone number
Company Phone Number: 800-232-4726 (Linde National Operations Center, US)
905-501-0802 (Canada)
CHEMTREC: 1-800-424-9300 (North America) +1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Classification

------------------------------------------
Page 1 / 9
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Gases under pressure</th>
<th>Compressed gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple asphyxiants</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Label elements**

**Signal word**
Warning

**Hazard Statements**
Contains gas under pressure; may explode if heated
May displace oxygen and cause rapid suffocation

**Precautionary Statements - Prevention**
Do not handle until all safety precautions have been read and understood
Use and store only outdoors or in a well ventilated place
Use a backflow preventive device in piping
Use only with equipment rated for cylinder pressure
Close valve after each use and when empty

**Precautionary Statements - Response**
Get medical attention/advice. IF INHALED: Remove person to fresh air and keep comfortable for breathing.

**Precautionary Statements - Storage**
Protect from sunlight when ambient temperature exceeds 52°C/125°F

**Hazards not otherwise classified (HNOC)**
Not applicable

---

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Volume %</th>
<th>Chemical Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>BALANCE</td>
<td>N$_2$</td>
</tr>
<tr>
<td>Methane</td>
<td>74-82-8</td>
<td>≤14.3</td>
<td>CH$_4$</td>
</tr>
</tbody>
</table>

Composition covers range of mixtures that fall within the same hazard classifications.

### 4. FIRST AID MEASURES

**Description of first aid measures**

**General advice**
Show this safety data sheet to the doctor in attendance.
5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific extinguishing methods
Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical
Non-flammable gas. Cylinders may rupture under extreme heat. Methane concentrations less than or equal to 10% in Argon are considered nonflammable. See Table 1 of CGA P-23.

Hazardous combustion products
Carbon monoxide. Carbon dioxide (CO₂).

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Environmental precautions

Environmental precautions
Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment
Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1.
or call your closest Linde location.

Methods for cleaning up

Return cylinder to Linde or an authorized distributor.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use a backflow preventive device in piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

For additional recommendations consult Compressed Gas Association's (CGA) Safety Bulletin SB-2, Oxygen-Deficient Atmospheres.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage.

Incompatible materials

None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>TWA: 1000 ppm</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Controls

Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment
Eye/ face protection
Wear safety glasses with side shields (or goggles).

Skin and body protection
Work gloves and safety shoes are recommended when handling cylinders.

Respiratory protection
Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen-deficient atmospheres (<19.5%). If exposure limits are exceeded or irritation is experienced, NIOSH/ MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Product Information</th>
<th>Compressed gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Appearance</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability Limit in Air (For Methane)</td>
<td>5%</td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>15%</td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>5%</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>580 °C / 1076 °F (Methane)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Molecular weight</th>
<th>Boiling point</th>
<th>Vapor Pressure</th>
<th>Vapor density (air =1)</th>
<th>Gas Density kg/ m³@ 20°C</th>
<th>Critical Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>28.01</td>
<td>-196 °C</td>
<td>Above critical temperature</td>
<td>0.97</td>
<td>1.153</td>
<td>-146.9 °C</td>
</tr>
<tr>
<td>Methane</td>
<td>16.04</td>
<td>-161.49 °C</td>
<td>Above critical temperature</td>
<td>0.56</td>
<td>0.6784</td>
<td>-82.10 °C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under normal conditions.

Explosion data
| Sensitivity to Mechanical Impact | None. |
| Sensitivity to Static Discharge  | None. |

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Heat, flames and sparks. None under recommended storage and handling conditions (see Section 7).
Incompatible materials
None known.

Hazardous Decomposition Products
Carbon monoxide (CO).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

**Inhalation**
Product is a simple asphyxiant.

**Skin contact**
No data available.

**Eye contact**
No data available.

**Ingestion**
Not an expected route of exposure.

Information on toxicological effects

**Symptoms**
Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<=18%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation**
Not classified.

**Sensitization**
Not classified.

**Germ cell mutagenicity**
Not classified.

**Carcinogenicity**
This product does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP.

**Reproductive toxicity**
Not classified.

**STOT - single exposure**
Not classified.

**STOT - repeated exposure**
Not classified.

**Chronic toxicity**
None known.

**Aspiration hazard**
Not applicable.

Numerical measures of toxicity

**Component Level Information:**

**Product Information**

**Oral LD50**
No information available

**Dermal LD50**
No information available

**Inhalation LC50**
No information available

12. ECOLOGICAL INFORMATION

**Ecotoxicity**
No known acute aquatic toxicity.

**Persistence and degradability**
Not applicable.

**Bioaccumulation**
No information available.
13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14. TRANSPORT INFORMATION

DOT
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
Description UN1956, Compressed gas, n.o.s. (Nitrogen, Methane), 2.2
Emergency Response Guide Number 126

TDG
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
Description UN1956, Compressed gas, n.o.s., 2.2

MEX
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
Description UN1956, Compressed gas, n.o.s. (Nitrogen, Methane), 2.2

IATA
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
ERG Code 2L
Description UN1956, Compressed gas, n.o.s. (Nitrogen, Methane), 2.2

IMDG
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
EmS-No. F-C, S-V
Special Provisions 274
Description UN1956, Compressed gas, n.o.s. (Nitrogen, Methane), 2.2

ADR
UN/ID no. UN1956
Proper shipping name Compressed gas, n.o.s.
Hazard Class 2.2
Classification code 1A
Tunnel restriction code (E)
Special Provisions 274, 655
Description UN1956, Compressed gas, n.o.s. (Nitrogen, Methane), 2.2, (E)
Labels 2.2
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td></td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td></td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- **DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- **EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**US Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**
This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

**CWA (Clean Water Act)**
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**Risk and Process Safety Management Programs**
This material, as supplied, contains one or more regulated substances with specified thresholds under 40 CFR Part 68 or regulated as a highly hazardous chemical pursuant to the 29 CFR Part 1910.110 with specified thresholds:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Toxic Substances</th>
<th>U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Flammable Substances</th>
<th>U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td></td>
<td>10000 lb</td>
<td></td>
</tr>
</tbody>
</table>

**US State Regulations**

**California Proposition 65**
This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon 7440-37-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Methane
74-82-8

16. OTHER INFORMATION

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

Issue Date
22-May-2015

Revision Date
22-May-2015

Revision Note
Initial Release

General Disclaimer
For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between Linde LLC, Linde Merchant Production, Inc. or Linde Gas North America LLC (or any of their affiliates and subsidiaries) and the purchaser.

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End of Safety Data Sheet