1. IDENTIFICATION

Product identifier
Product Name
DIBORANE (1-<1.6%) In ARGON, HELIUM or NITROGEN

Other means of identification

Safety data sheet number
LIND-M0065

UN/ID no.
UN1954

Recommended use of the chemical and restrictions on use

Recommended Use
Electronics, 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)
Classification

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

<table>
<thead>
<tr>
<th>Acute toxicity - Inhalation (Gases)</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Flammable gases</td>
<td>Category 1</td>
</tr>
<tr>
<td>Pyrophoric gas</td>
<td>Yes</td>
</tr>
<tr>
<td>Gases under pressure</td>
<td>Compressed gas</td>
</tr>
</tbody>
</table>

Label elements

Signal word
Danger

Hazard Statements
Extremely flammable gas
Catches fire spontaneously if exposed to air
Contains gas under pressure; may explode if heated
Harmful if inhaled
May cause damage to lung, kidney and central nervous system
May form explosive mixtures with air
Symptoms may be delayed

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Keep away from heat, sparks, open flames, hot surfaces. — No smoking
Do not breathe gas.
Do not eat, drink or smoke when using this product
Wash hands thoroughly after handling
Use and store only outdoors or in a well ventilated place
Use a backflow preventive device in piping
Use equipment purged with inert gas or evacuated prior to discharge from cylinder
Use only with equipment of compatible materials of construction and rated for cylinder pressure
Do not open valve until connected to equipment prepared for use
Close valve after each use and when empty
When returning cylinder, install leak tight valve outlet cap or plug

Precautionary Statements - Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Leaking gas fire: do not extinguish, unless leak can be stopped safely
Eliminate all ignition sources if safe to do so

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

Precautionary Statements - Disposal
Dispose of contents/containers in accordance with container supplier/owner instructions

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>0-99</td>
<td>N₂</td>
</tr>
<tr>
<td>Helium</td>
<td>7440-59-7</td>
<td>0-99</td>
<td>He</td>
</tr>
<tr>
<td>Argon</td>
<td>7440-37-1</td>
<td>0-99</td>
<td>Ar</td>
</tr>
<tr>
<td>Diborane</td>
<td>19287-45-7</td>
<td>1-&lt;1.6</td>
<td>B₂H₆</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.

Inhalation
Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Skin contact
Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention immediately if symptoms occur.

Eye contact
Immediately flush eye with running water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if symptoms occur.

Ingestion
Not an expected route of exposure.

Self-protection of the first aider
Remove all sources of ignition. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Use personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms
May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. May cause respiratory irritation. Tightness in chest, shortness of breath, cough, and wheezing. Symptoms may be delayed.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Delayed pulmonary edema may occur. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Dry chemical or CO₂. Water spray (fog). DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED. It may be safer to allow the fire to burn itself out. Use water spray to knock down vapors and cool fire-exposed containers.

**Unsuitable extinguishing media**
Do not use halogenated extinguishing agents or foam. Diborane reacts with these materials and will form shock sensitive and thermally sensitive materials.

**Specific extinguishing methods**
If possible, stop the flow of gas. Do not extinguish the fire until supply is shut off as otherwise an explosive-ignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Ventilation fans must be explosion proof. Use non-sparking tools to close container valves.

Use water spray to cool surrounding containers. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Damaged cylinders should be handled only by specialists.

**Specific hazards arising from the chemical**
Diborane is pyrophoric, and may ignite spontaneously in moist air at room temperature, it may react violently with water to form hydrogen, and may accumulate and explode without ignition source. The heat of combustion from a diborane fire is greater than that from a similar hydrocarbon, such as ethane. Extremely flammable gas. May form explosive mixtures with air. Will be easily ignited by heat, sparks or flames. Vapors may travel to source of ignition and flash back. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may accumulate in confined areas (basement, tanks, hopper/ tank cars, etc.). Cylinders may rupture under extreme heat.

**Hazardous combustion products**
Boron compounds.

**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. As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Additional chemical protective clothing may be required to protect from toxic decomposition products.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

**Personal precautions**
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to safe areas. Keep people away from and upwind of spill/ leak. Ensure adequate ventilation, especially in confined areas. Consider the risk of potentially explosive atmospheres. Monitor concentration of released product. All equipment used when handling the product must be grounded. Use non-sparking tools and equipment. Use personal protection recommended in Section 8. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

**Environmental precautions**
Beware of vapors accumulating to form explosive concentrations. 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
Handle this gas/gas mixture only in sealed and purged systems. All areas where this gas mixture is used should be monitored with very sensitive gas detection instruments. Detection of concentrations below 50% of the PEL (0.1 ppm) of Diborane should trigger immediate response and corrective action. Detection of higher levels should initiate an alarm calling for evacuation of all personnel with the potential to be exposed.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. Separate flammable gas cylinders from oxygen and other oxidizers by a minimum distance of 20 ft. or by a 5 ft. high barrier with a minimum fire resistance rating of a half an hour. "NO SMOKING" signs should be posted in storage and use areas.

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.

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. Outside or detached storage is preferred.

Incompatible materials
Diborane will react explosively with tetravinyl lead, octanol oximine and sodium hydroxide mixtures, and benzene. Diborane will react violently with halocarbon liquids, strong oxidizers or boron hydrides. Diborane reacts with aluminum and lithium to form complex hydrides that can ignite spontaneously in air. In the presence of oxygen and halogenated hydrocarbons Diborane will form shock sensitive and thermally sensitive mixtures. Diborane will attack some forms of rubber and plastics.

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>Diborane</td>
<td>TWA: 0.1 ppm</td>
<td>TWA: 0.1 ppm</td>
<td>IDLH: 15 ppm</td>
</tr>
<tr>
<td>19287-45-7</td>
<td></td>
<td></td>
<td>TWA: 0.1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA: 0.1 mg/ m³</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.
Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Controls

Showers. Eyewash stations. Explosion proof ventilation systems. Exhaust gas should be vented to a gas treatment system. Consider installation of leak detection systems in areas of use and storage. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tightly fitting safety goggles.

Skin and body protection

Wear fire/flame resistant/retardant clothing. Take precautionary measures against static discharge. Appropriate protective and chemical resistant gloves, clothing and splash protection, or fully encapsulating vapor protective clothing to prevent exposure. For materials of construction, consult protective clothing manufacturer's specifications. (Teflon®, or Kel-F® are generally effective. Do not use PVC, natural rubber, butyl rubber or polypropylene). 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 any exposure to product is anticipated, NIOSH certified respiratory protection should be worn. Positive-pressure supplied air respirator is required if exposure limits are exceeded or if leak is suspected. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Product Information</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Compressed gas</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless.</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Slight sweet.</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>2.5 ppm (Diborane)</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>(For Diborane)</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>36 °C / 97 °F (Diborane)</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>Not applicable</td>
<td></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>Helium</td>
<td>4.00</td>
<td>-268.9 °C</td>
<td>Above critical</td>
<td>0.138</td>
<td>0.165</td>
<td>-267.9 °C</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
Due to presence of diborane, this gas mixture may react violently with a broad spectrum of materials, including air and may lead to reactions of this gas mixture.

Chemical stability
Unstable at elevated temperatures. Diborane mixture storage time should be minimized.

Explosion data

| Sensitivity to Mechanical Impact | Due to the presence of Diborane, this mixture may become shock and thermally sensitive in the presence of impurities such as oxygen, water, halogenated hydrocarbons and other materials, when Diborane level is at its highest. |
| Sensitivity to Static Discharge | Yes. |
| Possibility of Hazardous Reactions | May form explosive mixtures with air. |
| Hazardous polymerization | Diborane will polymerize to form liquid pentaborane. No information was available for reaction rate. |

Conditions to avoid
Heat, flames and sparks. Exposure to air or moisture over prolonged periods.

Incompatible materials
Diborane will react explosively with tetravinyl lead, octanol oxime and sodium hydroxide mixtures, and benzene. Diborane will react violently with halocarbon liquids, strong oxidizers or boron hydrides. Diborane reacts with aluminum and lithium to form complex hydrides that can ignite spontaneously in air. In the presence of oxygen and halogenated hydrocarbons Diborane will form shock sensitive and thermally sensitive mixtures. Diborane will attack some forms of rubber and plastics.

Hazardous Decomposition Products
Hydrogen, higher boranes at room temperature.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Diborane is extremely toxic at very low levels. The lethal concentration in humans is 159 ppm for 15 minutes. Twenty five ppm for five minutes has caused mild symptoms and 1000 ppm for one minute may be fatal. Odor will not provide sufficient warning of exposure. Potentially dangerous amounts may be inhaled before odor is detected.

Skin contact
May cause irritation.

Eye contact
May cause irritation.

Ingestion
Not an expected route of exposure.

Information on toxicological effects

Symptoms
May cause central nervous system depression with nausea, headache, dizziness, vomiting, and
incoordination. Tightness in chest, shortness of breath, cough, and wheezing. Symptoms may be delayed.

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

Irritation
Sensitization
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
STOT - single exposure
STOT - repeated exposure
Target Organ Effects
Aspiration hazard

Not classified.
Not classified.
Not classified.
This product does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP.
Not classified.
Category 2. May cause damage to lung, kidney and central nervous system.
Category 2. Central nervous system.
Liver, Kidney, Respiratory system, Central nervous system (CNS).
Not applicable.

Numerical measures of toxicity

Component Level Information:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
<th>Inhalation LC50 (CGA P-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diborane 19287-45-7</td>
<td></td>
<td></td>
<td></td>
<td>80 ppm (Rat) time adjusted</td>
</tr>
</tbody>
</table>

Product Information

<table>
<thead>
<tr>
<th></th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (inhalation-gas) >2500-4000 ppm

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

Note: The technical names of components listed as part of shipping description will depend on specific mixture composition and/or balance gas.

DOT
UN/ID no. UN1954
Proper shipping name Compressed gas, flammable, n.o.s.
Hazard Class 2.1
Description UN1951 Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1

TDG
UN/ID no. UN1954
Proper shipping name Compressed gas, flammable, n.o.s.
Hazard Class 2.1
Description UN1954, Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1

MEX
UN/ID no. UN1954
Proper shipping name Compressed gas, flammable, n.o.s.
Hazard Class 2.1
Description UN1954, Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1

IATA
Proper shipping name UN1954
Hazard Class 2.1
ERG Code 10L
Special Provisions A1
Description UN1954, Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1

IMDG
UN/ID no. UN1954
Proper shipping name Compressed gas, flammable, n.o.s.
Hazard Class 2.1
EmS-No. F-D, S-U
Special Provisions 274
Description UN1954, Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1

ADR
UN/ID no. UN1954
Proper shipping name Compressed gas, flammable, n.o.s.
Hazard Class 2.1
Classification code 1F
Tunnel restriction code (B/ D)
Special Provisions 274
Description UN1954, Compressed gas, flammable, n.o.s.(Diborane, XXXX), 2.1 (B/ D)
Labels 2.1

15. REGULATORY INFORMATION

International Inventories
TSCA Complies
DSL/ NDSL Complies
EINECS/ ELINCS Complies

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

- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: Yes
- Sudden release of pressure hazard: Yes
- Reactive Hazard: No

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/ SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diborane</td>
<td>-</td>
<td>100 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

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>Diborane</td>
<td>2500 lb</td>
<td></td>
<td>100 lb</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>
<tr>
<td>Helium 7440-59-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nitrogen 7727-37-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Diborane 19287-45-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

International Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diborane</td>
<td></td>
<td>Mexico: TWA 0.1 ppm Mexico: TWA 0.1 mg/ m³</td>
</tr>
</tbody>
</table>
### 16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**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.

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End of Safety Data Sheet