

Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name	Diborane
Synonyms	Boroethane; Boron Hydride; Diboron Hexahydride' Borane
CAS Number	19287-45-7
Product Code	20043
EC Number	242-940-6
Molecular Formula	:H 6:B 2:

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s)	Dopant in electronics industry; preparation of boron nitride; catalyst for polymerization; conversion of olefins to trialkyl boranes and amines to borons; selective reducing agent with carbonyl compounds to form alcohols.
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1.3 Details of the supplier of the safety data sheet

Manufacturer	Air Liquide 2700 Post Oak Blvd. Houston, TX 77056 United States www.us.airliquide.com sds@airliquide.com
Telephone (Technical)	713-896-2896
Telephone (Technical)	800-819-1704

1.4 Emergency telephone number

Manufacturer	800-424-9300 - CHEMTREC
Manufacturer	+1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP	Flammable Gases 1 - H220 Compressed Gas - H280 Skin Corrosion 1 - H314 Serious Eye Damage 1 - H318 Acute Toxicity Inhalation 1 - H330 Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335 Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336
DSD/DPD	Extremely Flammable (F+) Very Toxic (T+)

Corrosive (C)
Irritant (Xi)
R12, R17, R26, R34, R37, R41, R67

2.2 Label Elements

CLP

DANGER



Hazard statements | H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H314 - Causes severe skin burns and eye damage.
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness

Precautionary statements

Prevention | P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
P260 - Do not breathe gas.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - Wear respiratory protection.

Response | P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P321 - Specific treatment, see supplemental first aid information.
P363 - Wash contaminated clothing before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 - Immediately call a POISON CENTER or doctor/physician.

Storage/Disposal | P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



Risk phrases | R12 - Extremely flammable.
R17 - Spontaneously flammable in air.
R26 - Very toxic by inhalation.
R34 - Causes burns.
R37 - Irritating to respiratory system.
R41 - Risk of serious damage to eyes.
R67 - Vapours may cause drowsiness and dizziness.

Safety phrases | S9 - Keep container in a well ventilated place
S16 - Keep away from sources of ignition - No Smoking.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 - After contact with skin, wash immediately with plenty of soap and water.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.

S39 - Wear eye/face protection.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

- CLP** | Diborane mixes readily with air to form explosive mixtures and may ignite spontaneously.
According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.
- DSD/DPD** | This product is considered dangerous according to the European Directive 67/548/EEC.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012** | Flammable Gases 1 - H220
Compressed Gas - H280
Pyrophoric Gas
Skin Corrosion 1A - H314
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 1 - H330
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** | Extremely flammable gas - H220
Contains gas under pressure; may explode if heated - H280
Catches fire spontaneously if exposed to air - H250
Causes severe skin burns and eye damage. - H314
Causes serious eye damage - H318
Fatal if inhaled - H330
May cause respiratory irritation - H335
May cause drowsiness or dizziness - H336

Precautionary statements

- Prevention** | Keep away from heat, sparks, open flames and/or hot surfaces. - P210
Do not breathe gas. - P260
Wash thoroughly after handling. - P264
Use only outdoors or in a well-ventilated area. - P271
Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response** | Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377
Eliminate all ignition sources if safe to do so. - P381
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
Call a POISON CENTER or doctor/physician if you feel unwell. - P312
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
Specific treatment, see supplemental first aid information. - P321
Wash contaminated clothing before reuse. - P363
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331
Immediately call a POISON CENTER or doctor/physician. - P310

- Storage/Disposal** | Store in a well-ventilated place. Keep container tightly closed. - P403+P233

Store locked up. - P405

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
- Flammable Gases - B1
- Reactive Flammable Materials - B6
- Very Toxic - D1A
- Corrosive - E

2.2 Label elements

WHMIS



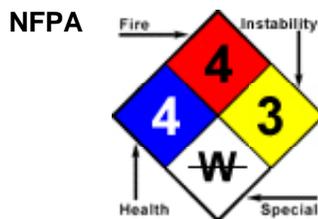
- Compressed Gas - A
- Flammable Gases - B1
- Reactive Flammable Materials - B6
- Very Toxic - D1A
- Corrosive - E

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information



Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
				EU DSD/DPD: Self Classified - F+; R12; C; R34; Xi; R41; T+; R26; R37; R67;

Diborane	CAS:19287-45-7 EINECS:242-940-6	100%	Inhalation-Rat LC50 • 40 ppm 4 Hour(s)	R17 EU CLP: Self Classified - Flam. Gas 1, H220; Press. Gas - Comp., H280; Eye Dam. 1, H318; Skin Corr. 1A, H314, STOT SE 3: Resp. Irrit., H335; STOT SE: Narc., H336; Acute Tox. 1, H330 OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp.; Pyr. Gas; Eye Dam. 1; Skin Corr. 1A; STOT SE 3: Resp. Irrit. & Narc.; Acute Tox. 1 (Inhl)
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3.2 Mixtures

- | Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

Section 4 - First Aid Measures

4.1 Description of first aid measures

- Inhalation**
- | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.
- Skin**
- | IF ON SKIN: Wash with plenty of soap and water. If irritation develops and persists, get medical attention.
- Eye**
- | Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. If irritation develops and persists, get medical attention.
- Ingestion**
- | Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

- | Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- | All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.

4.4 Other information

- | Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

- Suitable Extinguishing Media**
- | SMALL FIRES: Dry chemical or CO₂.
 - | LARGE FIRES: Water spray or fog.
- Unsuitable Extinguishing Media**
- | No data available

5.2 Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- | EXTREMELY FLAMMABLE
Will form explosive mixtures with air.
Vapors may travel to source of ignition and flash back.

Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.

Containers may explode when heated.

Ruptured cylinders may rocket.

Hazardous Combustion Products

| No data available

5.3 Advice for firefighters

| Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

Wear positive pressure self-contained breathing apparatus (SCBA).

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED
Move containers from fire area if you can do it without risk.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.

FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.

FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.

FIRE INVOLVING TANKS: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

| Ventilate the area before entry. Do not walk through spilled material. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures

| ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. LARGE SPILL: Consider initial downwind evacuation for at least 800 meters (1/2 mile)

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

| All equipment used when handling the product must be grounded.

Stop leak if you can do it without risk.

If possible, turn leaking containers so that gas escapes rather than liquid.

Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.

Do not direct water at spill or source of leak.

Isolate area until gas has dispersed.

6.4 Reference to other sections

| Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use only with adequate ventilation. Ventilate closed spaces before entering. All equipment used when handling the product must be grounded. Ground and/or bond container and receiving equipment. Do not use sparking tools. Take precautionary measures against static charges. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities**Storage**

- Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52C (125F). Cylinders must be protected from the environment, and preferably kept at room temperature approximately 21C (70F). Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection**8.1 Control parameters**

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	China	France
Diborane (19287-45-7)	STELs	Not established	Not established	Not established	0.3 mg/m3 STEL	Not established
	TWAs	0.1 ppm TWA	0.1 ppm TWA	0.1 ppm TWAEV; 0.11 mg/m3 TWAEV	0.1 mg/m3 TWA	0.1 ppm TWA [VME]; 0.1 mg/m3 TWA [VME]
Exposure Limits/Guidelines (Con't.)						
	Result	Ireland	Israel	NIOSH	OSHA	OSHA Vacated
Diborane (19287-45-7)	TWAs	0.1 ppm TWA; 0.1 mg/m3 TWA	0.1 ppm TWA	0.1 ppm TWA; 0.1 mg/m3 TWA	0.1 ppm TWA; 0.1 mg/m3 TWA	0.1 ppm TWA; 0.1 mg/m3 TWA
Exposure Limits/Guidelines (Con't.)						
	Result	Portugal		Spain		
Diborane (19287-45-7)	TWAs	0.1 ppm TWA [VLE-MP]		0.1 ppm TWA [VLA-ED]; 0.11 mg/m3 TWA [VLA-ED]		

8.2 Exposure controls**Engineering Measures/Controls**

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment**Respiratory**

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
 STEL = Short Term Exposure Limits are based on 15-minute exposures
 TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

NIOSH = National Institute of Occupational Safety and Health
 OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with a sickly, sweet odor.
Color	Colorless	Odor	Sickly, sweet odor.
Odor Threshold	1.8 to 3.5 ppm		
General Properties			
Boiling Point	-134.5 F(-92.5 C)	Melting Point	-265.9 F(-165.5 C)
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	0.952 Water=1	Density	0.0712 lb(s)/ft ³ @ 21.1 C(69.98 F)
Water Solubility	Decomposes forms boric acid and hydrogen	Viscosity	Data lacking
Explosive Properties	Data lacking	Oxidizing Properties:	Data lacking
Volatility			
Vapor Pressure	536.55 psia @ 15.5 C(59.9 F)	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	-130 F(-90 C)	UEL	98 %
LEL	0.8 %	Autoignition	104 to 122 F(40 to 50 C)
Flammability (solid, gas)	Flammable gas.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat.

10.5 Incompatible materials

- Diborane will react explosively with moisture in the air. Diborane will react explosively with tetraethyl lead, octanol oximine and sodium hydroxide mixtures, benzene. Diborane will react violently with halocarbon liquids, strong oxidizers (i.e. chlorine gas)

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.

10.6 Hazardous decomposition products

- | When heated to decomposition, Diborane forms hydrogen gas and boric acid.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

	CAS	
Diborane	19287-45-7	Acute Toxicity: Inhalation-Rat LC50 • 40 ppm 4 Hour(s); Multi-dose Toxicity: Inhalation-Rat TClO • 100 ppb 6 Hour(s) 8 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Other changes; Blood: Pigmented or nucleated red blood cells; Nutritional and Gross Metabolic: Changes in Chemistry or Temperature: Na</i>

GHS Properties	Classification
Acute toxicity	EU/CLP • Acute Toxicity - Inhalation 1 OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Skin Corrosion 1 OSHA HCS 2012 • Skin Corrosion 1A
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects; Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects; Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Serious Eye Damage 1 OSHA HCS 2012 • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate)

- | Fatal if inhaled. May cause respiratory irritation. May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.

Chronic (Delayed)

- | No data available

Skin

- Acute (Immediate)** | Causes severe skin burns and eye damage.
Chronic (Delayed) | No data available

Eye

- Acute (Immediate)** | Causes serious eye damage.
Chronic (Delayed) | No data available

Ingestion

- Acute (Immediate)** | Ingestion is not anticipated to be a likely route of exposure to this product.
Chronic (Delayed) | No data available

Key to abbreviations

LC = Lethal Concentration

TC = Toxic Concentration

Section 12 - Ecological Information**12.1 Toxicity**

- | Material data lacking.

12.2 Persistence and degradability

- | Material data lacking.

12.3 Bioaccumulative potential

- | Material data lacking.

12.4 Mobility in Soil

- | Material data lacking.

12.5 Results of PBT and vPvB assessment

- | PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

- | No studies have been found.

Section 13 - Disposal Considerations**13.1 Waste treatment methods**

- Product waste** | Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
Packaging waste | Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1911	Diborane	2.1,2.3	NDA	NDA
TDG	UN1911	DIBORANE	2.1,2.3	NDA	NDA

IMO/MDG	UN1911	DIBORANE	2.1,2.3	NDA	NDA
IATA/ICAO	NDA	Forbidden	NDA	NDA	NDA

14.6 Special precautions for user

Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant.

14.8 Other information

Special Provisions 1. Inhalation Hazard Zone A

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications | Pressure(Sudden Release of), Acute, Chronic, Fire, Reactive

State Right To Know				
Component	CAS	MA	NJ	PA
Diborane	19287-45-7	Yes	Yes	Yes

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Diborane	19287-45-7	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	CAS	TSCA
Diborane	19287-45-7	Yes

Canada**Labor****Canada - WHMIS - Classifications of Substances**

• Diborane 19287-45-7 Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Diborane 19287-45-7 1 %

Environment**Canada - CEPA - Priority Substances List**

• Diborane 19287-45-7 Not Listed

China**Environment****China - Ozone Depleting Substances - First Schedule**

• Diborane 19287-45-7 Not Listed

China - Ozone Depleting Substances - Second Schedule

• Diborane	19287-45-7	Not Listed
China - Ozone Depleting Substances - Third Schedule		
• Diborane	19287-45-7	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists		
• Diborane	19287-45-7	Not Listed
China - Dangerous Goods List		
• Diborane	19287-45-7	
China - Export Control List - Part I Chemicals		
• Diborane	19287-45-7	Not Listed

Europe**Other**

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification		
• Diborane	19287-45-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits		
• Diborane	19287-45-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling		
• Diborane	19287-45-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations		
• Diborane	19287-45-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases		
• Diborane	19287-45-7	Not Listed

Germany**Environment**

Germany - TA Luft - Types and Classes		
• Diborane	19287-45-7	Not Listed
Germany - Water Classification (VwVwS) - Annex 1		
• Diborane	19287-45-7	Not Listed
Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes		
• Diborane	19287-45-7	Not Listed
Germany - Water Classification (VwVwS) - Annex 3		
• Diborane	19287-45-7	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS		
• Diborane	19287-45-7	Not Listed

Portugal**Other**

Portugal - Prohibited Substances

• Diborane	19287-45-7	Not Listed
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United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Diborane	19287-45-7	Not Listed
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Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Diborane	19287-45-7	Not Listed
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United Kingdom - List of Dangerous Substances in Water

• Diborane	19287-45-7	Not Listed
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United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Diborane	19287-45-7	100 lb TQ
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U.S. - OSHA - Specifically Regulated Chemicals

• Diborane	19287-45-7	Not Listed
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Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Diborane	19287-45-7	Not Listed
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U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Diborane	19287-45-7	Not Listed
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U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Diborane	19287-45-7	Not Listed
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U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Diborane	19287-45-7	100 lb EPCRA RQ
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U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Diborane	19287-45-7	100 lb TPQ
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U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Diborane	19287-45-7	Not Listed
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U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Diborane	19287-45-7	Not Listed
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United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Diborane	19287-45-7	Not Listed
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U.S. - California - Proposition 65 - Developmental Toxicity

• Diborane	19287-45-7	Not Listed
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U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Diborane	19287-45-7	Not Listed
U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)		
• Diborane	19287-45-7	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
• Diborane	19287-45-7	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
• Diborane	19287-45-7	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List		
• Diborane	19287-45-7	
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances		
• Diborane	19287-45-7	Not Listed

15.2 Chemical Safety Assessment

| No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	09/December/2014
Preparation Date	09/December/2014
Disclaimer/Statement of Liability	To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

Key to abbreviations

NDA = No Data Available