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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name	Diborane 1% - Argon 99%
Chemical description	Diborane 1% - Argon 99%
CAS N°	-
CE N°	-
Index N°	-
Registration n°	-
Chemical formula	(Ar, B <sub>2</sub> H <sub>6</sub> )

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Purge gas, diluting gas, inerting gas Purging Use for manufacture of electronic/photovoltaic components Shield gas for welding processes Laboratory use Contact the supplier for more information on use
Uses advised against	Consumer use not recommended

### 1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	<a href="mailto:info@multigas.ch">info@multigas.ch</a>


### 1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
+41 (0) 26 676 94 94 (Multigas)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]




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Flammable gases, Category 1	H220
Gases under pressure : Compressed gas	H280
Acute toxicity (inhalation:gas) Category 4	H332

**For the complete H-sentences texts mentioned in that chapter, refer to Section 16**


## 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

<b>Hazard pictograms</b>	  
	GHS02      GHS04      GHS06
<b>Signal word</b>	Danger
<b>Hazard statements</b>	H220      Extremely flammable gas H280      Contains gas under pressure; may explode if heated H332      Harmful if inhaled
<b>Precautionary statements</b>	P210      Keep away from heat/sparks/open flames/hot surfaces. — No smoking P260      Do not breathe dust/fume/gas/mist/vapours/spray P273      Avoid release to the environment P280      Wear protective gloves/protective clothing/eye protection/face protection P304+P340+P315      IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention P377      Leaking gas fire: Do not extinguish, unless leak can be stopped safely P381      Eliminate all ignition sources if safe to do so P410+403      Protect from solar radiation. Store in a well-ventilated place P405      Store locked up

## 2.3. Other hazards

May spontaneously ignite on contact with air

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### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Name	Product identifier	Concentration	Classification
Argon	(CAS-No.) 7440-37-1 (EC-No.) 231-147-0 (EC Index-No.) --- (Registration-No.)--	99%	Press. Gas (Comp.), H280
Diborane	(CAS-No.) 19287-45-7 (EC-No.) 242-940-6 (EC Index-No.) --- (Registration-No.)--	1%	Flam. Gas 1, H220 Press. Gas (Liq.), H280 Acute Tox. 1 (Inhalation:gas), H330

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

#### 3.2. Mixtures

Not established

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>General advice</b>	See a doctor. Show this safety data sheet to the attending physician
<b>In case of inhalation</b>	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
<b>In case of skin contact</b>	No adverse effects expected
<b>In case of eyes contact</b>	No adverse effects expected
<b>In case of ingestion</b>	Ingestion is not considered a possible route of exposure


#### 4.2. Most important symptoms and effects, both acute and delayed

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation  
Refer to section 11

#### 4.3. Indication of any immediate medical attention and special treatment needed

Immediately consult a doctor

### SECTION 5: Firefighting measures

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### **5.1. Extinguishing media**

**Suitable extinguishing media**      Water spray or water mist. Dry powder. Foam

**Unsuitable extinguishing media**      Carbon dioxide. Do not use a water jet

### **5.2. Special hazards arising from the substance or mixture**

**Specific hazards**      In the event of fire or excessive heat, dangerous decomposition products may form

Exposure to fire may cause containers to rupture/explode

**Hazardous combustion products**      In case of fire, thermal decomposition can lead to the following toxic and/or corrosive fumes: Diborane

### **5.3. Additional information**

Cool endangered receptacles with water spray jet from a protected position

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, spray mists or gases

Provide adequate ventilation

Remove all sources of ignition

Evacuate the staff to a safe place

Caution should be exercised when vapours accumulate to form explosive concentrations. Vapours can accumulate in low areas

Personal protective equipment, see section 8

### **6.2. Environmental precautions**

Try to stop the leak

### **6.3. Methods and material for containment and cleaning up**

Ventilate the area

Keep the area evacuated and free of all sources of ignition until the spilled liquid has completely evaporated (frost-free ground)

### **6.4. Reference to other sections**

See also sections 8 and 13

## **SECTION 7: Handling and storage**

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**7.1. Precautions for safe handling**

Avoid breathing vapours or mist  
 Keep away from sources of ignition - No smoking  
 Take measures to avoid the accumulation of electrostatic charges  
 For precautions, see section 2.2

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

Store in a cool place. Keep the container tightly closed in a dry and well-ventilated place at a temperature below 50°C  
 Contents under pressure

**7.3. Specific end use(s)**

-

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Components with occupational exposure limits**


Component	CAS N°	Exposure value type	Control parameter	Source
Argon	7440-37-1	TWA	-	No occupational exposure limit value
			-	
		OEL	-	
			-	
Diborane	19287-45-7	TWA	0.1 ppm	SUVA: Limit values of exposure to workstations
			0.1 mg/m <sup>3</sup>	
		OEL	0.1 ppm	SUVA: Limit values of exposure to workstations
			0.1 mg/m <sup>3</sup>	

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation  
 Gas detectors must be used when flammable/toxic gases/vapours are likely to be released

**8.2.2. Individual protection measures, e.g. personal protective equipment**

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<b>Eye/face protection</b>	Wear safety glasses and a face shield when transferring or disconnecting transfer lines. Standard EN 166
<b>Skin / hand protection</b>	<p>Wear protective gloves when handling gas cylinders. Standard EN 388- Gloves for protection against mechanical risks</p> <p>Wear cold-insulating gloves when transferring or disconnecting transfer lines. Standard EN 511 - Cold insulating gloves</p> <p>The selected protective gloves must comply with the specifications of the EU Directive 89/686/EEC and the EN 374 standard derived from it</p> <p><b>For splash contact</b></p> <p>Material: Fluorocarbon rubber Penetration time: &gt; 120 min Glove thickness: 0.7 mm</p> <p><b>For total contact</b></p> <p>Material: Fluorocarbon rubber Penetration time: &gt; 480 min Glove thickness: 0.7 mm</p> <p>Have appropriate protective clothing, resistant to chemicals, ready to use in case of emergency</p>
<b>Respiratory protection</b>	<p>Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.</p> <p>Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask</p>

### 8.2.3. Environmental exposure controls

-

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

- Physical state at 20°C / 101.3kPa Gas
- Colour Colourless.

#### Odour

Mixture containing one or more components that have a pungent odour

#### Odour threshold

Odour threshold is subjective and inadequate to warn of overexposure

#### pH

Data not available

#### Melting point / Freezing point

Data not available

#### Boiling point

Data not available

#### Flash point

Data not available

#### Evaporation rate

Data not available

#### Flammability (solid, gas)

Extremely flammable (applicable to diborane)

#### Explosive limits

0.9 - 98% (Pyrophoric, applicable to diborane)

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<b>Vapour pressure [20°C]</b>	Data not available
<b>Vapour pressure [50°C]</b>	Data not available
<b>Vapour density</b>	Data not available
<b>Relative density, liquid (water=1)</b>	Data not available
<b>Relative density, gas (air=1)</b>	> 1
<b>Water solubility</b>	Data not available
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Data not available
<b>Auto-ignition temperature</b>	Data not available
<b>Decomposition temperature</b>	Data not available
<b>Viscosity</b>	Data not available
<b>Explosive properties</b>	Data not available
<b>Oxidising properties</b>	Data not available

**9.2. Other information**

<b>Molar mass</b>	Data not available
<b>Critical temperature [°C]</b>	Data not available
<b>Relative vapour density</b>	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

**SECTION 10: Stability and reactivity**
**10.1. Reactivity**

No danger of reactivity other than the effects described in the sections below

**10.2. Chemical stability**


Stable under the recommended storage conditions

**10.3. Possibility of hazardous reactions**

May form an explosive mixture with air  
 May react violently with oxidants  
 Can ignite spontaneously in air (flame cannot be extinguished)  
 Can form a spontaneously explosive violent mixture with air

**10.4. Conditions to avoid**

Keep away from heat/sparks/open flames/hot surfaces. - Do not smoke  
 Avoid humidity in the installations

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### 10.5. Incompatible materials

Air, Oxidants

For additional information on compatibility refer to ISO 11114 standard

### 10.6. Hazardous decomposition products

Data not available

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity	Harmful by inhalation
Skin corrosion/irritation	Data not available
Serious eye damage/irritation	Data not available
Respiratory or skin sensitisation	Data not available
Germ cell mutagenicity	Data not available
Carcinogenicity	Data not available
Reproductive toxicity	Data not available
STOT-single exposure – Target organ(s)	Data not available
STOT-repeated exposure	Data not available
Ingestion hazard	Data not available

## SECTION 12: Ecological information

### 12.1. Toxicity

Assessment	The classification criteria are not met
------------	---

### 12.2. Persistence and degradability

Data not available

### 12.3. Bioaccumulative potential

Data not available


### 12.4. Mobility in soil

Data not available

### 12.5. Results of PBT and vPvB assessment

Not classified as PBT or vPvB



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### 12.6. Other adverse effects

Data not available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Product</b>	<p>Must not be released to the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and purification system</p> <p>Return the unused product in its original container to the supplier</p>
<b>Contaminated container</b>	Return unused product in original cylinder to supplier
<b>OMoD Code</b>	<p>16 05 04</p> <p>Gases in pressurized containers (including halons) containing dangerous substances</p>

## SECTION 14: Transport information

### 14.1. UN number

Transport by road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
1953	1953	1953

### 14.2. UN proper shipping name

Transport by road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (Diborane, Argon)	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (Diborane, Argon)	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (Diborane, Argon)

### 14.3. Transport hazard class(es)

Labelling




ADR/RID  
IMDG  
IATA

2.1 : Flammable gases

### 14.4. Packing group

ADR/RID  
IMDG  
IATA

-

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#### **14.5. Environmental hazards**

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

#### **14.6. Special precautions for user**

-

#### **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

### **SECTION 15: Regulatory information**

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


This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

#### **15.2. Chemical safety assessment**

A CSA does not need to be carried out for this product

### **SECTION 16: Other information**

<b>Indication of changes</b>	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
<b>Abbreviations and acronyms</b>	<p>ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>CAS : Chemical Abstract Service number (USA)</p> <p>CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>CSA : Chemical Safety Assessment</p> <p>EIGA : European Industrial Gases Association</p> <p>EINECS : European Inventory of Existing Commercial Chemical Substances</p> <p>EN : European Standard</p> <p>ATE : Acute Toxicity Estimate</p> <p>IATA : International Air Transport Association</p> <p>IMDG Code : International Maritime Dangerous Goods Code</p> <p>LC50 : Lethal Concentration to 50 % of a test population</p> <p>OMoD : Swiss Ordinance on the movement of waste</p> <p>PBT : Persistent, Bioaccumulative and Toxic</p> <p>PPE: Personal Protection Equipment</p>

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REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006  
 RID : Regulations concerning the international carriage of dangerous goods by rail  
 RMM : Risk Management Measures  
 STOT-SE : Specific Target Organ Toxicity - Single Exposure  
 UN : United Nations  
 vPvB : Very Persistent and Very Bioaccumulative  
 WGK: Water Hazards Class

### Full text of H, EUH and P statements used in sections 2 and 3

#### Hazard statements

H220 Extremely flammable gas  
 H280 Contains gas under pressure; may explode if heated  
 H332 Harmful if inhaled

#### Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
 P260 Do not breathe dust/fume/gas/mist/vapours/spray  
 P273 Avoid release to the environment  
 P280 Wear protective gloves/protective clothing/eye protection/face protection  
 P304+P340+P315 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention  
 P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely  
 P381 Eliminate all ignition sources if safe to do so  
 P410+403 Protect from solar radiation. Store in a well-ventilated place  
 P405 Store locked up

#### Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press  
 They do not claim to be exhaustive and should be considered as a guide