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

### 1.1. Product identifier

Trade name	Phosphine 1% - Argon 99%
Chemical description	Phosphine 1% - Argon 99%
CAS N°	-
CE N°	-
Index N°	-
Registration n°	-
Chemical formula	Ar – PH <sub>3</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 Chemical reaction/synthesis Use for manufacture of electronic/photovoltaic components 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]

Flammable gases, Category 1	H220
Gases under pressure : Compressed gas	H280

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Skin corrosive/irritant, Category 2	H315
Acute Eye Damage/Eye Irritation, Category 2	H319
Acute toxicity (inhalation:gas) Category 3	H331
Specific target organ toxicity - Single exposure, Class 3, respiratory tract irritation	H335

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]

### Hazard pictograms



GHS02      GHS04      GHS06

### Signal word

Danger

### Hazard statements


H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Harmful if inhaled
H335	May cause respiratory irritation
EUH071	Corrosive to the respiratory tract

### Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352	IF ON SKIN: Wash with plenty of soap and water
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
P305+P351+P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention
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
Phosphine	(CAS-No.) 7803-51-2 (EC-No.) 232-260-8 (EC Index-No.) 015-181-00-1 (Registration-No.) 01-2119462840-39	<= 1%	Flam. Gas 1, H220 Press. Gas (Liq.), H280 Acute Tox. 1 (Inhalation: gas), H330 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400

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>	In case of liquid splashes: rinse with water for at least 15 minutes. Consult a doctor
<b>In case of eyes contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Consult a doctor
<b>In case of ingestion</b>	DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse your mouth. Consult a doctor

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

May cause suffocation at high concentrations. Symptoms may include loss of mobility/consciousness. The victim may not be aware of the asphyxia  
 May cause corneal irritation (with temporary visual disturbance)  
 May cause skin irritation  
 May cause respiratory tract irritation, sneezing, coughing, burning throat, constricted larynx and difficulty breathing  
 Refer to section 11

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

Immediately consult a doctor

### **SECTION 5: Firefighting measures**

#### **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

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**SECTION 7: Handling and storage**
**7.1. Precautions for safe handling**

Avoid contact with skin and eyes  
 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  
 Keep away from combustible materials  
 Separate oxidizing gases and other oxidizing agents in store  
 All electrical equipment in the storage areas must be compatible with the risk of a potentially explosive atmosphere  
 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	-	
			-	
Phosphine	7803-51-2	TWA	0.1 ppm	SUVA: Limit values of exposure to workstations
			0.15 mg/m <sup>3</sup>	
		OEL	0.2 ppm	SUVA: Limit values of exposure to workstations
			0.3 mg/m <sup>3</sup>	

**8.2. Exposure controls**
**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation

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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

#### Eye/face protection

Wear safety glasses and a face shield when transferring or disconnecting transfer lines. Standard EN 166

#### Skin / hand protection

Wear protective gloves when handling gas cylinders. Standard EN 388- Gloves for protection against mechanical risks

Wear cold-insulating gloves when transferring or disconnecting transfer lines. Standard EN 511 - Cold insulating gloves

The selected protective gloves must comply with the specifications of the EU Directive 89/686/EEC and the EN 374 standard derived from it

##### **For splash contact**

Material: Fluorocarbon rubber

Penetration time: > 120 min

Glove thickness: 0.7 mm

##### **For total contact**

Material: Fluorocarbon rubber

Penetration time: > 480 min

Glove thickness: 0.7 mm

Have appropriate protective clothing, resistant to chemicals, ready to use in case of emergency

#### Respiratory protection

Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask

### 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

A mixture comprising a component having the following characteristics: Garlic smell. Odour may persist. Rotten fish. Difficult to detect at low concentrations

#### Odour threshold

Odour threshold is subjective and inadequate to warn of overexposure

#### pH

Data not available

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<b>Melting point / Freezing point</b>	Data not available
<b>Boiling point</b>	Data not available
<b>Flash point</b>	Data not available
<b>Evaporation rate</b>	Data not available
<b>Flammability (solid, gas)</b>	Extremely flammable (applicable to phosphine)
<b>Explosive limits</b>	1.6 - 98% (Pyrophoric, applicable to phosphine)
<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

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#### **10.4. Conditions to avoid**

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

#### **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**

<b>Acute toxicity</b>	Toxic by inhalation
<b>Skin corrosion/irritation</b>	Causes skin irritation
<b>Serious eye damage/irritation</b>	Causes severe eye irritation
<b>Respiratory or skin sensitisation</b>	Data not available
<b>Germ cell mutagenicity</b>	Data not available
<b>Carcinogenicity</b>	Data not available
<b>Reproductive toxicity</b>	Data not available
<b>STOT-single exposure – Target organ(s)</b>	May cause respiratory tract irritation
<b>STOT-repeated exposure</b>	Data not available
<b>Ingestion hazard</b>	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



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**12.5. Results of PBT and vPvB assessment**

Not classified as PBT or vPvB

**12.6. Other adverse effects**

May cause pH variation in aquatic ecological systems

**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>	<p>Return unused product in original cylinder to supplier</p>
<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

2.3: Toxic gases  
2.1 : Flammable gases

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#### 14.4. Packing group

ADR/RID  
IMDG  
IATA

-

#### 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

#### Indication of changes

Revised safety data sheet in accordance with commission regulation (EU) No 2015/830

#### Abbreviations and acronyms

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS : Chemical Abstract Service number (USA)

CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

CSA : Chemical Safety Assessment

EIGA : European Industrial Gases Association

EINECS : European Inventory of Existing Commercial Chemical Substances


EN : European Standard

ATE : Acute Toxicity Estimate

IATA : International Air Transport Association

IMDG Code : International Maritime Dangerous Goods Code

LC50 : Lethal Concentration to 50 % of a test population

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OMoD :	Swiss Ordinance on the movement of waste
PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
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
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Harmful if inhaled
H335	May cause respiratory irritation
EUH071	Corrosive to the respiratory tract

#### Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352	IF ON SKIN: Wash with plenty of soap and water
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
P305+P351+P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention
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



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