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

1.1. Product identifier

Trade name	Arsine
Chemical description	Arsine
CAS N°	7784-42-1
CE N°	232-066-3
Index N°	033-006-00-7
Registration n°	01-2120048082-66
Chemical formula	AsH ₃

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Laboratory use Contact supplier for more information on uses
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	info@multigas.ch

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]

Physical hazards	Flammable gases, Category 1	H220
	Gases under pressure : Liquefied gas	H280
Health hazards	Acute toxicity (inhalation: gas) Category 1	H330

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Specific target organ toxicity — Repeated exposure, Category 2 H373

Hazardous to the aquatic environment — Acute Hazard, Category 1 H400

Hazardous to the aquatic environment — Chronic Hazard, Category 1 H410

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 GHS08 GHS09

Signal word

Danger

Hazard statements


H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H330	Fatal if inhaled
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260	Do not breathe gas, vapours
P273	Avoid release to the environment
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
P308+P313	IF exposed or concerned: Get medical advice
P410+P403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

2.3. Other hazards

Contact with liquid may cause cold burns/frostbite

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SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Arsine	(CAS-No.) 7784-42-1 (EC-No.) 232-066-3 (EC Index-No.) 033-006-00-7 (Registration-No.) 01-2120048082-66	≤ 100%	Flam. Gas 1, H220 Press. Gas (Liq.), H280 Acute Tox. 1 (Inhalation: gas), H330 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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


General advice	See a doctor. Show this safety data sheet to the attending physician
In case of inhalation	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
In case of skin contact	In case of splashing liquid: Rinse with water for at least 15 minutes. See a doctor
In case of eyes contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor
In case of ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

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

May cause asphyxiation at high concentration. Symptoms may be loss of consciousness or motor skills. The victim may not be aware of asphyxiation
Refer to Section 11

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

May be fatal if inhaled. Contact with liquefied gas can cause injury (frostbite) due to rapid cooling by evaporation
Treat with a corticosteroid spray as soon as possible after inhalation. Thaw the frozen parts with lukewarm water. Do not rub the affected areas. Seek immediate medical attention

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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 water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards In case of fire or excessive heat, hazardous combustion products may be produced
Exposure to fire may cause containers to rupture/explode

Hazardous combustion products In case of fire or excessive heat, hazardous combustion products may be produced such as : Arsenic and its oxides

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
Eliminate ignition sources
Evacuate personnel to a safe place
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous
Vapours may 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 area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

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 vapour or mist
 Keep away from sources of ignition - No smoking
 Take precautionary measures against static discharge
 For precautions, see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place
 Content under pressure

7.3. Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Control parameter	Source
Arsine	7784-42-1	TWA	0.05 ppm	SUVA: Limit values of exposure to workstations
			0.16 mg/m ³	
		OEL	0.0006 ppm	NIOSH 6001 / 2007 [15-minutes]
			0.002 mg/m ³	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation
 Gas detectors should be used when toxic gases may be released

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

Eye/face protection

Wear goggles and a face shield when transfilling or breaking transfer connections Standard EN 166

Skin / hand protection

Wear protective gloves when handling gas cylinders. Standard EN 388
 Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511

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Respiratory protection Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals

Self-contained breathing apparatus (SCBA) or positive pressure air mask must be used in oxygenated atmospheres. Standard EN 137 - Self-contained compressed air device with a full face mask

8.2.3. Environmental exposure controls

Avoid any spill or leak if it can be done safely

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	No data available
Odour threshold	No data available
pH	No data available
Melting point / Freezing point	-116°C
Boiling point	-62.5°C
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	Extremely flammable gas
Explosive limits	3.9 – 77.8%
Vapour pressure [20°C]	14.7 bar
Vapour pressure [50°C]	No data available
Vapour density	No data available
Relative density, liquid (water=1)	1.6
Relative density, gas (air=1)	2.7
Water solubility	0.28 g/l
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	285°C
Decomposition temperature	300°C
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

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9.2. Other information

Molar mass	78 g/mole
Critical temperature [°C]	100.0°C
Relative density, gas	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 reactivity hazard other than the effects described in sub-sections below

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

Can form explosive mixture with air
May react violently with oxidants

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking

10.5. Incompatible materials

Combustible material, halogens, oxidizing material
For compatibility see the latest version of ISO 11114

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Chemical safety assessment

Acute toxicity	Fatal if inhaled. Fatal intoxication possible with low concentrations
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Respiratory or skin sensitisation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	There is no human epidemiological study on the carcinogenicity of arsenic trihydride

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Reproductive toxicity	No data available
STOT-single exposure – Target organ(s)	Damage to red blood cells (haemolytic poison) Damage to central nervous system Damage to kidneys and liver
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure Damage to red blood cells (haemolytic poison) Damage to central nervous system
Ingestion hazard	No data available

SECTION 12: Ecological information

12.1. Toxicity

Assessment	Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects
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12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

12.6. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	Must not be discharged to atmosphere Burn in a chemical incinerator equipped with an afterburner and scrubber Return surplus and non-recyclable solutions to a licensed waste disposal company
Contaminated container	Eliminate as unused product Contact the supplier if instructions are needed
OMoD Code	16 05 04

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Gases in pressure containers containing dangerous substances

SECTION 14: Transport information

14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
2188	2188	2188

14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Arsine	Arsine	Arsine

14.3. Transport hazard class(es)

Labelling



ADR/RID
 IMDG
 IATA

2.3 : Toxic gases
 2.1 : Flammable gases
 Environmentally hazardous substances

14.4. Packing group

ADR/RID
 IMDG
 IATA

Not established

14.5. Environmental hazards

ADR/RID

Environmentally hazardous substance / mixture

IMDG

Marine pollutant

ICAO-TI / IATA-DGR

Environmentally hazardous substance / mixture

14.6. Special precautions for user

No data available

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

Not applicable

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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 has not yet been carried out

SECTION 16: Other information

Indication of changes	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
Abbreviations and acronyms	<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> <p>REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006</p> <p>RID : Regulations concerning the international carriage of dangerous goods by rail</p> <p>RMM : Risk Management Measures</p> <p>STOT-SE : Specific Target Organ Toxicity - Single Exposure</p> <p>UN : United Nations</p> <p>vPvB : Very Persistent and Very Bioaccumulative</p> <p>WGK: Water Hazards Class</p>

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

Hazard statements

H220

Extremely flammable gas

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- | | |
|------|---|
| H280 | Contains gas under pressure; may explode if heated |
| H330 | Fatal if inhaled |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H410 | Very toxic to aquatic life with long lasting effects |

Precautionary statements

- | | |
|----------------|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking |
| P260 | Do not breathe gas, vapours |
| P273 | Avoid release to the environment |
| 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 |
| P308+P313 | IF exposed or concerned: Get medical advice |
| P410+P403 | Protect from sunlight. 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