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

1.1. Product identifier

Trade name	Phosphine 2% - Hydrogen 98%
Chemical description	Phosphine 2% - Hydrogen 98%
CAS N°	-
CE N°	-
Index N°	-
Registration n°	-
Chemical formula	H ₂ , PH 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 Chemical reaction / Synthesis Use for manufacture of electronic/photovoltaic components 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

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Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H319
Acute toxicity (inhalation: gas) Category 2	H330
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
H330	Fatal if inhaled
H335	May cause respiratory irritation

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260	Do not breathe gas, vapours
P280	Wear protective gloves, protective clothing, eye protection, face protection
P302+P352+P315	IF ON SKIN: Wash with plenty of soap and water. Get immediate medical advice/attention
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
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381	In case of leakage, eliminate all ignition source
P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

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2.3. Other hazards

May ignite spontaneously in contact with air

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Hydrogen	(CAS-No.) 1333-74-0 (EC-No.) 215-605-7 (EC Index-No.) 001-001-00-9 (Registration-No.) -	98%	Flam. Gas 1, H220 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	2%	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

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	Remove contaminated clothing and shoes immediately. Wash with soap and plenty of water. Take victim immediately to hospital. 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

At high concentrations can cause asphyxiation. 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

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6.4. Reference to other sections

See also sections 8 and 13

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, below 50°C
 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
Hydrogen	1333-74-0	TWA	-	No exposure limit values at workstations
			-	
		OEL	-	No exposure limit values at workstations
			-	
Phosphine	7803-51-2	TWA	0.1 ppm	SUVA: Limit values of exposure to workstations
			0.15 mg/m ³	
		OEL	0.2 ppm	SUVA: Limit values of exposure to workstations
			0.3 mg/m ³	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation

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Gas detectors should 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 goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166
Skin / hand protection	<p>Wear protective gloves when handling gas cylinders. Standard EN 388- Protective gloves against mechanical hazards Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 - Insulating gloves against cold Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals</p> <p>For short-term use Material: Fluoroelastomer Penetration time:> 120 min Glove thickness: 0.7 mm</p> <p>For long-term use Material: Fluoroelastomer Penetration time:> 480 min Glove thickness: 0.7 mm</p> <p>Have appropriate, chemical-resistant protective clothing ready for use in emergencies</p>
Respiratory protection	<p>Self-contained breathing apparatus (SCBA) or mask with positive pressure air supply must be used in oxygenated atmospheres</p> <p>Standard EN 137 - Self-contained open-circuit compressed air unit 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 Garlic like. Odour can persist. Rotten fish. Poor warning properties at low concentrations

Odour threshold No data available

pH No data available

Melting point / Freezing point No data available

Boiling point No data available

Flash point No data available

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Evaporation rate	No data available
Flammability (solid, gas)	Extremely flammable gas
Explosive limits	1.6 – 98% (Pyrophoric) (Phosphine)
Vapour pressure [20°C]	No data available
Vapour pressure [50°C]	No data available
Vapour density	No data available
Relative density, liquid (water=1)	No data available
Relative density, gas (air=1)	Lighter or similar to air
Water solubility	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2. Other information

Molar mass	No data available
Critical temperature [°C]	No data available
Relative vapour density	Lighter or similar to air

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
 Can ignite spontaneously in air (fire cannot be put out)

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking
 Avoid moisture in installation systems

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12.6. Other adverse effects

May cause pH changes in aqueous ecological systems

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	<p>Must not be released into the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and scrubber</p> <p>Return to the supplier the product not consumed in its original container</p>
Contaminated container	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
OMoD Code	<p>16 05 04</p> <p>Gases in pressure containers containing dangerous substances</p>

SECTION 14: Transport information

14.1. UN number

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

14.2. UN proper shipping name

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

14.3. Transport hazard class(es)

Labelling



ADR/RID
IMDG
IATA

2.3 : Toxic gases
2.1 : Flammable gases

14.4. Packing group

ADR/RID
IMDG
IATA

Not established

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14.5. Environmental hazards

ADR/RID	No
IMDG	No
ICAO-TI / IATA-DGR	No

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

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 made 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	<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>

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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
 H330 Fatal if inhaled
 H335 May cause respiratory irritation

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 P260 Do not breathe gas, vapours
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 P302+P352+P315 IF ON SKIN: Wash with plenty of soap and water. Get immediate medical advice/attention
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 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
 P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely
 P381 In case of leakage, eliminate all ignition source
 P410+403 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