

## Phosphine

## AL100



Label 2.3 : Toxic gas.



Label 2.1 : flammable gas.



N : Dangerous for the environment



C : Corrosive



F+ : Extremely flammable



T+ : Very toxic

### 1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

**Trade name** : Phosphine  
**MSDS No** : AL100  
**Chemical formula** : PH<sub>3</sub>  
**Company identification** : AIR LIQUIDE SA  
 France  
 See paragraph 16 "OTHER INFORMATION"  
**Emergency phone nr** : See paragraph 16 "OTHER INFORMATION"

### 2 COMPOSITION / INFORMATION ON INGREDIENTS

**Substance / Preparation** : Substance.

Substance name	Contents	CAS No	EC No	Index No	Classification
phosphine	100 %	7803-51-2	232-260-8	015-181-00-1	F+; R12 R17 T+; R26 C; R34 N; R50

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

### 3 HAZARDS IDENTIFICATION

**Hazards identification** : Liquefied gas.  
 Extremely flammable.  
 May ignite spontaneously in contact with air.  
 Very toxic by inhalation.  
 Corrosive.

### 4 FIRST AID MEASURES

**First aid measures**

- **Inhalation** : Very toxic by inhalation.  
 Delayed adverse effects possible.  
 Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- **Skin/eye contact** : Remove contaminated clothing.
- **Ingestion** : Ingestion is not considered a potential route of exposure.

### 5 FIRE-FIGHTING MEASURES

- Flammable class** : Extremely flammable.
- Specific hazards** : Escaping gas cannot be extinguished.  
 Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products** : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition :



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#### 5 FIRE-FIGHTING MEASURES (continued)

Phosphorus oxides/acids.

**Extinguishing media**

- Suitable extinguishing media : Water. Carbon dioxide. Dry powder.

**Specific methods**

: If possible, stop flow of product.  
Move away from the container and cool with water from a protected position.  
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

**Special protective equipment for fire fighters** : Use self-contained breathing apparatus.

#### 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions**

: Evacuate area.  
Eliminate ignition sources.  
Ensure adequate air ventilation.  
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

**Environmental precautions**

: Try to stop release.  
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.  
Reduce vapour with fog or fine water spray.

**Clean up methods**

: Ventilate area.

#### 7 HANDLING AND STORAGE

**Storage**

: Segregate from oxidant gases and other oxidants in store.  
Keep container below 50°C in a well ventilated place.

**Handling**

: Ensure equipment is adequately earthed.  
Suck back of water into the container must be prevented.  
Purge air from system before introducing gas.  
Do not allow backfeed into the container.  
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.  
Keep away from ignition sources (including static discharges).  
Refer to supplier's container handling instructions.

#### 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Personal protection**

: Ensure adequate ventilation.  
Protect eyes, face and skin from liquid splashes.  
Do not smoke while handling product.  
Keep self contained breathing apparatus readily available for emergency use.

**Occupational Exposure Limits**

: phosphine : TLV© -TWA [ppm] : 0.3  
phosphine : TLV© -STEL [ppm] : 1  
phosphine : OEL (UK)-STEL [ppm] : 0.3  
phosphine : VLE - France [ppm] : 0.3  
phosphine : VME - France [ppm] : 0.1  
phosphine : MAK - Germany [ppm] : 0.1



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### 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state at 20 °C	: Liquefied gas.
Colour	: Colourless gas.
Odo(u)r	: Rotten fish. Poor warning properties at low concentrations. Odour can persist.
Molecular weight	: 34
Melting point [°C]	: -134
Boiling point [°C]	: -88
Critical temperature [°C]	: 51.6
Vapour pressure, 20°C	: 34.6 bar
Relative density, gas (air=1)	: 1.2
Relative density, liquid (water=1)	: 0.74
Solubility in water [mg/l]	: 300
Flammability range [vol% in air]	: Pyrophoric.
Auto-ignition temperature [°C]	: < 85
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

### 10 STABILITY AND REACTIVITY

Stability and reactivity	: Can form explosive mixture with air. Can ignite spontaneously in air (fire cannot be put out). Can form an explosive mixture in air. May react violently with oxidants.
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### 11 TOXICOLOGICAL INFORMATION

Toxicity information	: Irritation to eyes, skin and respiratory tract. Damage to central nervous system. Delayed fatal pulmonary oedema possible.
LC50 [ppm/1h]	: 20

### 12 ECOLOGICAL INFORMATION

Ecological effects information	: Toxic to water organisms. May cause pH changes in aqueous ecological systems.
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### 13 DISPOSAL CONSIDERATIONS

General	: Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Contact supplier if guidance is required.
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## 14 TRANSPORT INFORMATION


UN No. : 2199  
H.I. nr : --  
ADR/RID  
- Proper shipping name : PHOSPHINE  
- ADR Class : 2  
- ADR/RID Classification code : 2 TF  
- Labelling ADR : Label 2.3 : Toxic gas.  
Label 2.1 : flammable gas.  
Other transport information : Avoid transport on vehicles where the load space is not separated from the driver's compartment.  
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.  
Before transporting product containers :  
- Ensure that containers are firmly secured.  
- Ensure cylinder valve is closed and not leaking.  
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.  
- Ensure valve protection device (where provided) is correctly fitted.  
- Ensure there is adequate ventilation.  
- Compliance with applicable regulations.

## 15 REGULATORY INFORMATION

EC Classification : Index No : 015-181-00-1  
F+; R12  
R17  
T+; R26  
C; R34  
N; R50  
EC Labelling  
- Symbol(s) : T+ : Very toxic.  
F+ : Extremely flammable  
C : Corrosive.  
N : Dangerous for the environment.  
- R Phrase(s) : R12 : Extremely flammable.  
R17 : Spontaneously flammable in air.  
R26 : Very toxic by inhalation.  
R34 : Causes burns.  
R50 : Very toxic to aquatic organisms.  
- S Phrase(s) : 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  
S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.  
S45 : In case of accident or if you feel unwell, seek medical advice immediately ( show the label when possible).  
S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

## 16 OTHER INFORMATION

Ensure all national/local regulations are observed.  
Ensure operators understand the flammability hazard.  
Users of breathing apparatus must be trained.  
Ensure operators understand the toxicity hazard.

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#### 16 OTHER INFORMATION (continued)

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

Details given in this document are believed to be correct at the time of going to press. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

**Recommended uses and restrictions** : This SDS is for information purposes only and is subject to change without notice. [ Prior to purchase of products, please contact your local AIR LIQUIDE office for a complete SDS (with Manufacturer's name and emergency phone number).]

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