Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)
Safety Data Sheet P-4872
Date of issue: 01/01/1985  Revision date: 08/31/2018  Supersedes: 10/26/2016

SECTION: 1. Product and company identification

1.1. Product identifier
Product form: Mixture
Trade name: Mixture of Phosphine and Hydrogen
Formula: Mixtures of 10-49 percent phosphine, balance hydrogen
Other means of identification: Ion Implantation Mixture PH3-H2

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Industrial use; Use as directed.

1.3. Details of the supplier of the safety data sheet
Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number
Emergency number: Onsite Emergency: 1-800-645-4633
CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification
Pyr. Gas H250
Flam. Gas 1 H220
Press. Gas (Comp.) H280
Acute Tox. 1 (Inhalation:gas) H330
Skin Corr. 1B H314
Eye Dam. 1 H318
Aquatic Acute 2 H401

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US):

Signal word (GHS-US): Danger
Hazard statements (GHS-US): H220 - EXTREMELY FLAMMABLE GAS
H250 - CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR
H280 - CONTENTS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
H314 - Causes severe skin burns and eye damage
H330 - FATAL IF INHALED
H401 - TOXIC TO AQUATIC LIFE
CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR
CGA-HG11 - SYMPTOMS MAY BE DELAYED

Precautionary statements (GHS-US):
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from Heat/Open flames/Sparks/Hot surfaces. - No smoking
Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)

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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>(CAS-No.) 1333-74-0</td>
<td>51 - 100</td>
</tr>
<tr>
<td>Phosphine</td>
<td>(CAS-No.) 7803-51-2</td>
<td>10 - 49</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact: In case of contact, immediately flush affected areas with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. Discard contaminated shoes.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion: Ingestion is not considered a potential route of exposure.

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

Symptoms/effects: SYMPTOMS MAY BE DELAYED.

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

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Carbon dioxide, Dry chemical, Water spray or fog.

5.2. Special hazards arising from the substance or mixture

Fire hazard: EXTREMELY FLAMMABLE GAS. May ignite spontaneously in contact with air.
## Explosion hazard

**Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)**

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<table>
<thead>
<tr>
<th>Explosion hazard</th>
<th>: EXTREMELY FLAMMABLE GAS. Forms explosive mixtures with air and oxidizing agents.</th>
</tr>
</thead>
</table>

### 5.3. Advice for firefighters

**Firefighting instructions**

**DANGER!**

**Toxic, flammable high-pressure gas.**

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

**Special protective equipment for fire fighters**

Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

**Other information**

Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.).

### SECTION 6: Accidental release measures

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

**General measures**

**DANGER!** **Toxic, flammable high-pressure gas.** If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

#### 6.1.1. For non-emergency personnel

No additional information available

#### 6.1.2. For emergency responders

No additional information available

#### 6.2. Environmental precautions

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

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

No additional information available

#### 6.4. Reference to other sections

See also sections 8 and 13.
Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Do not breathe gas/vapors. Use only with adequate ventilation or respiratory protection. Do not get liquid or vapor in eyes, on skin, or on clothing. Have safety showers and eyewash fountains immediately available.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment.

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Hydrogen (1333-74-0)</th>
<th>Remark (ACGIH)</th>
<th>Simple asphyxiant</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>Simple asphyxiant</td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>Not established</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phosphine (7803-51-2)</th>
<th>ACGIH TLV-TWA (ppm)</th>
<th>0.05 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH TLV-TWA (ppm)</td>
<td>0.05 ppm</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>0.4 mg/m³</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>0.3 ppm</td>
</tr>
</tbody>
</table>

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8.2. Exposure controls

Appropriate engineering controls: Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): Inadequate - Use only in a closed system. Use explosion proof equipment and lighting.

In semiconductor process gas and other suitable applications, Praxair recommends the use of engineering controls such as gas cabinet enclosures, automatic gas panels (used to purge systems on cylinder changeout), excess-flow valves throughout the gas distribution system, double containment for the distribution system, and continuous gas monitors.

Hand protection: Neoprene rubber (HNBR) /

Eye protection: Provide readily accessible eye wash stations and safety showers. Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Skin and body protection: Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible. Select per OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

Respiratory protection: When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Gas
Color: Colorless
Odor: decaying fish
Odor threshold: No data available
pH: Not applicable.
Relative evaporation rate (butyl acetate=1): No data available
Relative evaporation rate (ether=1): Not applicable.
Melting point: -133 °C (-208.8°F) Phosphine
Freezing point: No data available
Boiling point: -87.7 °C (-125.9°F) Phosphine
Flash point: No data available
Auto-ignition temperature: 38 °C (100 °F) Phosphine
Decomposition temperature: No data available
Flammability (solid, gas): 1.6 - 98 vol % based on Phosphine
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: No data available
Relative gas density: 0.237
Solubility: Water: No data available
Log Pow: Not applicable.
Log Kow: Not applicable.
Viscosity, kinematic: Not applicable.
Viscosity, dynamic: Not applicable.
Explosive properties: MAY FORM EXPLOSIVE MIXTURES WITH AIR.
Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)  
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### Oxidizing properties
None.

### Explosion limits
No data available

### 9.2. Other information
No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity
No additional information available

#### 10.2. Chemical stability
Stable under use and storage conditions as recommended below and in section 7.

#### 10.3. Possibility of hazardous reactions
May occur.

#### 10.4. Conditions to avoid
Temperatures in excess of 365°C (689°F).

#### 10.5. Incompatible materials

#### 10.6. Hazardous decomposition products

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

**Acute toxicity**
- Inhalation: gas: FATAL IF INHALED.

**Mixture of Phosphine and Hydrogen**
- ATE US (gases): 66,667 ppmV/4h

**Phosphine (7803-51-2)**
- LC50 inhalation rat (ppm): 10 ppmV/4h
- ATE US (gases): 10 ppmV/4h

**Skin corrosion/irritation**
- Causes severe skin burns and eye damage.
  - pH: Not applicable.

**Serious eye damage/irritation**
- CAUSES SERIOUS EYE DAMAGE.
  - pH: Not applicable.

**Respiratory or skin sensitization**
- Not classified

**Germ cell mutagenicity**
- Not classified

**Carcinogenicity**
- Not classified

**Reproductive toxicity**
- Not classified

**Specific target organ toxicity – single exposure**
- Not classified

**Specific target organ toxicity – repeated exposure**
- Not classified

**Aspiration hazard**
- Not classified

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general**
- VERY TOXIC TO AQUATIC LIFE.
### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Mixture of Phosphine and Hydrogen</th>
<th>Persistence and degradability</th>
<th>No ecological damage caused by this product.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrogen (1333-74-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phosphine (7803-51-2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td></td>
<td>Not applicable for inorganic gases.</td>
</tr>
</tbody>
</table>

### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Mixture of Phosphine and Hydrogen</th>
<th>Bioaccumulative potential</th>
<th>No ecological damage caused by this product.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrogen (1333-74-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCF fish 1</td>
<td>(no bioaccumulation expected)</td>
<td></td>
</tr>
<tr>
<td>Log Pow</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td><strong>Phosphine (7803-51-2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log Pow</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

### 12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Mixture of Phosphine and Hydrogen</th>
<th>Mobility in soil</th>
<th>No data available.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrogen (1333-74-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility in soil</td>
<td></td>
<td>No data available.</td>
</tr>
<tr>
<td>Ecology - soil</td>
<td></td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td><strong>Phosphine (7803-51-2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility in soil</td>
<td></td>
<td>No data available.</td>
</tr>
<tr>
<td>Ecology - soil</td>
<td></td>
<td>Because of its high volatility, the product is unlikely to cause ground or water pollution.</td>
</tr>
</tbody>
</table>

### 12.5. Other adverse effects

Other adverse effects: May cause pH changes in aqueous ecological systems.
Effect on ozone layer: None.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Product/Packaging disposal recommendations: Do not attempt to dispose of residual or unused quantities. Return container to supplier.

### SECTION 14: Transport information

In accordance with DOT

| Transport document description     | UN1953 COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (Inhalation Hazard Zone A), 2.3 |
|------------------------------------|******************************************************************************|
| UN-No. (DOT)                      | UN1953                                                                      |
| Proper Shipping Name (DOT)        | COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.                                    |
|                                    | Inhalation Hazard Zone A                                                    |
| Class (DOT)                       | 2.3 - Class 2.3 - Poisonous gas 49 CFR 173.115                              |
Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)

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Hazard labels (DOT): Poison Gas
2.3 - Poison gas
2.1 - Flammable gas

DOT Symbols:
G - Identifies proper shipping name (PSN) requiring the addition of technical name(s) in parentheses following the PSN.

DOT Special Provisions (49 CFR 172.102):
1 - This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone A (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

Additional information

Other information:
No supplementary information available.

Special transport precautions:
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 there is adequate ventilation.
- 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.

Transport by sea
UN-No. (IMDG): 1953
Proper Shipping Name (IMDG): COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.
Class (IMDG): 2 - Gases
Division (IMDG): 2.3 - Toxic gases

Air transport
UN-No. (IATA): 1953
Proper Shipping Name (IATA): COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.
Class (IATA): 2

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Mixture of Phosphine and Hydrogen</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
<td>Fire hazard</td>
</tr>
<tr>
<td></td>
<td>Immediate (acute) health hazard</td>
</tr>
<tr>
<td></td>
<td>Sudden release of pressure hazard</td>
</tr>
</tbody>
</table>

Phosphine (7803-51-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on the United States SARA Section 302
Subject to reporting requirements of United States SARA Section 313

<table>
<thead>
<tr>
<th>CERCLA RQ</th>
<th>100 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 302 Threshold Planning Quantity (TPQ)</td>
<td>500 lb</td>
</tr>
<tr>
<td>SARA Section 313 - Emission Reporting</td>
<td>1 %</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA
**Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)**

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### Hydrogen (1333-74-0)

| Listed on the Canadian DSL (Domestic Substances List) |

### Phosphine (7803-51-2)

| Listed on the Canadian DSL (Domestic Substances List) |

---

**EU-Regulations**

### Phosphine (7803-51-2)

| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |

**15.2. National regulations**

### Phosphine (7803-51-2)

| Listed on the AICS (Australian Inventory of Chemical Substances)  
| Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
| Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
| Listed on the Japanese ISHL (Industrial Safety and Health Law)  
| Listed on the Korean ECL (Existing Chemicals List)  
| Listed on NZIoC (New Zealand Inventory of Chemicals)  
| Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
| Japanese Poisonous and Deleterious Substances Control Law  
| Listed on the Canadian IDL (Ingredient Disclosure List)  
| Listed on INSQ (Mexican National Inventory of Chemical Substances)  
| Listed on the TCSI (Taiwan Chemical Substance Inventory) |

**15.3. US State regulations**

### Mixture of Phosphine and Hydrogen

| U.S. - California - Proposition 65 - Carcinogens List  
| U.S. - California - Proposition 65 - Developmental Toxicity  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male |

---

**Hydrogen (1333-74-0)**

| U.S. - California - Proposition 65 - Carcinogens List  
| U.S. - California - Proposition 65 - Developmental Toxicity  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male  
| No significant risk level (NSRL) |

---

**Phosphine (7803-51-2)**

| U.S. - California - Proposition 65 - Carcinogens List  
| U.S. - California - Proposition 65 - Developmental Toxicity  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female  
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male  
| No significant risk level (NSRL) |

---

**Hydrogen (1333-74-0)**

| U.S. - Massachusetts - Right To Know List  
| U.S. - New Jersey - Right to Know Hazardous Substance List  
| U.S. - Pennsylvania - RTK (Right to Know) List |

---

**Phosphine (7803-51-2)**

| U.S. - Massachusetts - Right To Know List  
| U.S. - New Jersey - Right to Know Hazardous Substance List |
Gas Mixture (Hydrogen Balance—10-49 percent Phosphine)

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Phosphine (7803-51-2)
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information

When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product.

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PRAXAIR and the Flowing Airstream design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.

Revision date: 08/31/2018

NFPA health hazard: 4 - Materials that, under emergency conditions, can be lethal.

NFPA fire hazard: 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.

NFPA reactivity: 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

Hazard Rating

Health: 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

Flammability: 4 Severe Hazard

Physical: 3 Serious Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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