Section 1. Identification

GHS product identifier : Phosphine
Chemical name : phosphine
Other means of identification : Trihydrogen phosphide; Hydrogen phosphide; Phosphorus trihydride; PH3; Phosphene; Phosphorus hydride; Celphos; Delicia; Detia; Detia gas ex-B; Fosforowodor; Gas-ex-B; Phosphorwasserstoff; Rcra waste number P096; UN 2199
Product type : Gas.
Product use : Synthetic/Analytical chemistry.
Synonym : Trihydrogen phosphide; Hydrogen phosphide; Phosphorus trihydride; PH3; Phosphene; Phosphorus hydride; Celphos; Delicia; Detia; Detia gas ex-B; Fosforowodor; Gas-ex-B; Phosphorwasserstoff; Rcra waste number P096; UN 2199
SDS # : 001070
Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253
24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : FLAMMABLE GASES - Category 1
PYROPHORIC GASES
GASES UNDER PRESSURE - Compressed gas
Category 1
ACUTE TOXICITY (inhalation) - Category 1
SKIN CORROSION - Category 1
SERIOUS EYE DAMAGE - Category 1
AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements :
Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
Catches fire spontaneously if exposed to air.
Fatal if inhaled.
Causes serious eye damage.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.
May form explosive mixtures with air.

Precautionary statements
General :
Section 2. Hazards identification

Prevention: Wear protective gloves. Wear protective clothing. Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe gas.

Response: Collect spillage. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage: Store locked up. Protect from sunlight. Store in a well-ventilated place.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hazard not otherwise classified: None known.

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
<td>phosphine</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>Trihydrogen phosphide; Hydrogen phosphide; Phosphorus trihydride; PH3; Phosphene; Phosphorus hydride; Celphos; Delicia; Detia; Detia gas ex-B; Fosforowodor; Gas-ex-B; Phosphorwasserstoff; Rcra waste number P096; UN 2199</td>
</tr>
<tr>
<td>Product code</td>
<td>001070</td>
</tr>
<tr>
<td>CAS number/other identifiers</td>
<td>CAS number</td>
</tr>
<tr>
<td>CAS number</td>
<td>7803-51-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>phosphine</td>
<td>100</td>
<td>7803-51-2</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Section 4. First aid measures

Inhalation: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye damage. Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation: Fatal if inhaled.
Skin contact: Causes severe burns. Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite: Try to warm up the frozen tissues and seek medical attention.
Ingestion: As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:, pain, watering, redness
Inhalation: No specific data.
Skin contact: Adverse symptoms may include the following:, pain or irritation, redness, blistering may occur
Ingestion: Adverse symptoms may include the following:, stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments: No specific treatment.
Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media: Use dry chemical powder.
Unsuitable extinguishing media: Do not use water jet.

Date of issue/Date of revision: 12/9/2020
Date of previous issue: No previous validation
Version: 1
Section 5. Fire-fighting measures

Specific hazards arising from the chemical: Spontaneously flammable in air. Contains gas under pressure. Extremely flammable gas. Runoff to sewer may create fire or explosion hazard. May re-ignite itself after fire is extinguished. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products: Decomposition products may include the following materials: phosphorus oxides

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Use only non-sparking tools. Avoid release to the environment. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. This product should be handled using appropriate techniques that avoid exposure to atmospheric oxygen and moisture. Do
Phosphine

Section 7. Handling and storage

Advice on general occupational hygiene

- Not breathe gas. Use non-sparking tools.
- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

- Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Store locked up. Keep under an inert atmosphere. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| phosphine       | ACGIH TLV (United States, 3/2019).  
                  - C: 0.15 ppm  
                  - TWA: 0.05 ppm 8 hours.  
                  NIOSH REL (United States, 10/2016).  
                  - STEL: 1 mg/m³ 15 minutes.  
                  - STEL: 1 ppm 15 minutes.  
                  - TWA: 0.4 mg/m³ 10 hours.  
                  - TWA: 0.3 ppm 10 hours.  
                  OSHA PEL (United States, 5/2018).  
                  - TWA: 0.4 mg/m³ 8 hours.  
                  - TWA: 0.3 ppm 8 hours.  
                  - STEL: 1 mg/m³ 15 minutes.  
                  - STEL: 1 ppm 15 minutes.  
                  - TWA: 0.4 mg/m³ 8 hours.  
                  - TWA: 0.3 ppm 8 hours.  |

Appropriate engineering controls

- Use only with adequate ventilation. Engineering controls may be required to control the primary or secondary risks associated with this product. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Section 8. Exposure controls/personal protection

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state: Gas. [Compressed gas.]
Color: Colorless.
Odor: Fish. Garlic.
Odor threshold: Not available.
pH: Not available.
Melting point: -133°C (-207.4°F)
Boiling point: -87.7°C (-125.9°F)
Critical temperature: 51.556°C (124.8°F)
Flash point: Not available.
Evaporation rate: Not available.
Flammability (solid, gas): Not available.
Lower and upper explosive (flammable) limits:
  Lower: 1.8%
  Upper: 98%
Vapor pressure: Not available.
Vapor density: 1.17 (Air = 1)
Specific Volume (ft³/lb): 11.4286
Gas Density (lb/ft³): 0.0875 (20°C / 68 to °F)
Relative density: Not applicable.
Solubility: Not available.
Solubility in water: Not available.
Partition coefficient: n-octanol/water: Not available.
Auto-ignition temperature: 38°C (100.4°F)
Decomposition temperature: Not available.
Viscosity: Not applicable.
Section 9. Physical and chemical properties

Flow time (ISO 2431) : Not available.
Molecular weight : 34 g/mole

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
- contact with air
- Reactions may include the following:
- spontaneous flammability

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow contact with air.

Incompatible materials : Reactive or incompatible with the following materials:
- air
- Oxidizers

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

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>phosphine</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>22 ppm</td>
<td>1 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>11 ppm</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

Irritation/Corrosion
Not available.

Sensitization
Not available.

Mutagenicity
Not available.

Carcinogenicity
Not available.

Reproductive toxicity
Not available.

Teratogenicity
Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.
Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact: Causes serious eye damage. Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation: Fatal if inhaled.

Skin contact: Causes severe burns. Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion: As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:, pain, watering, redness

Inhalation: No specific data.

Skin contact: Adverse symptoms may include the following:, pain or irritation, redness, blistering may occur

Ingestion: Adverse symptoms may include the following:, stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects

Not available.

General: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (gases)</td>
<td>11 ppm</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

Toxicity
Not available.

Persistence and degradability
Not available.

Bioaccumulative potential
Not available.

Mobility in soil

| Soil/water partition coefficient (K_{oc}) | : Not available. |

Other adverse effects
No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods
The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Acute hazardous waste "P" List

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS #</th>
<th>Status</th>
<th>Reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphine; Hydrogen phosphide</td>
<td>7803-51-2</td>
<td>Listed</td>
<td>P096</td>
</tr>
</tbody>
</table>

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT</th>
<th>TDG</th>
<th>Mexico</th>
<th>IMDG</th>
<th>IATA</th>
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<tbody>
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<td>UN2199</td>
<td>UN2199</td>
<td>UN2199</td>
<td>UN2199</td>
<td>UN2199</td>
</tr>
</tbody>
</table>

| UN proper shipping name | PHOSPHINE | PHOSPHINE | PHOSPHINE | PHOSPHINE | PHOSPHINE |

| Transport hazard class(es) | 2.3 (2.1) | 2.3 (2.1) | 2.3 (2.1) | 2.3 (2.1) | 2.3 (2.1) |

| Packing group | - | - | - | - | - |


“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Date of issue/Date of revision: 12/9/2020
Date of previous issue: No previous validation
Version: 1
Section 14. Transport information

DOT Classification : Toxic - Inhalation hazard Zone A

**Reportable quantity** 100 lbs / 45.4 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

**Limited quantity** Yes.


**Special provisions** 1

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.13-2.17 (Class 2).

**Special provisions** 38


**Special precautions for user** : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

Section 15. Regulatory information

**U.S. Federal regulations** : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

**Clean Air Act (CAA) 112 regulated toxic substances** : phosphine

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

**Composition/information on ingredients**

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 302 TPQ (gallons)</th>
<th>SARA 304 RQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>phosphine</td>
<td>100</td>
<td>Yes</td>
<td>500</td>
<td>-</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

**SARA 304 RQ** : 100 lbs / 45.4 kg

**SARA 311/312**

**Classification** : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

**SARA 313**

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>phosphine</td>
<td>7803-51-2</td>
<td>100</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.
Section 15. Regulatory information

State regulations
Massachusetts: This material is listed.
New York: This material is listed.
New Jersey: This material is listed.
Pennsylvania: This material is listed.
California Prop. 65
This product does not require a Safe Harbor warning under California Prop. 65.

International regulations
Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

Inventory list
Australia: This material is listed or exempted.
Canada: This material is listed or exempted.
China: This material is listed or exempted.
Europe: This material is listed or exempted.
Japan: Japan inventory (ENCS): This material is listed or exempted.
Japan inventory (ISHL): This material is listed or exempted.
New Zealand: This material is listed or exempted.
Philippines: This material is listed or exempted.
Republic of Korea: This material is listed or exempted.
Taiwan: This material is listed or exempted.
Thailand: Not determined.
Turkey: Not determined.
United States: This material is active or exempted.
Viet Nam: This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>4</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>3</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Date of issue/Date of revision: 12/9/2020
Date of previous issue: No previous validation
Version: 1

11/12
Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE GASES - Category 1</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>PYROPHORIC GASES</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>GASES UNDER PRESSURE - Compressed gas</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 1</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>SKIN CORROSION - Category 1</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE - Category 1</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>AQUATIC HAZARD (ACUTE) - Category 1</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

History

Date of printing : 12/9/2020
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Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

References : Not available.

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