



Phosphine

Safety Data Sheet E-4643

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 01-01-1980

Revision date: 01-01-2021

Supersedes: 01-01-1980

SECTION 1: Identification

1.1. Product identifier

Product form	: Substance
Substance name	: Phosphine
CAS No	: 7803-51-2
Formula	: PH ₃
Other means of identification	: Hydrogen phosphide, Phosphorous hydride, Phosphorous trihydride, Phosphorated hydrogen
Product group	: Core Products

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Linde Canada inc.
1200 – 1 City Centre Drive
Mississauga - Canada L5B 1M2
T 1-905-803-1600 - F 1-905-803-1682
www.lindecana.ca

1.4. Emergency telephone number

Emergency number : 1-800-363-0042
Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product.
For routine information, contact your supplier or Linde sales representative.

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-CA classification

Pyr. Gas	H250
Flam. Gas 1	H220
Liquefied gas	H280
Acute Tox. 1 (Inhalation:gas)	H330
Skin Corr. 1B	H314
Eye Dam. 1	H318

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms



Signal word

: DANGER

Hazard statements

: **EXTREMELY FLAMMABLE GAS**
CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR
CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE
FATAL IF INHALED
MAY FORM EXPLOSIVE MIXTURES WITH AIR.
SYMPTOMS MAY BE DELAYED

Precautionary statements

: 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

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and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Read and follow the Safety Data Sheet (SDS) before use.
Protect from sunlight when ambient temperature exceeds 52°C (125°F).
Close valve after each use and when empty.
When returning cylinder, install leak tight valve outlet cap or plug.
Do not open valve until connected to equipment prepared for use.
Use only with equipment of compatible materials of construction and rated for cylinder pressure.
Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder.
Use a back flow preventive device in the piping.
Dispose of contents/container in accordance with container supplier/owner instructions.
Store locked up
In case of leakage, eliminate all ignition sources
LEAKING GAS FIRE: Do not extinguish, unless leak can be stopped safely.
Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.
Use and store only outdoors or in a well-ventilated place.
Do not breathe gas.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not handle until all safety precautions have been read and understood

2.3. Other hazards

Other hazards not contributing to the classification : May ignite spontaneously in contact with air.

2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	CAS No.	% (Vol.)	Common Name (synonyms)
Phosphine (Main constituent)	(CAS No) 7803-51-2	100	Hydrogen phosphide / Phosphorus trihydride / Phosphorus hydride / Phosphine, adsorbed

3.2. Mixtures

Not applicable

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.
. The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

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 (acute and delayed)

Most Important Symptoms/Effects : Asphyxiant in high concentrations.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : CONTACT WITH THIS PRODUCT REQUIRES IMMEDIATE MEDICAL ATTENTION!
Symptoms may be delayed. Seek medical attention even if no symptoms are present.

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SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog. Use extinguishing media appropriate for surrounding fire.

5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Fire hazard : **DANGER! Toxic, flammable, corrosive, liquid and gas under pressure.** . 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.

Reactivity : Can form explosive mixtures with air. May ignite spontaneously in contact with air.

Reactivity in case of fire : No reactivity hazard other than the effects described in sub-sections below.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : **DANGER! Toxic, flammable, corrosive, liquid and gas under pressure.**

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 their provincial and local fire code regulations.

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 their provincial and local fire code regulations.

Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. 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.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : **DANGER! Toxic, flammable, corrosive, liquid and gas under pressure.** . 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. Try to stop release.

Personal Precautions, Protective Equipment and Emergency Procedures : General measures : Ensure adequate ventilation. Personal Precautions, Protective Equipment and Emergency Procedures : **EVACUATE ALL PERSONNEL FROM AFFECTED AREA.** Use appropriate protective equipment. If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest Praxair Canada location.

6.2. Methods and materials for containment and cleaning up

For containment : Try to stop release if safe to do so.

Methods for cleaning up : Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Reference to other sections

For further information refer to section 8: Exposure controls/personal protection



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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: **DANGER! Toxic, flammable, corrosive, liquid and gas under pressure.**

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.

Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Phosphine (7803-51-2)		
USA - ACGIH	ACGIH TLV-TWA (ppm)	0.05 ppm
USA - ACGIH	ACGIH TLV-C (ppm)	0.15 ppm
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	0.4 mg/m ³
USA - OSHA	OSHA PEL (TWA) (ppm)	0.3 ppm
Canada (Quebec)	VECD (mg/m ³)	1.4 mg/m ³
Canada (Quebec)	VECD (ppm)	1 ppm
Canada (Quebec)	VEMP (mg/m ³)	0.42 mg/m ³
Canada (Quebec)	VEMP (ppm)	0.3 ppm
Alberta	OEL STEL (mg/m ³)	1.4 mg/m ³
Alberta	OEL STEL (ppm)	1 ppm
Alberta	OEL TWA (mg/m ³)	0.4 mg/m ³
Alberta	OEL TWA (ppm)	0.3 ppm

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Phosphine (7803-51-2)		
British Columbia	OEL STEL (ppm)	1 ppm
British Columbia	OEL TWA (ppm)	0.3 ppm
Manitoba	OEL Ceiling (ppm)	0.15 ppm
Manitoba	OEL STEL (ppm)	1 ppm
Manitoba	OEL TWA (ppm)	0.05 ppm
New Brunswick	OEL STEL (mg/m ³)	1.4 mg/m ³
New Brunswick	OEL STEL (ppm)	1 ppm
New Brunswick	OEL TWA (mg/m ³)	0.42 mg/m ³
New Brunswick	OEL TWA (ppm)	0.3 ppm
New Foundland & Labrador	OEL Ceiling (ppm)	0.15 ppm
New Foundland & Labrador	OEL STEL (ppm)	1 ppm
New Foundland & Labrador	OEL TWA (ppm)	0.05 ppm
Nova Scotia	OEL Ceiling (ppm)	0.15 ppm
Nova Scotia	OEL STEL (ppm)	1 ppm
Nova Scotia	OEL TWA (ppm)	0.05 ppm
Nunavut	OEL STEL (ppm)	1 ppm
Nunavut	OEL TWA (ppm)	0.3 ppm
Northwest Territories	OEL STEL (ppm)	1 ppm
Northwest Territories	OEL TWA (ppm)	0.3 ppm
Ontario	OEL STEL (ppm)	1 ppm
Ontario	OEL TWA (ppm)	0.3 ppm
Prince Edward Island	OEL Ceiling (ppm)	0.15 ppm
Prince Edward Island	OEL STEL (ppm)	1 ppm
Prince Edward Island	OEL TWA (ppm)	0.05 ppm
Québec	VECD (mg/m ³)	1.4 mg/m ³
Québec	VECD (ppm)	1 ppm
Québec	VEMP (mg/m ³)	0.42 mg/m ³
Québec	VEMP (ppm)	0.3 ppm
Saskatchewan	OEL STEL (ppm)	1 ppm
Saskatchewan	OEL TWA (ppm)	0.3 ppm
Yukon	OEL STEL (mg/m ³)	1 mg/m ³
Yukon	OEL STEL (ppm)	1 ppm
Yukon	OEL TWA (mg/m ³)	0.4 mg/m ³
Yukon	OEL TWA (ppm)	0.3 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Use in a closed system.

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. Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).

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8.3. Individual protection measures/Personal protective equipment

Personal protective equipment

: Gloves. Face shield. Safety glasses.



Hand protection

: Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

Eye protection

: Provide readily accessible eye wash stations and safety showers. Wear safety glasses with side shields. 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. Safety eye wear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

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.

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). **Respiratory protection:** Use air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection

: Wear cold insulating gloves when transfilling or breaking transfer connections.

Other information

: **Other protection** : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Colourless gas.
Molecular mass	: 34 g/mol
Colour	: Colourless.
Odour	: Rotten fish.
Odour threshold	: No data available
pH	: Not applicable.
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -134 °C
Freezing point	: No data available
Boiling point	: -87.7 °C
Flash point	: No data available
Critical temperature	: 51.6 °C
Auto-ignition temperature	: 38 °C
Decomposition temperature	: 365 °C
Vapour pressure	: 3460 kPa

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Vapour pressure at 50 °C	: No data available
Critical pressure	: 6540 kPa
Relative vapour density at 20 °C	: No data available
Relative density	: 0.74
Relative density of saturated gas/air mixture	: No data available
Density	: No data available
Relative gas density	: 1.2
Solubility	: Water: 300 mg/l
Log Pow	: Not applicable.
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Viscosity, kinematic (calculated value) (40 °C)	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: None.
Flammability (solid, gas)	: 1.2 - 98 vol % EXTREMELY FLAMMABLE GAS

9.2. Other information

Gas group	: Liquefied gas
Additional information	: Pure phosphine has an autoignition temperature of approximately 38°C, but because of the presence of other phosphorus hydrides, particularly diphosphine (P ₂ H ₄), as impurities, phosphine often ignites spontaneously at room temperature (IPCS INCHEM online, 26 Mar 2012). Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	: Can form explosive mixtures with air. May ignite spontaneously in contact with air.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: May occur.
Conditions to avoid	: Temperatures in excess of 365°C (689°F). Hazardous decomposition may occur.
Incompatible materials	: Halogenated hydrocarbons. Halogens. Oxidizing agents. (especially oxygen and halogen). Acids. Aluminium and its alloys.
Hazardous decomposition products	: Hydrogen. Phosphorous. Phosphorus oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: FATAL IF INHALED.

Phosphine (f)7803-51-2	
LC50 inhalation rat (ppm)	10 ppm/4h
ATE CA (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

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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

Phosphine (7803-51-2)

Persistence and degradability	Not applicable for inorganic gases.
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12.3. Bioaccumulative potential

Phosphine (7803-51-2)

Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

12.4. Mobility in soil

Phosphine (7803-51-2)

Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.
Effect on the ozone layer : None.
Effect on global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261. U.S. - RCRA (Resource Conservation & Recovery Act) - P Series Wastes - Acutely Toxic Wastes.
Product/Packaging disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	: UN2199
TDG Primary Hazard Classes	: 2.3 - Class 2.3 - Toxic Gas.
TDG Subsidiary Classes	: 2.1
Proper shipping name	: PHOSPHINE

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ERAP Index	: 25
Explosive Limit and Limited Quantity Index	: 0
Passenger Carrying Ship Index	: Forbidden
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: Forbidden

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 2199
Proper Shipping Name (IMDG)	: PHOSPHINE
Class (IMDG)	: 2 - Gases
MFAG-No	: 119

IATA

UN-No. (IATA)	: 2199
Proper Shipping Name (IATA)	: Phosphine
Class (IATA)	: 2

SECTION 15: Regulatory information

15.1. National regulations

Phosphine (7803-51-2)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International 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 EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
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)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Japanese Poisonous and Deleterious Substances Control Law
Listed on INSQ (Mexican National Inventory of Chemical Substances)

SECTION 16: Other information

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Indication of changes:



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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.

Linde 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 Linde Canada 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 Linde Canada Inc, it is the user's obligation to determine the conditions of safe use of the product. Linde Canada Inc, SDSs are furnished on sale or delivery by Linde Canada Inc, or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Linde sales representative, local distributor, or supplier, or download from www.lindecana.ca. If you have questions regarding Linde SDSs, would like the document number and date of the latest SDS, or would like the names of the Linde suppliers in your area, phone or write Linde Canada Inc, (Phone: 1-888-257-5149; Address: Linde Canada Inc, 1 City Centre Drive, Suite 1200, Mississauga, Ontario, L5B 1M2).

NFPA health hazard

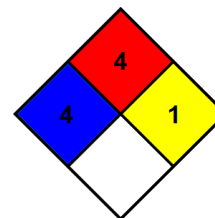
: 4 - Very short exposure could cause death or serious residual injury even though prompt medical attention was given.

NFPA fire hazard

: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA instability

: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health

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

Flammability

: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical

: 3 Serious Hazard - Materials that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Materials may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion

SDS Canada (GHS) - Linde

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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