

INTERNATIONAL_GASES_AND_CHEMICALS_LTD

MATERIAL SAFETY DATA SHEETS

DATE: 12/15/00

SUPPLIER ADDRESS: SPEEDWELL RD
PARKHOUSE EAST
NEWCASTLE-U-LYME

EMERGENCY PHONE: (178) 256-5556
NUMBER

1. CHEMICAL PRODUCT

PRODUCT NAME: PHOSPHINE

SYNONYMS: Hydrogen Phosphide, Phosphorus
Trihydride

2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredient Name	Formula	CAS#	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
PHOSPHINE	PH3	7803-51-2	99+%	0.3	0.3	0.3	1.0

3. HAZARD IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Poisonous pyrophoric, flammable high pressure liquid and gas.

May be fatal if inhaled.

May cause lung, kidney, and central nervous system damage.

Symptoms may be delayed.

Can ignite on contact with air.

May form explosive mixtures with air.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Exposure to 400-600 ppm can be lethal within 30 minutes.
Irritating to the respiratory tract, eyes, and nose. Acts as a central nervous system depressant. Symptoms of exposure can include headache, dizziness, nausea, diarrhea, weakness, fatigue, thirst, cough, difficulty in breathing, and chest or abdominal pain. May cause pulmonary edema, fainting, convulsions and coma.

CHRONIC EFFECTS: Disturbances of sight, speech, motor functions, skeletal injuries, and kidney injuries.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY (US Only):

NTP - No

IARC MONOGRAPHS - No

OSHA REGULATED - No

Continued ...

4. FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

EYE CONTACT: Immediately flush with copious amounts of water for at least 15 minutes.

SKIN CONTACT: Immediately flush with copious amounts of water for at least 15 minutes while removing contaminated clothing.

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: Victim should be retained for observation. Signs and symptoms of pulmonary edema can be delayed for several hours.

5. FIRE FIGHTING MEASURES

FLASH POINT: Spontaneously flammable in air.

AUTOIGNITION TEMPERATURE: 100 deg. C

FLAMMABLE LIMITS: Vol.% in air

LOWER: 1.6

UPPER: 98

EXTINGUISHING MEDIA: Do not extinguish burning gas if flow cannot be shut off immediately. Use flooding quantity of water as a spray.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing. Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

HAZARDOUS COMBUSTION PRODUCTS: Phosphine emits phosphoric acid and hydrogen.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Emits toxic fumes under fire conditions. Moderate hazard when exposed to heat or flame. Cylinder rupture may occur under fire conditions. Do not extinguish

unless gas flow can be stopped. Otherwise, escaping gas may re-ignite without warning.

6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Remove sources of ignition and combustibles. Allow gas to vent if flow cannot be stopped.

SPECIALIZED EQUIPMENT: None

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Keep valve protection cap on cylinders when not in use.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits.

PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses

SKIN PROTECTION: None

RESPIRATORY PROTECTION: In case of leakage, use self-contained breathing apparatus.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless

ODOR: Garlic like odor.

PHYSICAL STATE: Gas

VAPOR PRESSURE: N/Ap

VAPOR DENSITY (AIR=1): 1.17

BOILING POINT (C): -87.7

SOLUBILITY IN WATER: Slight

SPECIFIC GRAVITY (H2O=1): 1.18

EVAPORATION RATE: N/Ap

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ODOR THRESHOLD: N/Av

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source. Contact with air.

MATERIALS TO AVOID: Oxidants such as oxygen and chlorine. Avoid copper, silver, magnesium, mercury, and their salts.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: Phosphine emits phosphorous, PO_x, phosphoric acid. Hydrogen gas.

11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): 20 ppm, rat 1 hour.

LETHAL DOSE 50 (LD50): N/Ap

TERATOGENICITY: N/Ap

REPRODUCTIVE EFFECTS: N/Ap

MUTAGENICITY: N/Ap

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

14. TRANSPORT INFORMATION

CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: Phosphine

HAZARD CLASS: 2.3 (poison), Hazard Zone A

IDENTIFICATION NUMBER: UN2199

REPORTABLE QUANTITIES: N/Av

LABELING: POISON GAS, FLAMMABLE GAS

ADR/RID (EU Only): Class 2, 1TF

SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

15. REGULATORY INFORMATION

OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for this material is 500 lb.

EU NUMBER: 232-260-8

NUMBER IN ANNEX 1 OF DIR 67/548: Material is listed in annex 1.

EU CLASSIFICATION: N/Av

R: N/Av

S: N/Av

16. OTHER INFORMATION

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

ABBREVIATIONS:

N/Ap - Not Applicable

N/Av - Not Available

SA - Simple Asphyxiant

NE - None Established

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