



Safety Data Sheet

Material Name: Phosphine

Section 1 - IDENTIFICATION

Product identifiers

Product name Phosphine

CAS-No. 7803-51-2

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Laboratory chemicals, Synthesis of substances

Details of the supplier of the safety data sheet

Company Electronic Fluorocarbons
3266 Bergey Road
Hatfield PA 19440

Emergency telephone number

Emergency Phone # 1-800-535-5053

Outside the US (call collect) 1-352-323-3500

Section 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Acute toxicity, Inhalation (Category 1), H330
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

Extremely flammable gas.
Contains gas under pressure; may explode if heated.
Causes severe skin burns and eye damage.
Causes serious eye damage.
Fatal if inhaled.
Very toxic to aquatic life.

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| | |
|---------------------------------------|---|
| Precautionary statement(s) General | Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. |
| Prevention | Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection. Wear respiratory protection. |
| Response | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before reuse. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. |
| Storage | Collect spillage. Store in a well-ventilated place. Keep container tightly closed. Store locked up. |
| Disposal | Protect from sunlight. Store in a well-ventilated place. Dispose of contents/ container to an approved waste disposal plant. |

Hazards not otherwise classified (HNOC) or not covered by GHS - none

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Substances

| | |
|------------------|------------------|
| Formula | H ₃ P |
| Molecular weight | 34.00 g/mol |
| CAS-No. | 7803-51-2 |
| EC-No. | 232-260-8 |
| Index-No. | 015-181-00-1 |

Hazardous components

| Component | Classification | Concentration |
|-----------|---|---------------|
| Phosphine | Flam. Gas 1; Press. Gas Liquefied gas; Acute Tox. 1; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 1; H220, H280, H314, H318, H330, H400 | <= 100 % |

Section 4 - FIRST AID MEASURES

Description of first aid measures

General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

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In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

*****Section 5 - FIRE FIGHTING MEASURES*****

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

No data available

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Use water spray to cool unopened containers.

*****Section 6 - ACCIDENTAL RELEASE MEASURES*****

Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.

Reference to other sections

For disposal see section 13.

*****Section 7 - HANDLING AND STORAGE*****

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure.

Storage class (TRGS 510): Gases

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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*****Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION*****

Control parameters

Components with workplace control parameters

| Component | CAS-No. | Value | Control parameters | Basis |
|-----------|-----------|--|--------------------------------|---|
| Phosphine | 7803-51-2 | TWA | 0.300000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | Remarks | Central Nervous System impairment Upper Respiratory Tract irritation Headache Gastrointestinal irritation | | |
| | | TWA | 0.3 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | Central Nervous System impairment Upper Respiratory Tract irritation Headache Gastrointestinal irritation See Notice of Intended Changes (NIC) | | |
| | | STEL | 1.000000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | Central Nervous System impairment Upper Respiratory Tract irritation Headache Gastrointestinal irritation | | |
| | | STEL | 1 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | Central Nervous System impairment Upper Respiratory Tract irritation Headache Gastrointestinal irritation See Notice of Intended Changes (NIC) | | |
| | | TWA | 0.300000 ppm 0.400000 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | | The value in mg/m3 is approximate. | | |
| | | TWA | 0.300000 ppm 0.400000 mg/m3 | USA. NIOSH Recommended Exposure Limits |
| | | ST | 1.000000 ppm 1.000000 mg/m3 | USA. NIOSH Recommended Exposure Limits |
| | | PEL | 0.3 ppm 0.4 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | STEL | 1 ppm 1 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

*****Section 9 - Physical and Chemical Properties*****

Information on basic physical and chemical properties

- | | |
|---|-----------------------------|
| a) Appearance | Form: gaseous |
| b) Odour | No data available |
| c) Odour Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | No data available |
| f) Initial boiling point and boiling range | -87.5 °C (-125.5 °F) - lit. |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapour pressure | No data available |
| l) Vapour density | 1.17 - (Air = 1.0) |
| m) Relative density | No data available |
| n) Water solubility | No data available |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Auto-ignition temperature | No data available |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

Other safety information

Relative vapour density 1.17 - (Air = 1.0)

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Section 10 - STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

Heat, flames and sparks.

Incompatible materials

Strong oxidizing agents Oxidizing agents, Halogens, Nitric acid

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Oxides of phosphorus

Other decomposition products - No data available

In the event of fire: see section 5

Section 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

No data available

LC50 Inhalation - Rat - 4 h - 26 - 33 ppm

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: SY7525000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Pulmonary edema. Effects may be delayed., burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

Section 12 - ECOLOGICAL INFORMATION

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

Avoid release to the environment.

Section 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

Section 14 - Transport Information

DOT (US)

UN number: 2199 Class: 2.3 (2.1)

Proper shipping name: Phosphine

Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: Hazard zone A

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IMDG

UN number: 2199 Class: 2.3 (2.1)

EMS-No: F-D, S-U

Proper shipping name: PHOSPHINE

Marine pollutant:yes

IATA

UN number: 2199 Class: 2.3 (2.1)

Proper shipping name: Phosphine

IATA Passenger: Not permitted for transport

IATA Cargo: Not permitted for transport

Section 15 - REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

| | CAS-No. | Revision Date |
|-----------|-----------|---------------|
| Phosphine | 7803-51-2 | 2007-07-01 |

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

| | CAS-No. | Revision Date |
|-----------|-----------|---------------|
| Phosphine | 7803-51-2 | 2007-07-01 |

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

| | CAS-No. | Revision Date |
|-----------|-----------|---------------|
| Phosphine | 7803-51-2 | 2007-07-01 |

Pennsylvania Right To Know Components

| | CAS-No. | Revision Date |
|-----------|-----------|---------------|
| Phosphine | 7803-51-2 | 2007-07-01 |

New Jersey Right To Know Components

| | CAS-No. | Revision Date |
|-----------|-----------|---------------|
| Phosphine | 7803-51-2 | 2007-07-01 |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 4 Fire: 4 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace;

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MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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