1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Triphenylphosphine
Product Number : 93090
Brand : Fluka
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Harmful by ingestion., Skin sensitiser

Target Organs
Nerves.

GHS Classification
Acute toxicity, Oral (Category 4)
Skin irritation (Category 3)
Eye irritation (Category 2B)
Skin sensitization (Category 1)
Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Nervous system

GHS Label elements, including precautionary statements

Pictogram

Signal word Warning
Hazard statement(s)
H302 Harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H373 May cause damage to organs (Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary statement(s)
P280 Wear protective gloves.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0

NFPA Rating
  Health hazard: 2
  Fire: 1
  Reactivity Hazard: 0

Potential Health Effects
  Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
  Skin: Harmful if absorbed through skin. May cause skin irritation.
  Eyes: May cause eye irritation.
  Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

  Synonyms: Phosphorustriphenyl
  Formula: $C_{18}H_{15}P$
  Molecular Weight: 262.29 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>Triphenylphosphine</td>
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<tr>
<td>CAS-No.</td>
<td>603-35-0</td>
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<tr>
<td>EC-No.</td>
<td>210-036-0</td>
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</tbody>
</table>

4. FIRST AID MEASURES

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

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

  In case of skin contact
  Wash off with soap and plenty of water. Consult a physician.

  In case of eye contact
  Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

  If swallowed
  Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

  Conditions of flammability
  Not flammable or combustible.

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

  Special protective equipment for firefighters
  Wear self contained breathing apparatus for fire fighting if necessary.

  Hazardous combustion products
  Hazardous decomposition products formed under fire conditions. - Carbon oxides, Oxides of phosphorus

6. ACCIDENTAL RELEASE MEASURES

  Personal precautions
  Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form crystalline
Colour white

Safety data
pH no data available
Melting point/freezing point Melting point/range: 79 - 81 °C (174 - 178 °F)
Boiling point 377 °C (711 °F)
Flash point 180 °C (356 °F) - closed cup
Ignition temperature no data available
Autoignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure no data available
Density no data available
Water solubility no data available
Partition coefficient: n-octanol/water log Pow: 2.83
Relative vapour density 9.06 - (Air = 1.0)
Odour no data available
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Oxides of phosphorus
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
LD50 Oral - rat - 700 mg/kg
Remarks: Behavioral: Convulsions or effect on seizure threshold.

Inhalation LC50
LC50 Inhalation - rat - 4 h - 1135 ppm

**Dermal LD50**
LD50 Dermal - rabbit - > 5,000 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - Mild skin irritation - 24 h

**Serious eye damage/eye irritation**
Eyes - rabbit - Mild eye irritation - 24 h

**Respiratory or skin sensitization**
May cause allergic skin reaction.

**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.

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

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.

**Reproductive toxicity**
no data available

**Teratogenicity**
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
Inhalation - May cause damage to organs through prolonged or repeated exposure. - Nervous system

**Aspiration hazard**
no data available

**Potential health effects**

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<th>Effect</th>
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**Signs and Symptoms of Exposure**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**
no data available

**Additional Information**
RTECS: SZ3500000
12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish

*static test LC50* - *Leuciscus idus* (Golden orfe) - > 10,000 mg/l - 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

*EC50* - *Daphnia magna* (Water flea) - > 5 mg/l - 48 h

**Persistence and degradability**

Biodegradability

Biotic/Aerobic

Result: < 20 % - Not readily biodegradable.

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

15. REGULATORY INFORMATION

**OSHA Hazards**

Target Organ Effect, Harmful by ingestion., Skin sensitiser

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

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New Jersey Right To Know Components

Triphenylphosphine

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.

16. OTHER INFORMATION

Further information
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