

SAFETY DATA SHEET

Version 6.2
Revision Date 05/28/2017
Print Date 10/05/2019

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Triphenylphosphine

Product Number : T84409
Brand : Sigma-Aldrich

CAS-No. : 603-35-0

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 Spruce Street
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302

Skin sensitisation (Category 1), H317

Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Nervous system, H373

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H302

Harmful if swallowed.

H317

May cause an allergic skin reaction.

H373

May cause damage to organs (/*_ORG_REP_INHA\$/) through prolonged or repeated exposure if inhaled.

Precautionary statement(s)

P260

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264

Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves.
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 Rinse mouth.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P314 Get medical advice/ attention if you feel unwell.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P363 Wash contaminated clothing before reuse.
 P501 Dispose of contents/ container to an approved waste disposal plant.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Phosphorustriphenyl
 Formula : C₁₈H₁₅P
 Molecular weight : 262.29 g/mol
 CAS-No. : 603-35-0
 EC-No. : 210-036-0

Hazardous components

Component	Classification	Concentration
Triphenylphosphine	Acute Tox. 4; Skin Sens. 1; STOT RE 2; H302, H317, H373	<= 100 %

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

4. FIRST AID MEASURES

4.1 Description of 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

Flush eyes with water as a precaution.

If swallowed

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

4.2 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

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

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

- 5.2 Special hazards arising from the substance or mixture**
Carbon oxides, Oxides of phosphorus
- 5.3 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**
No data available

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.
- 6.2 Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
- 6.3 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.
- 6.4 Reference to other sections**
For disposal see section 13.

7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combu formation should be taken into consideration before additional processing
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.
- 7.3 Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters**
Components with workplace control parameters
Contains no substances with occupational exposure limit values.
- 8.2 Exposure controls**
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Personal protective equipment**
- Eye/face 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 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.
- Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)
- Splash contact
Material: Nitrile rubber

Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industria situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle r (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).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) Appearance | Form: crystalline
Colour: white |
| b) Odour | odourless |
| c) Odour Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range: 79 - 81 °C (174 - 178 °F) - lit. |
| f) Initial boiling point and boiling range | 377 °C (711 °F) - lit. |
| g) Flash point | 180 °C (356 °F) - closed cup |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | The product is not flammable. - Flammability (solids) |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapour pressure | No data available |
| l) Vapour density | 9.06 - (Air = 1.0) |
| m) Relative density | No data available |
| n) Water solubility | 0.00017 g/l at 22 °C (72 °F) |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Auto-ignition temperature | 425 °C (797 °F) at 983 hPa |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | No data available |

t) Oxidizing properties No data available

9.2 Other safety information

Relative vapour density 9.06 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

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

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 700 mg/kg(Triphenylphosphine)

LC50 Inhalation - Rat - male - 4 h - 12.5 mg/l(Triphenylphosphine)

LD50 Dermal - Rabbit - male and female - > 4,000 mg/kg(Triphenylphosphine)

No data available(Triphenylphosphine)

Skin corrosion/irritation

Skin - Rabbit(Triphenylphosphine)

Result: No skin irritation - 20 h

Serious eye damage/eye irritation

Eyes - Rabbit(Triphenylphosphine)

Result: No eye irritation - 24 h

Respiratory or skin sensitisation

Maximisation Test - Guinea pig(Triphenylphosphine)

May cause allergic skin reaction.

(Directive 67/548/EEC, Annex V, B.6.)

Germ cell mutagenicity

No data available(Triphenylphosphine)

Ames test(Triphenylphosphine)

S. typhimurium

Result: negative

(Triphenylphosphine)

Mouse - male and female

Result: negative

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(Triphenylphosphine)

No data available(Triphenylphosphine)

Specific target organ toxicity - single exposure

No data available(Triphenylphosphine)

Specific target organ toxicity - repeated exposure

Inhalation - May cause damage to organs through prolonged or repeated exposure. - Nervous system

Aspiration hazard

No data available(Triphenylphosphine)

Additional Information

Repeated dose toxicity - Rat - male - Inhalation(Triphenylphosphine)

RTECS: SZ3500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Triphenylphosphine)

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence(Triphenylphosphine)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

- | | |
|---|--|
| Toxicity to fish | static test LC50 - Leuciscus idus (Golden orfe) - > 10,000 mg/l - 96 h(Triphenylphosphine) (DIN 38412) |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - > 5 mg/l - 48 h(Triphenylphosphine) (OECD Test Guideline 202) |
| Toxicity to algae | static test EC50 - Desmodesmus subspicatus (green algae) - > 5 mg/l - 72 h(Triphenylphosphine) (OECD Test Guideline 201) |
| Toxicity to bacteria | Respiration inhibition EC50 - Pseudomonas putida - > 10,000 mg/l - 30 min(Triphenylphosphine) |

12.2 Persistence and degradability

- | | |
|------------------|--|
| Biodegradability | aerobic - Exposure time 28 d(Triphenylphosphine)
Result: < 20 % - Not biodegradable
(OECD Test Guideline 301F) |
|------------------|--|

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(Triphenylphosphine)

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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

SARA 302 Components

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

SARA 313 Components

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

	CAS-No.	Revision Date
Triphenylphosphine	603-35-0	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Triphenylphosphine	603-35-0	

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

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs (/*_2ORG_REP_INH/*/) through prolonged or repeated exposure if inhaled.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1

Physical Hazard 0

NFPA Rating

Health hazard: 2

Fire Hazard: 1

Reactivity Hazard: 0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956
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