

# Safety data sheet

acc. to Safe Work Australia - Code of Practice



## Triphenylphosphine $\geq$ 99,5%, for synthesis

article number: **4110**  
Version: **GHS 2.0 en**  
Replaces version of: 2019-09-12  
Version: (GHS 1)

date of compilation: 2019-09-12  
Revision: 2022-09-14

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Identification of the substance **Triphenylphosphine  $\geq$  99,5%, for synthesis**  
Article number 4110  
CAS number 603-35-0

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

Relevant identified uses: Laboratory chemical  
Laboratory and analytical use  
Uses advised against: Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

### 1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0  
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**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

**e-mail (competent person):** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

| Name   | Street          | Postal code/city   | Telephone | Website |
|--|-----------------|--------------------|-----------|---------|
| NSW Poisons Information Centre<br>Childrens Hospital | Hawkesbury Road | 2145 Westmead, NSW | 131126    |         |

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification acc. to GHS

| Section | Hazard class                                       | Cat-egory | Hazard class and category | Hazard statement |
|---------|--|-----------|---------------------------|------------------|
| 3.10    | Acute toxicity (oral)                              | 4         | Acute Tox. 4              | H302             |
| 3.3     | Serious eye damage/eye irritation                  | 1         | Eye Dam. 1                | H318             |
| 3.9     | Specific target organ toxicity - repeated exposure | 1         | STOT RE 1                 | H372             |

For full text of abbreviations: see SECTION 16

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### The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

## 2.2 Label elements

### Labelling

#### Signal word

**Danger**

#### Pictograms

GHS05, GHS07,  
GHS08



#### Hazard statements

|      |   |
|------|---|
| H302 | Harmful if swallowed  |
| H318 | Causes serious eye damage   |
| H372 | Causes damage to organs (nervous system) through prolonged or repeated exposure |

#### Precautionary statements

##### Precautionary statements - prevention

|      |  |
|------|--|
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray    |
| P270 | Do not eat, drink or smoke when using this product |
| P280 | Wear eye protection/face protection                |

##### Precautionary statements - response

|                |   |
|----------------|---|
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing |
| P330           | Rinse mouth   |

##### Precautionary statements - disposal

|      |  |
|------|--|
| P501 | Dispose of contents/container to industrial combustion plant |
|------|--|

## 2.3 Other hazards

### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                   |                    |
|-------------------|--------------------|
| Name of substance | Triphenylphosphine |
| Molecular formula | $C_{18}H_{15}P$    |
| Molar mass        | 262.3 $g/mol$      |
| CAS No            | 603-35-0           |

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### SECTION 4: First aid measures

#### 4.1 Description of first aid measures



##### General notes

Take off contaminated clothing.

##### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

##### Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

##### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Call a doctor.

#### 4.2 Most important symptoms and effects, both acute and delayed

Vomiting, Risk of blindness, Risk of serious damage to eyes, Breathing difficulties

#### 4.3 Indication of any immediate medical attention and special treatment needed

none

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media



##### Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings  
water, foam, dry extinguishing powder, ABC-powder

##### Unsuitable extinguishing media

water jet

#### 5.2 Special hazards arising from the substance or mixture

Combustible.

##### Hazardous combustion products

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Phosphorus oxides (P<sub>x</sub>O<sub>y</sub>)

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

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### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures



##### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water.

#### 6.3 Methods and material for containment and cleaning up

##### Advice on how to contain a spill

Covering of drains. Take up mechanically.

##### Advice on how to clean up a spill

Take up mechanically. Control of dust.

##### Other information relating to spills and releases

Place in appropriate containers for disposal.

#### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid dust formation.

##### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

#### 7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place.

##### Incompatible substances or mixtures

Observe hints for combined storage.

##### Consideration of other advice:

##### Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C

#### 7.3 Specific end use(s)

No information available.

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### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

##### National limit values

##### Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

##### Human health values

| Relevant DNELs and other threshold levels |                       |                                    |                   |                            |
|---|-----------------------|------------------------------------|-------------------|----------------------------|
| Endpoint                                  | Threshold level       | Protection goal, route of exposure | Used in           | Exposure time              |
| DNEL                                      | 5 mg/m <sup>3</sup>   | human, inhalatory                  | worker (industry) | chronic - local effects    |
| DNEL                                      | 10 mg/m <sup>3</sup>  | human, inhalatory                  | worker (industry) | acute - local effects      |
| DNEL                                      | 1 mg/kg               | human, dermal                      | worker (industry) | acute - systemic effects   |
| DNEL                                      | 10 mg/m <sup>3</sup>  | human, inhalatory                  | worker (industry) | acute - systemic effects   |
| DNEL                                      | 0.5 mg/m <sup>3</sup> | human, inhalatory                  | worker (industry) | chronic - systemic effects |
| DNEL                                      | 0.07 mg/kg bw/day     | human, dermal                      | worker (industry) | chronic - systemic effects |

##### Environmental values

| Relevant PNECs and other threshold levels |                 |                       |                              |                              |
|---|-----------------|-----------------------|------------------------------|------------------------------|
| End-point                                 | Threshold level | Organism              | Environmental compartment    | Exposure time                |
| PNEC                                      | 0.165 mg/l      | aquatic organisms     | freshwater                   | short-term (single instance) |
| PNEC                                      | 0.165 mg/l      | aquatic organisms     | marine water                 | short-term (single instance) |
| PNEC                                      | 100 mg/l        | aquatic organisms     | sewage treatment plant (STP) | short-term (single instance) |
| PNEC                                      | 5,540 mg/kg     | aquatic organisms     | freshwater sediment          | short-term (single instance) |
| PNEC                                      | 5,540 mg/kg     | aquatic organisms     | marine sediment              | short-term (single instance) |
| PNEC                                      | 1,100 mg/kg     | terrestrial organisms | soil                         | short-term (single instance) |

#### 8.2 Exposure controls

##### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection.

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### Skin protection



#### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

#### • type of material

Butyl caoutchouc (butyl rubber)

#### • material thickness

0,7mm

#### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

#### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|  |   |
|--|---|
| Physical state   | solid   |
| Form   | crystals  |
| Colour   | white   |
| Odour  | odourless   |
| Melting point/freezing point                             | 78 – 82 °C  |
| Boiling point or initial boiling point and boiling range | 360 – 380 °C at 1,013 hPa                                 |
| Flammability   | this material is combustible, but will not ignite readily |

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|   |   |
|---|---|
| Lower and upper explosion limit                     | not determined  |
| Flash point   | 180 °C (DIN 51584)  |
| Auto-ignition temperature                           | not determined  |
| Decomposition temperature                           | not relevant  |
| pH (value)  | not applicable  |
| Kinematic viscosity                                 | not relevant  |
| <u>Solubility(ies)</u>                              |   |
| Water solubility                                    | (practically insoluble)                                     |
| <u>Partition coefficient</u>                        |   |
| Partition coefficient n-octanol/water (log value):  | 5.69 (TOXNET)   |
| Vapour pressure                                     | 0 hPa at 20 °C  |
| <u>Density and/or relative density</u>              |   |
| Density   | 1.19 g/cm <sup>3</sup> at 20 °C                             |
| Relative vapour density                             | information on this property is not available               |
| Bulk density  | 500 – 600 kg/m <sup>3</sup>                                 |
| Particle characteristics                            | No data available.  |
| <u>Other safety parameters</u>                      |   |
| Oxidising properties                                | none  |
| <b>9.2 Other information</b>                        |   |
| Information with regard to physical hazard classes: | hazard classes acc. to GHS (physical hazards): not relevant |
| Other safety characteristics:                       | There is no additional information.                         |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion. Vapours may form explosive mixtures with air.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

**Violent reaction with:** strong oxidiser, Oxygen

### 10.4 Conditions to avoid

Keep away from heat.

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### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Classification acc. to GHS

#### Acute toxicity

Harmful if swallowed.

| Acute toxicity            |          |              |         |        |        |
|---------------------------|----------|--------------|---------|--------|--------|
| Exposure route            | Endpoint | Value        | Species | Method | Source |
| dermal                    | LD50     | >4,000 mg/kg | rabbit  |        | ECHA   |
| oral                      | LD50     | 700 mg/kg    | rat     |        | ECHA   |
| inhalation: dust/<br>mist | LC50     | 12.5 mg/l/4h | rat     |        | ECHA   |

#### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

#### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

#### Carcinogenicity

Shall not be classified as carcinogenic.

#### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

#### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

#### Specific target organ toxicity - repeated exposure

Causes damage to organs (nervous system) through prolonged or repeated exposure.

| Hazard category | Target organ   | Exposure route |
|-----------------|----------------|----------------|
| 1               | nervous system | if exposed     |

#### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

#### Symptoms related to the physical, chemical and toxicological characteristics



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- **If swallowed**

vomiting, nausea

- **If in eyes**

Causes serious eye damage, risk of blindness

- **If inhaled**

poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness

- **If on skin**

Data are not available.

- **Other information**

none

### 11.2 Endocrine disrupting properties

Not listed.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxic to aquatic life.

| Aquatic toxicity (acute) |                        |                       |        |               |
|--------------------------|------------------------|-----------------------|--------|---------------|
| Endpoint                 | Value                  | Species               | Source | Exposure time |
| LC50                     | $>10,000 \text{ mg/l}$ | fish                  | ECHA   | 96 h          |
| EC50                     | $>5 \text{ mg/l}$      | aquatic invertebrates | ECHA   | 48 h          |

| Aquatic toxicity (chronic) |                        |                |        |               |
|----------------------------|------------------------|----------------|--------|---------------|
| Endpoint                   | Value                  | Species        | Source | Exposure time |
| EC50                       | $>10,000 \text{ mg/l}$ | microorganisms | ECHA   | 30 min        |

### Biodegradation

Data are not available.

### 12.2 Process of degradability

Theoretical Oxygen Demand:  $2.775 \text{ mg/mg}$   
Theoretical Carbon Dioxide:  $3.02 \text{ mg/mg}$

| Process of degradability |                  |      |
|--------------------------|------------------|------|
| Process                  | Degradation rate | Time |
| biotic/abiotic           | $<20 \%$         | 28 d |

### 12.3 Bioaccumulative potential

The substance fulfils the very bioaccumulative criterion.

|                           |               |
|---------------------------|---------------|
| n-octanol/water (log KOW) | 5.69 (TOXNET) |
|---------------------------|---------------|

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### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Endocrine disrupting properties

Not listed.

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Relevant provisions relating to waste(Basel Convention)

#### Properties of waste which render it hazardous

H11 Toxic (Delayed or chronic)

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

- |   |   |
|---|---|
| 14.1 UN number  | not subject to transport regulations                                  |
| 14.2 UN proper shipping name  | not assigned  |
| 14.3 Transport hazard class(es)   | not assigned  |
| 14.4 Packing group  | not assigned  |
| 14.5 Environmental hazards  | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user   | There is no additional information.                                   |
| 14.7 Transport in bulk according to IMO instruments                         | The cargo is not intended to be carried in bulk.                      |
| 14.8 <u>Information for each of the UN Model Regulations</u>                |   |
| Transport informationNational regulationsAdditional information(UN RTDG)    | Not subject to transport regulations. UN RTDG                         |
| International Maritime Dangerous Goods Code (IMDG) - Additional information |   |

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Not subject to IMDG.

### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

There is no additional information.

#### National regulations(Australia)

##### Australian Inventory of Chemical Substances(AICS)

Substance is listed.

#### Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

#### National inventories

| Country | Inventory  | Status              |
|---------|------------|---------------------|
| AU      | AIIC       | substance is listed |
| CA      | DSL        | substance is listed |
| CN      | IECSC      | substance is listed |
| EU      | ECSI       | substance is listed |
| EU      | REACH Reg. | substance is listed |
| JP      | CSCL-ENCS  | substance is listed |
| KR      | KECI       | substance is listed |
| NZ      | NZIoC      | substance is listed |
| PH      | PICCS      | substance is listed |
| TR      | CICR       | substance is listed |
| TW      | TCSI       | substance is listed |
| US      | TSCA       | substance is listed |

#### Legend

|            |   |
|------------|---|
| AIIC       | Australian Inventory of Industrial Chemicals                            |
| CICR       | Chemical Inventory and Control Regulation                               |
| CSCL-ENCS  | List of Existing and New Chemical Substances (CSCL-ENCS)                |
| DSL        | Domestic Substances List (DSL)  |
| ECSI       | EC Substance Inventory (EINECS, ELINCS, NLP)                            |
| IECSC      | Inventory of Existing Chemical Substances Produced or Imported in China |
| KECI       | Korea Existing Chemicals Inventory                                      |
| NZIoC      | New Zealand Inventory of Chemicals                                      |
| PICCS      | Philippine Inventory of Chemicals and Chemical Substances (PICCS)       |
| REACH Reg. | REACH registered substances   |
| TCSI       | Taiwan Chemical Substance Inventory                                     |
| TSCA       | Toxic Substance Control Act   |

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

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### SECTION 16: Other information

#### Indication of changes (revised safety data sheet)

Alignment to regulation: Globally Harmonized System of Classification and Labelling of Chemicals ("Purple book").

Restructuring: section 9, section 14

| Section | Former entry (text/value)   | Actual entry (text/value)  | Safety-relevant |
|---------|---|--|-----------------|
| 2.1     |   | Classification acc. to GHS:<br>change in the listing (table)   | yes             |
| 2.1     |   | The most important adverse physicochemical, human health and environmental effects:<br>Delayed or immediate effects can be expected after short or long-term exposure. | yes             |
| 2.2     | Labelling of packages where the contents do not exceed 125 ml:<br>Signal word: Danger |  | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)  | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)  | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)  | yes             |
| 2.3     | Other hazards:<br>There is no additional information.                                 | Other hazards  | yes             |
| 2.3     |   | Results of PBT and vPvB assessment:<br>According to the results of its assessment, this substance is not a PBT or a vPvB.  | yes             |

#### Abbreviations and acronyms

| Abbr.    | Descriptions of used abbreviations   |
|----------|--|
| CAS      | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)   |
| DGR      | Dangerous Goods Regulations (see IATA/DGR)   |
| DNEL     | Derived No-Effect Level  |
| EC50     | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EINECS   | European Inventory of Existing Commercial Chemical Substances  |
| ELINCS   | European List of Notified Chemical Substances  |
| GHS      | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations  |
| IATA     | International Air Transport Association  |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA)   |
| ICAO     | International Civil Aviation Organization  |
| IMDG     | International Maritime Dangerous Goods Code  |

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| Abbr.   | Descriptions of used abbreviations  |
|---------|---|
| LC50    | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50    | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval                  |
| NLP     | No-Longer Polymer   |
| PBT     | Persistent, Bioaccumulative and Toxic   |
| PNEC    | Predicted No-Effect Concentration   |
| UN RTDG | UN Recommendations on the Transport of Dangerous Good   |
| vPvB    | Very Persistent and very Bioaccumulative  |

### Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text   |
|------|--|
| H302 | Harmful if swallowed.  |
| H318 | Causes serious eye damage.   |
| H372 | Causes damage to organs (nervous system) through prolonged or repeated exposure. |

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.