1 Identification

- Product identifier
- Trade name: Triphenylphosphine oxide
- Synonym
  - triphenyl-phosphine oxide
  - NSC 398
  - TPPO
- Article number: 9000289
- Application of the substance For research use only - not for human or veterinary use.
- CAS Number:
  - 791-28-6
- EC number:
  - 212-338-8
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier:
    - Cayman Chemical Co.
    - 1180 E. Ellsworth Rd.
    - Ann Arbor, MI 48108
    - USA
  - Information department: Product safety department
  - Emergency telephone number:
    - During normal opening times: +1 (734) 971-3335
    - US/CANADA: 800-424-9300
    - Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS07
  - Acute Tox. 4 H302 Harmful if swallowed.
  - Aquatic Acute 3 H402 Harmful to aquatic life.
  - Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.
- Label elements
- GHS label elements
  - The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms
  - GHS07
- Signal word Warning
- Hazard statements
  - Harmful if swallowed.
Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.

· Precautionary statements
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  Avoid release to the environment.
  If swallowed: Call a poison center/doctor if you feel unwell.
  Rinse mouth.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 1
    Fire = 1
    Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    HEALTH 1
    FIRE 1
    REACTIVITY 0

· Other hazards
  · Results of PBT and vPvB assessment
    · PBT: Not applicable.
    · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Substances
  · CAS No. Description
    791-28-6 Triphenylphosphine oxide
  · Identification number(s)
  · EC number: 212-338-8

4 First-aid measures

· Description of first aid measures
  · General information:
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  · After inhalation: Supply fresh air; consult doctor in case of complaints.
  · After skin contact: Generally the product does not irritate the skin.
  · After eye contact: Rinse opened eye for several minutes under running water.
  · After swallowing: Immediately call a doctor.
  · Information for doctor:
    · Most important symptoms and effects, both acute and delayed
      May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
      No further relevant information available.
Trade name: Triphenylphosphine oxide

· Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
  · Suitable extinguishing agents:
    Use fire fighting measures that suit the environment.
    A solid water stream may be inefficient.
  · Special hazards arising from the substance or mixture No further relevant information available.
  · Advice for firefighters
    · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.
· Environmental precautions:
  Inform respective authorities in case of seepage into water course or sewage system.
  Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up: Pick up mechanically.
· Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
· Protective Action Criteria for Chemicals
  · PAC-1: Substance is not listed.
  · PAC-2: Substance is not listed.
  · PAC-3: Substance is not listed.

7 Handling and storage

· Handling:
  · Precautions for safe handling
    No special precautions are necessary if used correctly.
    Avoid breathing dust/fume/gas/mist/vapours/spray.
    Avoid prolonged or repeated exposure.
    Keep away from sources of ignition.
    Take precautionary measures against static discharge.
  · Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
  Keep container tightly closed.
  Store in accordance with information listed on the product insert.
· Storage:
  · Requirements to be met by storerooms and receptacles: No special requirements.
  · Information about storage in one common storage facility: Not required.
  · Further information about storage conditions: None.
  · Specific end use(s) No further relevant information available.
8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters
- Components with limit values that require monitoring at the workplace: Not required.
- Additional information: The lists that were valid during the creation were used as basis.
- Exposure controls
- Personal protective equipment:
- General protective and hygienic measures: Wash hands before breaks and at the end of work.
- Breathing equipment: Not required.
- Protection of hands:
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection: Not required.

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Crystalline
      - Color: Not determined.
    - Odor: Characteristic
  - Structural Formula: C18H15OP
  - Molecular Weight: 278.3 g/mol
  - Odor threshold: Not determined.
  - pH-value: Not applicable.
- Change in condition
  - Melting point/Melting range: 154–156 °C (309.2–312.8 °F)
  - Boiling point/Boiling range: Undetermined.
- Flash point: 180 °C (356 °F)
- Flammability (solid, gaseous): Product is not flammable.
- Decomposition temperature: Not determined.
- Auto igniting: Not determined.
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
### 10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**: No decomposition if used according to specifications.
- **Thermal decomposition / conditions to be avoided**: No dangerous reactions known.
- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: oxidizing agents

#### Hazardous decomposition products:
- 791-28-6 | Triphenylphosphine oxide | carbon oxides, phosphorous oxides

### 11 Toxicological information

- **RTECS Number**: SZ1676000
- **Information on toxicological effects**: No further relevant information available.
- **Acute toxicity**:
  - **Oral LD50**: 1,380 mg/kg (mouse)

#### LD/LC50 values that are relevant for classification:

- **Primary irritant effect**:
  - **on the skin**: No irritant effect.
  - **on the eye**: No irritating effect.

### Carcinogenic categories

- **IARC (International Agency for Research on Cancer)**: Substance is not listed.
- **NTP (National Toxicology Program)**: Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**: Substance is not listed.
12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
  - **Bioaccumulative potential** No further relevant information available.
  - **Mobility in soil** No further relevant information available.
  - **Ecotoxicity:**
    - **Remark:** Harmful to fish
  - **Additional ecological information:**
    - **General notes:**
      Water hazard class 2 (Assessment by list): hazardous for water
      Do not allow product to reach ground water, water course or sewage system.
      Danger to drinking water if even small quantities leak into the ground.
      Harmful to aquatic organisms
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.
  - **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN2811

- **UN proper shipping name**
- **DOT** Toxic solids, organic, n.o.s. (Triphenylphosphine oxide)
- **IMDG** TOXIC SOLID, ORGANIC, N.O.S. (Triphenylphosphine oxide)
- **IATA** Toxic solid, organic, n.o.s. (Triphenylphosphine oxide)

- **Transport hazard class(es)**
- **DOT**
  - ![Image of a toxic symbol]
  - **Class** 6.1 Toxic substances
Trade name: Triphenylphosphine oxide

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
  - Section 355 (extremely hazardous substances): Substance is not listed.
  - Section 313 (Specific toxic chemical listings): Substance is not listed.
  - TSCA (Toxic Substances Control Act): ACTIVE
  - Hazardous Air Pollutants Substance is not listed.
  - Proposition 65
  - Chemicals known to cause cancer: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for females: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for males: Substance is not listed.
  - Chemicals known to cause developmental toxicity: Substance is not listed.
- Carcinogenic categories
- EPA (Environmental Protection Agency) Substance is not listed.
- TLV (Threshold Limit Value established by ACGIH) Substance is not listed.
- NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
- GHS label elements
  - The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

Signal word: Warning

Hazard statements
Harmful if swallowed.
Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.
· **Precautionary statements**
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  Avoid release to the environment.
  If swallowed: Call a poison center/doctor if you feel unwell.
  Rinse mouth.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

- This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of preparation / last revision** 07/14/2020 / -
- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
- **Acute Tox. 4:** Acute toxicity – Category 4
- **Aquatic Acute 3:** Hazardous to the aquatic environment - acute aquatic hazard – Category 3
- **Aquatic Chronic 3:** Hazardous to the aquatic environment - long-term aquatic hazard – Category 3