

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 02-Oct-2024  
 Revision Number 1

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	EPN Reference Material [CRM]
<b>Product Code</b>	057-09591

<b>Supplier</b>	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-2029
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses</b>	For research use only
<b>Restrictions on use</b>	Seek expert judgment when using for purposes other than those recommended.

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

## Classification of the substance or mixture

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 1
Category 1 nervous system	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 nervous system, blood system	
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

## Pictograms



## Signal word

Danger

## Hazard statements

- H300 - Fatal if swallowed
- H311 - Toxic in contact with skin
- H330 - Fatal if inhaled
- H361 - Suspected of damaging fertility or the unborn child
- H400 - Very toxic to aquatic life
- H410 - Very toxic to aquatic life with long lasting effects
- H370 - Causes damage to the following organs: nervous system
- H372 - Causes damage to the following organs through prolonged or repeated exposure: nervous system, blood system

## Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Avoid release to the environment

**Precautionary statements-(Response)**

- IF exposed: Call a POISON CENTER or doctor/physician
- IF ON SKIN: Wash with plenty of soap and water
- Call a POISON CENTER or doctor/physician if you feel unwell
- Remove/Take off immediately all contaminated clothing
- Wash contaminated clothing before reuse
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Rinse mouth
- Collect spillage

**Precautionary statements-(Storage)**

- Store locked up

**Precautionary statements-(Disposal)**

- Dispose of contents/container to an approved waste disposal plant

**Others**

**Other hazards** Not available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Single Substance or Mixture** Substance

**Formula** C14H14NO4PS

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	98.0	323.30	(3)-2617	4-(3)-17	2104-64-5

**Note on ISHL No.:** \* in the table means announced chemical substances.

### Section 4: FIRST AID MEASURES

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**Eye contact**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

**Ingestion**

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

**Protection of first-aiders**

Use personal protective equipment as required.

### Section 5: FIRE FIGHTING MEASURES

**Suitable extinguishing media**

Water spray (fog), Carbon dioxide (CO<sub>2</sub>), Foam, Extinguishing powder, Sand

**Unsuitable extinguishing media**

No information available

**Specific hazards arising from the chemical product**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

#### Special extinguishing method

No information available

#### Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

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

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

#### Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

#### Methods and materials for contaminant and methods and materials for cleaning up

Sweep up and gather scattered particles, and collect it in an empty airtight container.

#### Recovery, neutralization

No information available

#### Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling

#### Technical measures

Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.

#### Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

#### Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

### Storage

#### Safe storage conditions

##### Storage conditions

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. Packed with an inert gas. Store locked up.

##### Safe packaging material

Glass

#### Incompatible substances

Strong oxidizing agents

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

#### Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5	N/A	N/A	TWA: 0.1 mg/m <sup>3</sup> inhalable fraction and vapor Skin

Chemical Name	Concentration standard value set by the Minister of Health, Labor and Welfare (8hr)	Concentration standard value set by the Minister of Health, Labor and Welfare (Short-Term)
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5	0.1 mg/m <sup>3</sup>	N/A

**Personal protective equipment**

<b>Respiratory protection</b>	Dust mask ( JIS T 8151 )
<b>Hand protection</b>	chemical protective gloves ( JIS T 8116 )
<b>Eye protection</b>	protective eyeglasses or chemical safety goggles (JIS T 8147)
<b>Skin and body protection</b>	Long-sleeved work clothes

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Form**

**Color** White - slightly yellow  
**Appearance** crystalline powder - powder

**Odor**

no data available

**Melting point/freezing point**

36 - 38 °C

**Boiling point, initial boiling point and boiling range**

no data available

**Flammability**

no data available

**Evaporation rate:**

no data available

**Flammability (solid, gas):**

no data available

**Upper/lower flammability or explosive limits****Upper:**

no data available

**Lower:**

no data available

**Flash point**

no data available

**Auto-ignition temperature:**

no data available

**Decomposition temperature:**

no data available

**pH**

no data available

**Viscosity (coefficient of viscosity)**

no data available

**Dynamic viscosity**

no data available

**Solubilities**

ethanol, acetone : soluble . water : practically insoluble, or insoluble .

**n-Octanol/water partition coefficient:(log Pow)**

no data available

**Vapour pressure**

no data available

**Specific Gravity / Relative density**

no data available

**Vapour density**

no data available

**Particle characteristics**

no data available

## Section 10: STABILITY AND REACTIVITY

**Stability**

**Reactivity** no data available  
**Chemical stability** May be altered by light.

**Hazardous reactions**

None under normal processing

**Conditions to avoid**

Extremes of temperature and direct sunlight

**Incompatible materials**

Strong oxidizing agents

**Hazardous decomposition products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides (SO<sub>x</sub>), Phosphorus oxide**Section 11: TOXICOLOGICAL INFORMATION**

\*NITE: National Institute of Technology and Evaluation (JAPAN)

[https://www.chem-info.nite.go.jp/en/chem/chrip/chrip\\_search/srhInput](https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput)**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	7 mg/kg ( Rat )	538 mg/kg ( Rat )	0.0265 mg/L ( Rat ) 4h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

**Skin irritation/corrosion**

Chemical Name	Skin corrosion/irritation source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Serious eye damage/ irritation**

Chemical Name	Serious eye damage/irritation source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Respiratory or skin sensitization**

Chemical Name	Respiratory or Skin sensitization source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Reproductive cell mutagenicity**

Chemical Name	germ cell mutagenicity source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.

**Section 12: ECOLOGICAL INFORMATION**

\*NITE: National Institute of Technology and Evaluation (JAPAN)

[https://www.chem-info.nite.go.jp/en/chem/chrip/chrip\\_search/srhInput](https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput)**Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	N/A	LC50: <i>Lepomis macrochirus</i> 0.060 - 0.110 mg/L 96 h	EC50 : <i>Daphnia magna</i> 0.00006 mg/L 26 h

		<i>LC50:Pimephales promelas</i> 0.0648 - 0.0953 mg/L 96 h <i>LC50:Oncorhynchus mykiss</i> 0.110 - 0.900 mg/L 96 h <i>LC50:Poecilia reticulata</i> 0.032 mg/L 96 h <i>LC50:Pimephales promelas</i> 0.2 mg/L 96 h	
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**Other data**

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

<b>Persistence and degradability</b>	No information available
<b>Bioaccumulative potential</b>	No information available
<b>Mobility in soil</b>	No information available
<b>Hazard to the ozone layer</b>	No information available

### Section 13: DISPOSAL CONSIDERATIONS

**Waste from residues**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated container and contaminated packaging**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Section 14: TRANSPORT INFORMATION

**ADR/RID**

<b>UN number</b>	UN2783
<b>Proper shipping name:</b>	Organophosphorus pesticide, solid, toxic (Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester)
<b>UN classification</b>	6.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	I
<b>Marine pollutant</b>	Yes

**IMDG**

<b>UN number</b>	UN2783
<b>Proper shipping name:</b>	Organophosphorus pesticide, solid, toxic (Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester)
<b>UN classification</b>	6.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	I
<b>Marine pollutant (Sea)</b>	Yes
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	No information available

**IATA**

<b>UN number</b>	UN2783
<b>Proper shipping name:</b>	Organophosphorus pesticide, solid, toxic (Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester)
<b>UN classification</b>	6.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	I
<b>Environmentally Hazardous Substance</b>	Yes

## Section 15: REGULATORY INFORMATION

### Japanese regulations

<b>Fire Service Act</b>	Not applicable
<b>Poisonous and Deleterious Substances Control Law</b>	Poisonous Substances 1st. Grade
<b>Industrial Safety and Health Act</b>	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57) Notifiable Substances (Law Art.57-2) Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
<b>Regulations for the carriage and storage of dangerous goods in ship</b>	Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
<b>Civil Aeronautics Law</b>	Toxic and Infectious Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
<b>Marine Pollution Prevention Law</b>	Marine pollutants (P and PP substances)
<b>Pollutant Release and Transfer Register Law (2023.4.1-)</b>	Class 1
<b>Class 1 - No.</b>	48
<b>Water Pollution Control Act</b>	Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)
<b>Export Trade Control Order</b>	Not applicable
<b>Soil Contamination Control Law</b>	Designated Hazardous Substances

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5 ( 98.0 )	Applicable	Applicable	Applicable

## Section 16: OTHER INFORMATION

### Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)  
[https://www.chem-info.nite.go.jp/en/chem/chrip/chrip\\_search/srhInput](https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput)  
 IATA dangerous Goods Regulations  
 RTECS:Registry of Toxic Effects of Chemical Substances  
 Japan Industrial Safety and Health Association GHS Model SDS  
 Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.  
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.  
 etc

### Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**