

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 26-Feb-2024
 Revision Number 2.05

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Organophosphorus Pesticides Mixture Standard Solution (each 1mg/mL Toluene Solution)
Product Code	153-01481

Supplier 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

Emergency telephone number +81-6-6203-3741 / +81-3-3270-8571

Recommended uses For research use only
 Reference material (as defined in Japanese Industrial Standards (JIS) Q0030)

Restrictions on use Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Flammable liquids	Category 2
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Reproductive Toxicity	Category 1A (additional)
Specific target organ toxicity (single exposure)	Category 1, Category 3
Category 1 central nervous system	
Category 3 Respiratory irritation, Narcotic effects	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 central nervous system, kidneys	
Aspiration hazard	Category 1
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 3

Pictograms



Signal word

Danger

Hazard statements

- H225 - Highly flammable liquid and vapor
- H315 - Causes skin irritation
- H320 - Causes eye irritation
- H331 - Toxic if inhaled
- H360 - May damage fertility or the unborn child
- H362 - May cause harm to breast-fed children
- H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness
 H304 - May be fatal if swallowed and enters airways
 H400 - Very toxic to aquatic life
 H412 - Harmful to aquatic life with long lasting effects
 H370 - Causes damage to the following organs: central nervous system
 H372 - Causes damage to the following organs through prolonged or repeated exposure: central nervous system, kidneys

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
- Use only outdoors or in a well-ventilated area
- Wash face, hands and any exposed skin thoroughly after handling
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product
- Avoid release to the environment
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ ventilating / lighting / equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Keep cool

Precautionary statements-(Response)

- IF exposed: Call a POISON CENTER or doctor/physician
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- If skin irritation occurs: Get medical advice/attention
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Call a POISON CENTER or doctor/physician
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Do NOT induce vomiting
- In case of fire: Use suitable extinguishing media for extinction
- Collect spillage

Precautionary statements-(Storage)

- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

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 Mixture

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Toluene	99.6	92.14	(3)-2,(3)-60	*	108-88-3
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	0.1	323.30	(3)-2617	4-(3)-17	2104-64-5
Methyl parathion	0.1	263.21	N/A	4-(9)-124 4-(9)-128	298-00-0
Parathion	0.1	291.26	N/A	4-(9)-244	56-38-2
Methyl Demeton	0.1	230.29	N/A	2-(7)-165	919-86-8

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 (CO₂), 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. Vapors may form explosive mixture with air

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

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

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

Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. To cut with care and

wear protective gloves and protective goggles to ampoule time of the opening (Cutting method to check the label). 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

Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage**Safe storage conditions****Storage conditions**

Store away from sunlight in a cool (2-10 °C) well-ventilated dry place. Store locked up.

Safe packaging material

Ampoule

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
Toluene 108-88-3	TWA: 50 ppm OEL TWA: 188 mg/m ³ OEL Skin ISHL/ACL: 20 ppm	ISHL/ACL: 20 ppm	TWA: 20 ppm
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5	N/A	N/A	TWA: 0.1 mg/m ³ inhalable fraction and vapor Skin
Methyl parathion 298-00-0	N/A	N/A	TWA: 0.02 mg/m ³ inhalable fraction and vapor Skin
Parathion 56-38-2	TWA: 0.1 mg/m ³ OEL Skin	N/A	TWA: 0.05 mg/m ³ inhalable fraction and vapor Skin
Methyl Demeton 919-86-8	N/A	N/A	TWA: 0.05 mg/m ³ inhalable fraction and vapor Skin

Personal protective equipment**Respiratory protection**

gas mask for organic gas (JIS T 8152)

Hand protection

chemical protective gloves (JIS T 8116)

Eye protection

protective eyeglasses or chemical safety goggles (JIS T 8147)

Skin and body protection

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**

colorless

Turbidity

clear

Appearance	liquid
Odor	characteristic odor
Melting point/freezing point	-93 °C
Boiling point, initial boiling point and boiling range	111 °C
Flammability	Highly flammable liquid and vapor
Evaporation rate:	no data available
Flammability (solid, gas):	no data available
Upper/lower flammability or explosive limits	
Upper:	7.1 vol%
Lower:	1.1 vol%
Flash point	5 °C
Auto-ignition temperature:	480 °C
Decomposition temperature:	no data available
pH	no data available
Viscosity (coefficient of viscosity)	no data available
Dynamic viscosity	no data available
Solubilities	water : practically insoluble,or insoluble . Ethanol , Diethyl ether : soluble .
n-Octanol/water partition coefficient:(log Pow)	2.73
Vapour pressure	no data available
Specific Gravity / Relative density	0.864 - 0.868
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, Heat, flames and sparks, static electricity, spark
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Sulfur oxides (SO _x), Phosphorus oxide

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Toluene	5000 mg/kg (Rat)	12000 mg/kg (Rat)	7460 ppm (Rat) 4 h (vapor)
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	7.7 mg/kg (Rat)	533 mg/kg (Rat)	0.121 mg/L (Rat) 4h
Methyl parathion	2.9 mg/kg (Rat)	6 mg/kg (Rat)	0.034 mg/L (Rat) 4 h
Parathion	6.85 mg/kg (Rat)	73 mg/kg (Rat)	0.03 mg/L (Rat) 4 h
Methyl Demeton	30 mg/kg(Rat)	85 mg/kg(Rat)	500 mg/m ³ (Rat) 4 h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Toluene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
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.
Methyl parathion	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Parathion	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
Toluene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
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.
Methyl parathion	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Parathion	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
Toluene	Based on the NITE GHS classification results.
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	Based on the NITE GHS classification results.
Methyl parathion	Based on the NITE GHS classification results.
Parathion	Based on the NITE GHS classification results.
Methyl Demeton	Based on the NITE GHS classification results.

Serious eye damage/ irritation

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

Respiratory or skin sensitization

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

Reproductive cell mutagenicity

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

Carcinogenicity

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

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Toluene 108-88-3	-	Group 3	-	-
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5		Group 2A		
Methyl parathion 298-00-0	-	Group 3	-	-
Parathion 56-38-2		Group 2B		

Methyl Demeton 919-86-8		Group 2A	A4 (発がん分類できない)
----------------------------	--	----------	----------------

Reproductive toxicity

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Toluene	EC50:Pseudokirchneriella subcapitata 433 mg/L 96 h	LC50:Pimephales promelas 15.22 - 19.05 mg/L 96 h	EC50:Ceriodaphnia dubia 3.78 mg/L 48 h
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	N/A	LC50:Lepomis macrochirus 0.060 - 0.110 mg/L 96 h LC50:Pimephales promelas 0.0648 - 0.0953 mg/L 96 h LC50:Oncorhynchus mykiss 0.110 - 0.900 mg/L 96 h LC50:Poecilia reticulata 0.032 mg/L 96 h LC50:Pimephales promelas 0.2 mg/L 96 h	EC50 :Daphnia magna 0.00006 mg/L 26 h
Methyl parathion	N/A	N/A	LC50 : Daphnia magna 0.00014 mg/L 48 h
Parathion	EC50:Desmodesmus subspicatus 10 mg/L 72 h EC50:Pseudokirchneriella subcapitata 3.59 mg/L 72 h	LC50:Lepomis macrochirus 0.01 - 0.032 mg/L 96 h LC50:Pimephales promelas 0.24 - 1.03 mg/L 96 h LC50:Oncorhynchus mykiss 0.37 - 1.64 mg/L 96 h LC50:Oncorhynchus mykiss	LC50 : Gammarus fasciatus 0.0009 mg/L 48 h

		0.699 - 1.070 mg/L 96 h LC50:Lepomis macrochirus 0.026 mg/L 96 h LC50:Pimephales promelas 0.25 mg/L 96 h LC50:Cyprinus carpio 0.85 mg/L 96 h	
Methyl Demeton	N/A	N/A	LC50 : 190 µg/L 96 h

Other data

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

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

UN number	UN1294
Proper shipping name:	Toluene
UN classification	3
Subsidiary hazard class	
Packing group	II
Marine pollutant	Yes

IMDG

UN number	UN1294
Proper shipping name:	Toluene
UN classification	3
Subsidiary hazard class	
Packing group	II
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA

UN number	UN1294
Proper shipping name:	Toluene

UN classification 3
 Subsidiary hazard class
 Packing group II
 Environmentally Hazardous Substance Yes

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act Category IV, Class I petroleums, dangerous grade 2
Poisonous and Deleterious Substances Control Law Specified Poisonous Substances 1st. Grade
Industrial Safety and Health Act Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)
 Notifiable Substances (Law Art.57-2)
 Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)
 Class 2 Organic Solvents
 Working Environment Evaluation Standards, Administrative Control Levels
Industrial Safety and Health Act (2024-) 【2024.4.1~】 Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc Priority Assessment Chemical Substances (Law Article 2, Para.5)
Regulations for the carriage and storage of dangerous goods in ship Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Marine Pollution Prevention Law Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y
Pollutant Release and Transfer Register Law (2023.4.1-) Class 1
Class 1 - No. 300
Water Pollution Control Act Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)
 Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)
Export Trade Control Order Narcotics and Psychotropics Control Law Appendix 2 Export Approval Item
Air Pollution Control Law Priority Chemical Substances
Soil Contamination Control Law Designated Hazardous Substances
Offensive Odor Control Law Specified Offensive Odor 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-)
Toluene 108-88-3 (99.6)	-	Applicable	Applicable
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester 2104-64-5 (0.1)	Applicable	Applicable	-
Methyl parathion 298-00-0 (0.1)	Applicable	Applicable	-
Parathion 56-38-2 (0.1)	Applicable	Applicable	-
Methyl Demeton 919-86-8 (0.1)	Applicable	Applicable	-

Section 16: OTHER INFORMATION**Key literature references and sources for data etc.**

NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>
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

Record of SDS revisions

The following contents were revised. Regulatory information.

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