



SAFETY DATA SHEET

According to JIS Z 7253:2019 Issue Date 13-May-2025 Revision Number 2.06

Section 1: PRODUCT AND COMPANY IDENTIFICATION

	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

Restrictions on use

For research use only

Reference material (as defined in Japanese Industrial Standards (JIS) Q0030) 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 - Oral
Category 4
Acute toxicity - Inhalation (Vapors)
Category 3
Skin corrosion/irritation
Category 2
Serious eye damage/eye irritation
Category 2B
Skin sensitization
Category 1

Carcinogenicity
Reproductive Toxicity

Category 1A (additional)
Category 1, Category 3

Category 2

Specific target organ toxicity (single exposure)

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 2
Chronic aquatic toxicity Category 2

Pictograms



Hazard statements

H225 - Highly flammable liquid and vapor

H315 - Causes skin irritation H320 - Causes eye irritation H302 - Harmful if swallowed

- H331 Toxic if inhaled
- H351 Suspected of causing cancer
- 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
- H317 May cause an allergic skin reaction
- H400 Very toxic to aquatic life
- H411 Toxic 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
- · Wash face, hands and any exposed skin thoroughly after handling
- · Do not eat, drink or smoke when using this product
- · Use only outdoors or in a well-ventilated area
- · Contaminated work clothing should not be allowed out of the workplace
- · Wear protective gloves
- Do not breathe dust/fume/gas/mist/vapors/spray
- · 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 or rash 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
- · Rinse mouth
- 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	99.56	92.14	3-2,3-60	*	108-88-3
Phenylphosphonothioic acid O-ethyl O-(4-nitrophenyl)ester	0.11	323.30	(3)-2617	4-(3)-17	2104-64-5
Methyl parathion	0.11	263.21	N/A	4-(9)-124 4-(9)-128	298-00-0
Parathion	0.11	291.26	N/A	4-(9)-244	56-38-2
Demeton-methyl	0.11	230.30	N/A	N/A	8022-00-2

Note on ISHL No.:

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

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 mixtures 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 contaminent and methods and materials for cleaning up

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

Recoverly, neutralization

No information available

Secondary disaster prevention measures

^{*} in the table means announced chemical substances.

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling

Technical measures

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use with local exhaust ventilation. 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). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

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 handand eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Toluene 108-88-3	50ppm,188 mg/m³ ;percutaneous absorption	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/m³ inhalable fraction and vapor Skin
Methyl parathion 298-00-0	N/A	N/A	TWA: 0.02 mg/m³ inhalable fraction and vapor Skin
Parathion 56-38-2	TWA: 0.1 mg/m³ OEL Skin	N/A	TWA: 0.05 mg/m³ inhalable fraction and vapor Skin
Demeton-methyl 8022-00-2	N/A	N/A	TWA: 0.05 mg/m³ 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/m³	N/A
Parathion 56-38-2	0.05 . /m³	N/A

Personal protective equipment

Respiratory protection gas mask for organic gas (JIS T 8152) **Hand protection** gas mask for organic gas (JIS T 8152)

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

ColorcolorlessTurbidityclearAppearanceliquid

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 availablepHno data availableViscosity (coefficient of viscosity)no data availableDynamic viscosityno data available

Solubilities water : practically insoluble, or insoluble . Ethanol , Diethyl ether

: soluble . 2.73

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

Vapour pressureno data availableSpecific Gravity / Relative density0.864 - 0.868Vapour densityno data availableParticle characteristicsno data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity no data available

Chemical stability Stable under recommended storage conditions.

Hazardous reactions

Reacts with strong oxidants causing fire/explosion hazard.

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 monooxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), Sulfur oxides (SOx), 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

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 mg/kg (Rat)	538 mg/kg (Rat)	0.0265 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
Demeton-methyl	75 mg/kg (Rat)	N/A	N/A

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.
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.
Parathion			Based on the NITE GHS classification results.
Demeton-methyl			Based on the NITE GHS classification results.

Chemical Name			Acute toxicity -inhalation mist-
	vapor- source information	source information	source information
Toluene	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS
	classification results.	classification results.	classification results.
Phenylphosphonothioic acid O-ethyl	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS
O-(4-nitrophenyl)ester	classification results.	classification results.	classification results.
Methyl parathion	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS
, ,	classification results.	classification results.	classification results.
Parathion	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS
	classification results.	classification results.	classification results.
Demeton-methyl	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS
1	classification results.	classification results.	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.
Demeton-methyl	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.
Demeton-methyl	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Respiratory or Skin sensitization source information
Based on the NITE GHS classification results.
Based on the NITE GHS classification results.
Based on the NITE GHS classification results.
Based on the NITE GHS classification results.
Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagencity source information
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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.
Demeton-methyl	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.
Demeton-methyl	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH
Toluene	N/A	Group 3	N/A	N/A
108-88-3				
Methyl parathion	N/A	Group 3	N/A	-
298-00-0				
Parathion	N/A	Group 2B	N/A	N/A
56-38-2		•		

Reproductive toxicity

in a contract to the contract	
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.
Demeton-methyl	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.
Demeton-methyl	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.	
Demeton-methyl	Based on the NITE GHS classification results.	

Aspiration hazard

Appliation nazara	
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.
Demeton-methyl	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

Ecotoxicity

Chemical Name Algae/aquatic plants Fish Crustacea	
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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	Ñ/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	LC50 : Daphnia magna 0.00006 mg/L 26 h
Methyl parathion	N/A	Ñ/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 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	LC50 : Gammarus fasciatus 0.0009 mg/L 48 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	Based on the NITE GHS classification
	results.	results.
Phenylphosphonothioic acid O-ethyl	Based on the NITE GHS classification	Based on the NITE GHS classification
O-(4-nitrophenyl)ester	results.	results.
Methyl parathion	Based on the NITE GHS classification	Based on the NITE GHS classification
	results.	results.
Parathion	Based on the NITE GHS classification	Based on the NITE GHS classification
	results.	results.
Demeton-methyl	Based on the NITE GHS classification	Based on the NITE GHS classification
·	results.	results.

Persistence and degradability
Bioaccumulative potential
Mobility in soil
Hazard to the ozone layer

No information available
No information available
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

UN1294 **UN** number Proper shipping name: Toluene **UN classfication**

Subsidiary hazard class Packing group Ш Marine pollutant Yes

IMDG

UN number UN1294 Proper shipping name: Toluene **UN classfication**

Subsidiary hazard class Packing group Ш Marine pollutant (Sea) Yes

Transport in bulk according to No information available

Annex II of MARPOL 73/78 and

the IBC Code

IATA

UN1294 **UN** number Proper shipping name: Toluene

UN classfication Subsidiary hazard class Ш Packing group **Environmentally Hazardous** Yes

Substance

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act Category IV, Class I petroleums, dangerous grade 2 Poisonous and Deleterious Specified Poisonous Substances 1st. Grade

Substances Control Law 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)

Class 2 Organic Solvents (Enforcement Order Attached Table No.6-2, Ordinance on

Prevention of Organic Solvent Poisoning Art.1, Para.1, Item 5)

Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2,

Para.1)

Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1

Item 4)

Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1) Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding

Regulations for the carriage and storage of dangerous

Marine Pollution Prevention

goods in ship **Civil Aeronautics Law** Transport by Ship and Storage, Attached Table 1)

Flammable Liquids (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1)

Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y

Pollutant Release and Transfer Class 1

Register Law (2023.4.1-)

Class 1 - No.

Water Pollution Control Act Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinace Designating

Wastewater Standards Art.1)

Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)

Narcotics and Psychotropics

Control Law

Air Pollution Control Law Hazardous Air Pollutants, Priority Chemical Substances

Soil Contamination Control Law Designated Hazardous Substances Offensive Odor Control Law Specified Offensive Odor Substances

Chemical Name	Poisonous and Deleterious	Industrial Safety and Health Act	Pollutant Release and Transfer
	Substances Control Law	Substances	Register Law
		(Law Art.57-2)	(2023.4.1-)
Toluene	-	Applicable	Applicable
108-88-3 (99.56)			
Phenylphosphonothioic acid O-ethyl	Applicable	Applicable	-
O-(4-nitrophenyl)ester			
2104-64-5 (0.11)			
Methyl parathion	Applicable	Applicable	-
298-00-0 (0.11)			
Parathion	Applicable	Applicable	-
56-38-2 (0.11)			
Demeton-methyl	Applicable	Applicable	-
8022-00-2 (0.11)			

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

IATA dangerous Goods Regulations

RTECS:Registry of Toxic Effects of Chemical Substances Japan Industrial Safety and Health Association GHS Model SDS

Dictionary of Synthetic Oraganic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.

Chemical Dictionary, Kyouritsu Publishing Co., Ltd.

etc

Record of SDS revisions

The following contents were revised. Hazards identification. Composition/information on ingredients. Fire fighting measures. Exposure controls/personal protection. Stability and reactivity. Toxicological information. Ecological information. 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