



Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Trioctyl phosphate

SDS No. : 7777E-3

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

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

Section 2. Hazards identification

GHS classification and label elements of the product**Classification of the substance or mixture****HEALTH HAZARDS**

Skin corrosion/irritation: Category 2

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Acute): Category 1

Hazardous to the aquatic environment (Long-term): Category 1

Label elements

Signal word: Warning

HAZARD STATEMENT

Causes skin irritation

Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT**Prevention**

Avoid release to the environment.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Response

Collect spillage.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

Disposal

Dispose of contents/container in accordance with local/national regulation.



Section 3. Composition/information on ingredients**Mixture/Substance selection:****Substance**

Ingredient name:Trioctyl phosphate

Content (%):98(min)

Chemical formula:C₂₄H₅₁O₄P

Chemicals No, Japan:2-2000;2-2014

CAS No.:78-42-2

MW:434.63

ECNO:201-116-6

Note : The figures shown above are not the specifications of the product.

Section 4. First-aid measures**Descriptions of first-aid measures****IF INHALED**

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

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 SWALLOWED

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**In case of fire, use foam, dry powder, CO₂ to extinguish.**Unsuitable extinguishing media**

Indoor firefighting equipment or outdoor firefighting equipment

Sprinkler equipment

Dry-powder firefighting equipment – other (except for phosphate etc.,hydrogen carbonate etc.)

Straight stream water extinguisher

Water mist extinguisher

Reinforcing liquid jet extinguisher

Dry-powder extinguisher – other (except for phosphate etc.,hydrogen carbonate etc.)

Bucket of water or tank of water

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters**Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.



Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Wear protective gloves, protective clothing or face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Stainless steel

Section 8. Exposure controls/personal protection

Control parameters

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

**Respiratory protection**

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Section 9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical state: Liquid(20°C)

Color: Colorless to pale yellow, Clear

Odor: Odourless

Melting point/Freezing point: -74°C

Boiling point or initial boiling point: (Trioctyl phosphate)(0.7 kPa) 220°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point: (Trioctyl phosphate)204°C

Auto-ignition temperature: (Trioctyl phosphate)370°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Insoluble

n-Octanol/water partition coefficient data is not available.

Vapor pressure: < 1Pa (20°C)

Density and/or relative density: 0.92g/cm³ (20°C)

Relative vapor density (Air=1): 15

Particle characteristics data is not available.

Section 10. Stability and Reactivity**Reactivity**

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes of phosphine and phosphorus oxides. Reacts with oxidants. (ICSC 0968)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Oxidizing agents

Hazardous decomposition products

Carbon oxides, Phosphine, Phosphorus oxides

Section 11. Toxicological Information**Information on toxicological effects****Acute toxicity**

Acute toxicity (Oral)

[Data for components of the product]



[GHS Cat. Japan, base data]

(Trioctyl phosphate)

rat LD50 > 2000 mg/kg (OECD TG 401) (MHLW report, 2016)

Acute toxicity (Dermal)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Trioctyl phosphate)

rabbit LD50 = 18400 mg/kg (NITE risk assessment, 2005)

Irritant properties

Skin corrosion/irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Trioctyl phosphate)

rabbit moderate irritation (CERI/NITE Hazard Assessment Report, 2005)

Serious eye damage/irritation data is not available.

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT-single exposure data is not available.

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Data for components of the product]

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Trioctyl phosphate)

Crustacea (Daphnia magna) EC50 = 0.13 mg/L/48hr (MOE Japan, vol.9, 2011)

Water solubility

(Trioctyl phosphate)

none (ICSC, 1997)

Persistence and degradability

[Data for components of the product]

(Trioctyl phosphate)

BOD_Degradation : 0% (METI existing chemical safety inspections, 1985)

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.



Section 14. Transport Information

UN No. or ID No.: 3082

UN Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Class or division (Transport hazard class) : 9

Packing group : III

ERG GUIDE No.: 171

Special provisions No.: 274; 331; 335; 375

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 3082

Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Class or division : 9

Packing group : III

Special provisions No.: 274; 335; 969

IATA Dangerous Goods Regulations

UN No.: 3082

Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Class or division : 9

Hazard labels : Miscellaneous & Environmentally hazardous

Packing group : III

Special provisions No.: A97; A158; A197; A215

Environmental hazards**MARPOL Annex III – Prevention of pollution by harmful substances**

Marine pollutants (yes/no) : yes

MARPOL Annex V – Prevention of pollution by garbage discharge

Hazardous to the aquatic environment – acute hazard: cat.1

Trioctyl phosphate

Hazardous to the aquatic environment – long-term hazard: cat.1, 2

Trioctyl phosphate

Section 15. Regulatory Information

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Trioctyl phosphate

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

GHS classification and labelling

Skin corrosion/irritation, Category 2: H315 Causes skin irritation

Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life

Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN



IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2021).