

Safety Data Sheet

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

Product identifier:

Product name: Triethyl phosphate

Reference number(SDS): 84150jis_J_E1-2

Product type:

Reagent

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Serious eye damage/eye irritation: Category 2

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 2 (nervous system)

Specific target organ toxicity – single exposure: Category 3 (Narcosis)

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Warning

HAZARD STATEMENT

H302–Harmful if swallowed

H319–Causes serious eye irritation

H361–Suspected of damaging fertility or the unborn child

H371–May cause damage to organs

H336–May cause drowsiness or dizziness

PRECAUTIONARY STATEMENT

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear eye protection/face protection.

Use personal protective equipment as required.

Do not eat, drink or smoke when using this product.

Response

IF exposed or concerned: Get medical advice/attention.

Triethyl phosphate, JUNSEI CHEMICAL CO., LTD., 84150jis_J_E1-2, 04/Apr/2022

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

IF exposed or concerned: Call a POISON CENTER/doctor/physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

Storage

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

Store locked up.

Disposal

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

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name: Triethyl phosphate

Content (%): 99.0 <

Chemical formula: $C_6H_{15}O_4P$

Chemicals No, Japan: 2-2000

CAS No.: 78-40-0

MW: 182.16

ECNO: 201-114-5

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

4. First-aid measures

Descriptions of first-aid measures

General measures

IF exposed or concerned: Get medical advice/attention.

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

Keep victim warm and quiet.

Call emergency medical service.

Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

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.

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

Remove and isolate contaminated clothing and shoes.

For minor skin contact, avoid spreading material on unaffected skin.

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.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Drowsiness. Dizziness. Weakness. Unconsciousness.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes

5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**

In case of fire, use water mist, alcohol-resistant foam, dry powder, CO2 to extinguish.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

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

Runoff from fire control or dilution water may cause pollution.

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.

6. Accidental release measures**Personnel precautions, protective equipment and emergency procedures**

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

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.

Stop leak if you can do it without risk.

Prevent entry into waterways, sewers, basements or confined areas.

Keep out of low areas.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(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

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Any incompatibilities

Strong bases, Strong oxidizing agents should not be mixed with the chemicals.

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Storage

Conditions for safe storage

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

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

8. Exposure controls/personal protection

Control parameters

Control value in MHLW is not available.

Adopted value

Adopted value in JSOH is not available.

Adopted value in ACGIH is not available.

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. Recommended material(s): butyl rubber

Consult with your glove and/or personnel equipment manufacturer for selection of

appropriate compatible materials.

Eye protection

Wear safety glasses with side-shields.

Wear eye/face protection.

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold data is not available.

Melting point/Freezing point: -57°C

Boiling point or initial boiling point: 215°C

Boiling range data is not available.

Flammability (gases, liquids and solids): Ignitable

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1.2vol %

Upper explosion limit: 10vol %

Flash point: (o.c) 116°C

Auto-ignition temperature: 454°C

Decomposition temperature data is not available.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH data is not available.

Dynamic viscosity: 1.7mPas(20°C)

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 500g/liter(25°C)

Solubility in solvent: Soluble in most organic solvents.

n-Octanol/water partition coefficient: log Pow 0.8

Vapor pressure: 20Pa(20°C)

Vapor density data is not available.

VOC data is not available.

Evaporation rate data is not available.

Density and/or relative density: 1.068~1.074($20/20^{\circ}\text{C}$)

Relative vapor density (Air=1): 6.3

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.00

Critical temperature data is not available.

Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes on burning. This produces toxic fumes.

Reacts violently with strong bases and strong oxidants. This produces heat.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat.

Incompatible materials

Strong bases, Strong oxidizing agents

Hazardous decomposition products

Carbon oxides. Phosphorus oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=1131~1600mg/kg (SIDS, Access on Nov. 2010)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rat LD50 >20 g/kg (PATY 5th, 2001)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

mist : rat LC50 >8.817 mg/L (SIDS, Access on Nov. 2010)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

The substance was not a skin irritant. (SIDS, Access on Nov. 2010)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

rabbit : transient conjunctivitis (BUA 37, 1989)

Allergenic and sensitizing effects data is not available.

Germ cell mutagenicity

[GHS Cat. Japan, base data]

mice (in vivo mutagenicity tests) : Negative (BUA 37, 1989 et al.)

Reverse-mutation assay in bacteria (Ames test) : Negative (NTP DB, 1982)

Carcinogenic effects data is not available.

Reproductive toxicity

[GHS Cat. Japan, base data]

cat. 2; SIDS, Access on Nov. 2010

STOT

STOT-single exposure

[cat.2]

[GHS Cat. Japan, base data]

nervous system (SIDS, Access on Nov. 2010)

[cat.3 (drow./dizz.)]

[GHS Cat. Japan, base data]

narcotic effect (SIDS, Access on Nov. 2010)

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

Algae (*Scenedesmus subspicatus*), Crustacea (*Daphnia magna*) toxicity >100mg/L (SIDS, 2002)

Water solubility

50 g/100 ml (SRC, 2009)

Persistence and degradability

BOD_Degradation :5% (Registered chemicals data check & review, Japan)

Bioaccumulative potential

log Pow=0.8 (ICSC, 2009); BCF(1ppm)=0.5~0.8(Registered chemicals data check & review, Japan)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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

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

14. Transport Information

UN No., UN CLASS

UN No. or ID No.: 3278

UN Proper Shipping Name : ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

Class or division (Transport hazard class) : 6.1

Packing group : III

ERG GUIDE No.: 151

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 3278

Proper Shipping Name : ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

Class or division : 6.1

Packing group : III

IATA Dangerous Goods Regulations

UN No.: 3278

Proper Shipping Name : ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

Class or division : 6.1

Hazard labels : Toxic

Packing group : III

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Z

Triethyl phosphate(Z-160)

15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Triethyl phosphate

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

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

Regulatory information in this section are limited to intentional ingredient(s), but does

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not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

16. Other information

GHS classification and labelling

H302-Acute Tox. 4: H302 Harmful if swallowed

H319-Eye Irrit. 2: H319 Causes serious eye irritation

H361-Repr. 2: H361 Suspected of damaging fertility or the unborn child

H371-STOT SE 2: H371 May cause damage to organs

H336-STOT SE 3: H336 May cause drowsiness or dizziness

Reference Book

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)

2021 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2021 Recommendation on TLVs (JSOH)

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.16 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

(https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

Definitions and Abbreviations

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

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 2020).