

Safety Data Sheet

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

Product identifier:

Product name: Bis(2-ethylhexyl) phthalate

Reference number(SDS):63225jis_E-4

Product type:

Reagent

Recommended use of the chemical and restrictions on use

Recommended uses: Research and Development

Restrictions on uses: Do not use for other purposes.

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

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

Classification of the substance or mixture

HEALTH HAZARDS

Serious eye damage/eye irritation: Category 2B

Carcinogenicity: Category 2

Reproductive toxicity: Category 1B

Reproductive toxicity – effects on or via lactation: Additional category

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 2 (liver, testis)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 2

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

Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements

H320-Causes eye irritation

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

H373-May cause damage to organs through prolonged or repeated exposure

H400-Very toxic to aquatic life

H411-Toxic to aquatic life with long lasting effects

Precautionary statements

Prevention

Obtain, read and follow all safety instructions before use.

Avoid contact during pregnancy and while nursing.

Avoid release to the environment.

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

Use only outdoors or in a well-ventilated area.

Wash hands thoroughly after handling.

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

Wash hands thoroughly after handling. Do not touch eyes.

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

Response

In case of fire: Use water mist, foam, dry powder, CO2 to extinguish.

Collect spillage.

IF exposed or concerned, get medical advice.

Get medical help if you feel unwell.

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 help.

Storage

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

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Endocrine disrupting properties

Bis(2-ethylhexyl) phthalate (human health, environment – Regulation (EC) No 1907/2006

Article 57(f))

Section 3. Composition/information on ingredients

Substance/mixture:

Substance

Common name, synonyms: Dioctyl phthalate

Ingredient name: Bis(2-ethylhexyl) phthalate

Content (%): 99.0 <

Chemical formula: C₂₄H₃₈O₄

ENCS: 3-1307

CAS No.: 117-81-7

MW: 390.56

EC No.: 204-211-0

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

Components contributing to the hazard

Toxic for reproduction (Article 57c) in REACH SVHC candidate list

Bis(2-ethylhexyl) phthalate

Endocrine disrupting properties (Article 57(f) – human health) in REACH SVHC candidate list

Bis(2-ethylhexyl) phthalate

Endocrine disrupting properties (Article 57(f) – environment) in REACH SVHC candidate list

Bis(2-ethylhexyl) phthalate

Section 4. First aid measures

Descriptions of first aid measures

General measures

IF exposed or concerned, get medical advice.

Get medical help if you feel unwell.

Call emergency medical service.

IF INHALED

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.

IF INHALED: Get medical help.

IF ON SKIN

IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

If skin irritation or rash occurs: Get medical help.

Remove and isolate contaminated clothing and shoes.

IF IN EYES

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical help.

IF SWALLOWED

Rinse mouth.

If victim is conscious, give 1 – 2 glasses of water.

IF SWALLOWED: Get medical help.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Sore throat. Abdominal cramps. Diarrhoea. Nausea.

(Symptoms when skin and/or eye contact)

Redness of the eyes. Pain of the eyes.

Indication of any immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, 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

Special extinguishing method

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 a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personal 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.

Do not touch or walk through spilled material.

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, etc.), then place in a chemical waste container.

Collect leaking and spilled liquid in sealable containers as far as possible.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

Reference to other sections

Refer to section 8

Refer to section 13

Section 7. Handling and storage

Handling

Engineering measures

(Measures to prevent operator exposure)

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

(Measures to prevent fire and explosion)

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

(Local ventilation/general ventilation)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Advice on safe handling

Obtain, read and follow all safety instructions before use.

Use only outdoors or in a well-ventilated area.

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

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Avoidance of contact

See Section 10: Stability and Reactivity.

Advice on general occupational hygiene

Do not get in eyes, on skin, or on clothing.

Avoid contact during pregnancy and while nursing.

Wash hands thoroughly after handling. Do not touch eyes.

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

Storage**Conditions for safe storage**

Keep container tightly closed. Keep cool.

Store in accordance with local/regional/national/international regulations.

Store locked up.

Protect from sunlight. Store in a well-ventilated place.

Incompatible substances

Refer to Section 10. Stability and reactivity.

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.

Section 8. Exposure controls/personal protection**Permissible concentration****Control value and Concentration standard value under ISHA**

Concentration standard value TWA: 1mg/m³

Occupational exposure limit values**JSOH**

5mg/m³

ACGIH

TWA: 0.1mg/m³ (Male repro system dam; teratogenic eff)

Notation

Skin

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Personal protective equipment**Respiratory protection**

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).

Hand protection

Wear protective gloves. Recommended material(s): nitrile, butyl rubber, viton, PVC

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

Eye/face protection

Wear safety glasses with side-shields.

Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

Skin and body protection

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

Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Viscous liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold data is not available.

Melting point/Freezing point: -50°C

Boiling point or initial boiling point and boiling range: 385°C

Flammability: Ignitable

Lower and upper explosion limit data is not available.

Flash point: $215^{\circ}\text{C}(\text{O.C.})$

Auto-ignition temperature: 350°C

Decomposition temperature: ca. 200°C

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

pH data is not available.

Dynamic viscosity: $81\text{mPa}\cdot\text{s}(20^{\circ}\text{C})$

Kinematic viscosity data is not available.

Solubility:

Solubility in water: $0.27\text{ mg/L}(25^{\circ}\text{C})$

Solubility in solvent: Miscible with mineral oil & hexane.

Partition coefficient n-octanol/water (log value): 5.03

Vapor pressure: 0.001 kPa (20°C)

Vapor density data is not available.

Density and/or relative density: 0.980~0.989 g/mL(20°C)

Relative vapor density (Air=1): 13.45

Relative density of the Vapor/air – mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

Section 10. Stability and Reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes on heating. This produces irritating fumes.

Reacts with strong oxidants, acids, alkalis and nitrates.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Incompatible materials

Acids. Bases. Strong oxidizing agents. Nitrates.

Hazardous decomposition products

Carbon oxides.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHIRIP]

rat LD50: > 20000 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHIRIP]

rabbit LD50: 25000 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

[NITE-CHIRP]

mist: rat LC50: > 10.62 mg/L (4-hour) (source: NITE)

Skin corrosion/irritation

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHIRP]

Not classified (source: NITE)

Serious eye damage/irritation

[Product]

Category 2B, Causes eye irritation

[Data for components of the product]

[NITE-CHIRP]

Category 2B (source: NITE)

Respiratory or skin sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHIRP]

Not classified (source: NITE)

Germ cell mutagenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

Reverse-mutation assay in bacteria (Ames test) :Negative(source: NITE)

Carcinogenicity

[Product]

Category 2, Suspected of causing cancer

[Data for components of the product]

[NITE-CHIRP]

Category 2 (source: NITE)

[IARC]

Group 2B : Possibly carcinogenic to humans

[ACGIH]

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans

[JSOH]

Group 2B: The agents which are probably or possibly carcinogenic to humans

[EPA]

Group B2; Probable human carcinogen(1986)

[NTP]

RAHC : Reasonably Anticipated to be Human Carcinogens

Reproductive toxicity

[Product]

Category 1B, May damage fertility or the unborn child

Additional category, May cause harm to breast-fed children

[Data for components of the product]

[NITE-CHRIP]

Category 1B, Additional category (source: NITE)

Teratogenic effects

In a teratogenicity test with mice by the oral route (gavage), fetotoxicity (increased fetal resorptions, fetal death, increased external and visceral malformations) was observed at doses where no maternal toxicity was observed. (source: EU-RAR, 2003)

Specific target organ toxicity – single exposure

[Product]

Category 3, May cause respiratory irritation

[Data for components of the product]

[NITE-CHRIP]

Category 3 (Respiratory tract irritation) (source: NITE)

Specific target organ toxicity – repeated exposure

[Product]

Category 2, May cause damage to organs through prolonged or repeated exposure

[Data for components of the product]

[NITE-CHRIP]

Category 2 (liver, testis) (source: NITE)

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Information on other hazards

Endocrine disrupting properties (Article 57(f) – human health) in REACH SVHC candidate list

Bis(2-ethylhexyl) phthalate

Section 12. Ecological Information

Ecotoxicity

Aquatic toxicity

[Product]

Category 1, Very toxic to aquatic life

Category 2, Toxic to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[NITE-CHRIP]

Crustacea (Daphnia pulex) 48-hour EC50: 0.133 mg/L (source: NITE)

Hazardous to the aquatic environment, long-term (chronic)

[NITE-CHRIP]

Crustacea (Daphnia magna) 21-day NOEC: 0.077 mg/L (source: NITE)

Water solubility

[Data for components of the product]

0.27 mg/L (25°C) (source: HSDB)

Persistence and degradability

[Data for components of the product]

Rapidly degradable (Degradation rate: 69% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: 5.03 (source: ICSC, 2001)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Waste from residues

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

Comply with relevant laws and regulations as well as local municipal standards.

Avoid release to the environment.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing

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

Comply with relevant laws and regulations as well as local municipal standards.

Dispose of container after using the contents completely.

Section 14. Transport Information

UNRTDG

UN Number : UN3082

UN Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Transport hazard class(es) : 9

Packing group : III

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

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN3082

UN Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Transport hazard class(es) : 9

Packing group : III

Bis(2-ethylhexyl) phthalate, JUNSEI CHEMICAL CO., LTD., 63225jis_E-4, 21/Aug/2026

Special provisions No.: 274; 335; 375; 969

IATA (Dangerous Goods Regulations)

UN number : UN3082

UN Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Transport hazard class(es) : 9

Hazard labels : Miscellaneous & Environmentally hazardous

Packing group : III

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

Marine pollutants (yes/no) : yes

Maritime transport in bulk according to IMO instruments

MARPOL Annex II – Noxious Liquid Substances

Noxious Liquid Substances ; Cat. Y

Bis(2-ethylhexyl) phthalate

MARPOL Annex V – HME (Harmful to the Marine Environment)

Reproductive toxicity: cat.1, 1A, 1B

Bis(2-ethylhexyl) phthalate

Hazardous to the aquatic environment – short-term (acute): cat.1

Bis(2-ethylhexyl) phthalate

Hazardous to the aquatic environment – long-term (chronic): cat.1, 2

Bis(2-ethylhexyl) phthalate

ERG GUIDE No.: 171

Section 15. Regulatory Information

Applicable laws and regulations

List of substances subject to authorisation (REACH, Annex XIV)/SVHC – candidate list

Toxic for reproduction (Article 57c)

Bis(2-ethylhexyl) phthalate

Endocrine disrupting properties (Article 57(f) – human health)

Bis(2-ethylhexyl) phthalate

Endocrine disrupting properties (Article 57(f) – environment)

Bis(2-ethylhexyl) phthalate

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

Chemicals listed in TSCA Inventory

117-81-7

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Bis(2-ethylhexyl) phthalate

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 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.

Section 16. Other information**GHS classification and labelling**

H320–Serious eye damage/eye irritation, Category 2B: H320 Causes eye irritation
H351–Carcinogenicity, Category 2: H351 Suspected of causing cancer
H360–Reproductive toxicity, Category 1B: H360 May damage fertility or the unborn child
H362–Reproductive toxicity – effects on or via lactation, Additional category : H362 May cause harm to breast-fed children
H335–Specific target organ toxicity – single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation
H373–Specific target organ toxicity – Repeated exposure, Category 2: H373 May cause damage to organs through prolonged or repeated exposure
H400–Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life
H411–Hazardous to the aquatic environment, long-term (chronic), Category 2: H411 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 23rd edit., 2023 UN
IMDG Code, 2024 Edition (Incorporating Amendment 42–24)
IATA Dangerous Goods Regulations (67th Edition) 2026
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2026 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2025
JIS Z 7253 : 2025
Recommendation of occupational exposure limits (2024–2025) (JSOH)
Notification No. 0111–1 (January 11, 2022), Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, MHLW in Japan
Supplier's data/information
Chemicals safety data management system "GHS Assistant" Version 4.39
(<https://www.asahi-ghs.com/>)
European Chemicals Agency ECHA CHEM Database (<https://em.echa.europa.eu/>)
National Institute of Technology and Evaluation NITE–CHRIP
(https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/systemTop)
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

ACGIH – American Conference of Governmental Industrial Hygienists;
anh – anhydride;
ATE – Acute Toxicity Estimate;
BCF – Bioconcentration Factor;
BOD – Biochemical Oxygen Demand;
Cat. – Category;
Ceiling–C – Ceiling value;
COD – Chemical Oxygen Demand;
CSCL – Chemical Substances Control Law in Japan;
DSEN – Dermal Sensitization;

EC No. – The European Community number;
EC50 – Effective Concentration 50;
ENCS – Existing and New Chemical Substances Inventory under CSCL
EPA – US Environmental Protection Agency;
EU – European Union;
GHS – Globally Harmonized System of Classification and Labelling of Chemicals;
IARC – International Agency for Research on Cancer;
IATA – International Air Transport Association;
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;
IMDG Code – International Maritime Dangerous Goods Code;
ISHA – Industrial Safety and Health Act in Japan;
JSOH – Japan Society for Occupational Health;
LC50 – Lethal Concentration 50;
LD50 – Lethal Dose 50;
logPow – n-Octanol/water Partition Coefficient;
MARPOL – International Convention for the Prevention of Pollution from Ships;
METI – Ministry of Economy, Trade and Industry in Japan;
MHLW – Ministry of Health, Labour and Welfare in Japan;
MOE – Ministry of the Environment in Japan
NOEC – No Observed Effect Concentration;
NTP – US National Toxicology Program;
REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No.1907/2006;
RSEN – Respiratory Sensitization;
Skin – Danger of cutaneous absorption;
STEL – Short-term Exposure Limit;
STOT – Specific target organ toxicity;
SVHC – Substance of Very High Concern under REACH;
TWA – time-weighted average;
UN – United Nations;
UNRTDG – United Nations Recommendations on the Transport of Dangerous Goods;

General Disclaimer

The information relates to this specific material. It may not be valid for this material, if used in combination with any other materials or in any process. It is the user's responsibility to satisfy him-selves as to the suitability and completeness of this information for his own particular use.

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 Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIPI), up to FY2024).