

Bis(2-ethylhexyl) phthalate SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- * Product Name: Bis(2-ethylhexyl) phthalate
- * Catalog Number: S3360
- * CAS Number: 117-81-7
- * IUPAC Name: 1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester

Relevant identified uses and uses advised against

- * Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- * Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- * Company: Selleck Chemicals
- * TollFree: +1 877 796-6397
- * Tel: +1 832 582-8158
- * Fax: +1 832 582-8590

Emergency telephone number

- * Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

- Skin irritation: Category 3. H316
- Eye irritation: Category 2. H320
- Specific target organ toxicity (single exposure): Category 3. H335
- Carcinogenicity: Category 1. H350
- Carcinogenicity: Category 2. H351
- Reproductive toxicity: Category 1. H360
- Not classified. H360F
- Specific target organ toxicity (repeated exposure): Category 2. H373
- Acute aquatic toxicity: Category 1. H400
- Chronic aquatic toxicity: Category 2. H411

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Danger

Hazard statement(s)	<p>H316: Causes mild skin irritation</p> <p>H320: Causes eye irritation</p> <p>H335: May cause respiratory irritation</p> <p>H350: May cause cancer</p> <p>H351: Suspected of causing cancer</p> <p>H360: May damage fertility or the unborn child</p> <p>H360F: May damage fertility</p> <p>H373: May causes damage to organs through prolonged or repeated exposure</p> <p>H400: Very toxic to aquatic life</p> <p>H411: Toxic to aquatic life with long lasting effects</p>
Precautionary statement(s)	None.
Prevention	<p>P203: Obtain, read and follow all safety instructions before use.</p> <p>P260: Do not breathe dust/fume/gas/mist/vapors/spray.</p> <p>P261: Avoid breathing dust/fume/gas/mist/vapors/spray.</p> <p>P264+P265: Wash hands thoroughly after handling. Do not touch eyes.</p> <p>P271: Use only outdoors or in a well-ventilated area.</p> <p>P273: Avoid release to the environment.</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.</p>
Response	<p>P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351: IF IN EYES: Rinse cautiously with water for several minutes.</p> <p>P318: if exposed or concerned, get medical advice.</p> <p>P319: Get medical help if you feel unwell.</p> <p>P332+P317: If skin irritation occurs: Get medical help.</p> <p>P337+P317: If eye irritation persists: Get medical help.</p> <p>P338: Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P391: Collect spillage.</p>
Storage	<p>P403+P233: Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405: Store locked up.</p>
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Bis(2-ethylhexyl) phthalate
CAS Number: 117-81-7
PubChem CID: 8343
Molecular formula: C₂₄H₃₈O₄
Molecular weight: 390.6 g/mol
IUPAC name: bis(2-ethylhexyl) benzene-1,2-dicarboxylate

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Remove contaminated clothes. Rinse skin with plenty of water or shower.

Eye contact: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion: Rinse mouth. Give one or two glasses of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO₂), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Fire Extinguishing Agents Not to Be Used: Water.

Fire Extinguishing Agents: Carbon dioxide, dry chemical, alcohol foam, or water spray. (USCG, 1999)

Use water spray, foam, powder, carbon dioxide.

Dry powder, carbon dioxide, foam. Water or foam may cause frothing.

Water or foam may cause frothing.

Wear self contained breathing apparatus for fire fighting if necessary.

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

... May give off irritating vapor @ high temperature.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 405 °F (NTP, 1992)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Personal protection: chemical protection suit. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Accident Release Measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Methods and materials for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U028, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

/Contaminated packaging/ Dispose of as unused product.

/Product/ Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

The U.S. Food and Drug Administration (FDA) has issued a Public Health Notification on PVC devices containing di(2-ethylhexyl) phthalate (DEHP), urging health care providers to use DEHP-free devices for certain vulnerable patients. Many hospitals and health systems have successfully transitioned away from use of DEHP, particularly in neonatal intensive care units (NICUs).

SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

SMALL SPILLS AND LEAKAGE: If you spill this chemical, FIRST REMOVE ALL SOURCES OF IGNITION. Then, use absorbent paper to pick up all liquid spill material. Your contaminated clothing and absorbent paper should be sealed in a vapor-tight plastic bag for eventual disposal. Solvent wash all contaminated surfaces with 60-70% ethanol followed by washing with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

STORAGE PRECAUTIONS: You should protect this material from exposure to light. Keep it away from oxidizing materials and store it under ambient temperatures. (NTP, 1992)

Separated from strong oxidants, acids, alkalis and nitrates. Cool. Dry. Well closed.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, acids, alkalis and nitrates. Cool. Dry. Well closed.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

Store in original container. Keep upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

(inhalable fraction): 2 mg/m

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: Di(2-ethylhexyl) phthalate is a colorless to pale yellow oily liquid. Nearly odorless. (USCG, 1999)

b) Odor: Slight odor

c) Odor threshold: No data available

d) pH: No data available

e) Melting point/freezing point: -58 °F (NTP, 1992)

f) Initial boiling point and boiling range: 723 °F at 760 mmHg (NTP, 1992)

g) Flash point: 405 °F (NTP, 1992)

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

- k) Vapor pressure: 1.32 mmHg at 392 °F (NTP, 1992)
- l) Vapor density: No data available
- m) Relative density: 0.98 at 77 °F (USCG, 1999) - Less dense than water; will float
- n) Water solubility: less than 0.1 mg/mL at 72 °F (NTP, 1992)
- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 7.4
- p) Auto-ignition temperature: 735 °F (NTP, 1992)
- q) Decomposition temperature: No data available
- r) Viscosity: 22 cSt at 20 °C; 386 cSt at 0 °C; 5 cSt at 100 °C
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 52.6 Å²
Complexity: 394

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Strong oxidizing agents
Nitrates; strong oxidizers, acids & alkalis.
Nitrates; strong oxidizers, acids & alkalis

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO₂).
See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Oral Acute Reference Dose (RfDoa)(mg/kg-day): 0.003
Oral Acute Reference Dose Reference: ATSDR Final

Skin corrosion/irritation:

No data available.

Serious eye damage/eye irritation:

No data available.

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity:

No data available.

Carcinogenicity:

May cause cancer (H350).

Reproductive toxicity:

May damage fertility or the unborn child (H360).

Specific target organ toxicity (single exposure):

H373

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

Di(2-ethylhexyl)phthalate

Group 2B: Possibly carcinogenic to humans

Volume Sup 7: Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, 1987; 440 pages; ISBN 92-832-1411-0 (out of print)

Volume 77: (2000) Some Industrial Chemicals

Volume 101: (2012) Some Chemicals Present in Industrial and Consumer Products, Food and Drinking-water 2013

2011

Di(2-ethylhexyl) phthalate

TR-601: Toxicology and Carcinogenesis Studies of Di(2-ethylhexyl) Phthalate (CASRN 117-81-7) A

Exposure routes:

The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

inhalation, ingestion, skin and/or eye contact

Oral (L1903) ; inhalation (L1903) ; dermal (L1903)

Signs and symptoms of exposure:

Cough. Sore throat.

Redness. Pain.

Abdominal cramps. Diarrhoea. Nausea.

irritation eyes, mucous membrane; In Animals: liver damage; teratogenic effects; [potential occupational carcinogen]

Phthalate esters are endocrine disruptors and can cause a number of developmental malformations termed 'phthalate syndrome'. (A2883)

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50; Species: *Daphnia magna* (Water flea) age <24 hr; Conditions: freshwater, static, 22 °C pH 8.0 (7.4-9.4), hardness 173 mg/L CaCO₃; Concentration: 68,000 ug/L for 24 hr />80% purity/

LC50; Species: *Daphnia magna* (Water flea) age <24 hr; Conditions: freshwater, static, 22 °C pH 8.0 (7.4-9.4), hardness 173 mg/L CaCO₃; Concentration: 11,000 ug/L for 48 hr (95% confidence interval: 7500-16000 ug/L) />80% purity/

LC50; Species: *Daphnia magna* (Water flea); Concentration: 1,000-5,000 ug/L for 48 hr /Conditions of bioassay not specified/

EC50; Species: *Daphnia magna* (Water flea) age <24 hr; Conditions: freshwater, static, 20-23 °C, pH 7.0-8.5, hardness 120-250 mg/L CaCO₃, alkalinity 120-250 mg/L CaCO₃, dissolved oxygen 6.0-9.3 mg/L; Concentration: 9500 ug/L for 24 hr; Effect: intoxication, immobilization /formulated product/

For more Ecotoxicity Values (Complete) data for BIS(2-ETHYLHEXYL) PHTHALATE (42 total), please visit the HSDB record page.

/AQUATIC SPECIES/ ... The effects of several organic chemicals including DEHP on the synthesis of vertebral collagen and hydroxyproline /were studied/. Three fish species were used: brook trout (*Salvelinus fontinalis*), fathead minnow (*Pimephales promelas*) and rainbow trout (*Onchorhynchus mykiss*). Adult brook trout (1.5 yr at initiation of exposure) were continuously exposed to DEHP concentrations ranging from 0 - 52 ug/L for 150 days. The fathead minnows were 10 days old at initiation of exposure and were continuously exposed to concentrat

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): 7.4

Potential for bioaccumulation exists (Log P > 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Not classified as dangerous goods for transport (research quantities).

14.4 Packing group

Not applicable (not regulated as dangerous goods in typical research quantities).

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

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

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered under REACH

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: 1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester Specific Information Requirement: Obligations to provide information apply. These obligations are: 1. A person

introducing this chem

- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Bioaccumulation; Carcinogenicity; Developmental Toxicity; Endocrine Toxicity; Environmental Persistence; Hepatotoxicity and Digestive System Toxicity; Immunotoxicity; Reproductive Toxi
- EFSA Legal Basis: Regulation (EC) No 178/2002 (amended)
- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)
- Atmospheric Standards: Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in spec

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.