SAFETY DATA SHEETS

According to the UN GHS revision 10

1: Identification

1.1 GHS Product identifier

Product name	Bis(2-ethylhexyl) phthalate

1.2 Other means of identification

Product number	117-81-7
Other names	Bis(2-ethylhexyl) phthalate

1.3 Recommended use of the chemical and restrictions on use

Identified uses	Industrial and scientific research use.
Uses advised against	no data available

1.4 Supplier's details

Company	Zhongshan Greenrock Technology Co., Ltd.
Address	No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone	+86-2087066781

1.5 Emergency phone number

Emergency phone number	+86-2087066781
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2: Hazard identification

2.1 Emergency Overview

Substances with long-term health risks may cause cancer, gene mutations, or reproductive system damage. Even short-term exposure may have long-term health effects and exposure must be strictly controlled.

2.2 GHS Classification

Reproductive toxicity : Category 1, 1A, 1B

2.3 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Danger
Hazard statement(s)	H360 May damage fertility or the unborn child
Precautionary statement(s)	
Prevention	P203 Obtain, read and follow all safety instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Response	P318 if exposed or concerned, get medical advice.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to ...

2.4 Physical and chemical

Although they may not be immediately dangerous, some substances may also be irritants or corrosives. They may decompose and produce more toxic products during long-term storage.

2.5 Health hazards

Carcinogenicity, Long-term exposure may increase the risk of cancer. Mutagenicity: May cause genetic damage, affecting offspring. Reproductive toxicity: May affect fertility or cause fetal malformations. Symptoms typically appear after a latent period of several years.

2.6 Environmental hazards

May persist and accumulate in the environment. Chronic toxicity to aquatic and terrestrial organisms can affect their reproductive capacity. It may accumulate through the food chain, ultimately affecting human health.

2.7 Other hazards which do not result in classification

no data available

3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Bis(2-ethylhexyl) phthalate	Bis(2-ethylhexyl) phthalate	117-81-7	617-060-4	99%

4: First-aid measures

4.1 General advice

Stop contact immediately and remove contaminated clothing (rinse with clean water and then wash); wash skin with soap and water, record contact history (including contact time and frequency); and have regular physical examinations (such as chest CT and blood routine once a year).

4.2 If inhaled

Move to fresh air. If carcinogenic gases (such as benzene) are inhaled and coughing or chest tightness occurs, seek medical attention. Those with long-term exposure need to monitor lung function and blood routine.

4.3 In case of skin contact

Rinse with soap and running water for 15 minutes. If skin is irritated, apply a non-irritating moisturizer; avoid breaking the skin to prevent penetration of substances.

4.4 In case of eye contact

Rinse with saline for 10 minutes and then instill artificial tears; if discomfort persists, seek medical attention from an ophthalmologist.

4.5 If swallowed

Do not induce vomiting, seek medical attention immediately, and bring the substance's SDS; inform the doctor of the substance's carcinogenic/mutagenic properties and perform a gastrointestinal endoscopy if necessary.

4.6 Most important symptoms and effects, both acute and delayed

Acute symptoms: mild skin/eye irritation; long-term effects: carcinogenicity (such as lung cancer, leukemia), mutagenicity (chromosomal abnormalities), reproductive toxicity (infertility, fetal malformations).

4.7 Protection of first-aiders

Rescuers need to wear chemical protective clothing, gas masks (equipped with organic vapor filter cartridges), and chemical protective gloves; equipment must be thoroughly cleaned after contact to avoid residue.

4.8 Notes to physician

Inform the doctor of the substance name and exposure history; long-term exposure requires a special physical examination plan (such as blood tests every 6 months and tumor markers every year)

5: Fire-fighting measures

5.1 Unsuitable extinguishing media

It is strictly forbidden to use fire extinguishing agents that may cause the spread of toxic substances (such as high-pressure water jets); if it contains flammable ingredients, avoid using carbon dioxide (concentrated toxic vapor).

5.2 Specific hazards during fire fighting

Combustion releases carcinogenic/mutagenic gases (such as benzopyrene and formaldehyde), which are harmful to health if exposed for a long time. The combustion products of some substances are easily adsorbed on dust, expanding the scope of pollution. Toxic substances are not easy to decompose and require professional handling after fire extinguishing.

5.3 Hazardous combustion products

Polycyclic aromatic hydrocarbons (carcinogenic), formaldehyde (mutagenic), heavy metal smoke (such as chromium, nickel), chlorides (when containing chlorine).

5.4 Specific extinguishing methods

Small area: Use dry powder/foam to extinguish the fire, and use water mist to dilute the toxic vapor; Large area: Evacuate personnel, if fire must be extinguished, cover with foam (to reduce vapor release); After extinguishing the fire, conduct toxicity testing on the area and dispose of pollutants as hazardous waste.

5.5 Special protective equipment for fire-fighters

Wear chemical protective clothing, positive pressure air respirator, and chemical protective gloves; carry a toxic gas detector (to detect benzene, formaldehyde, etc.); wear a dust mask (to protect against toxic dust) during work, and conduct a health check after work.

6: Accidental release measures

6.1 Protective measures for workers

Wear fully enclosed chemical protective clothing, positive pressure respirator (volatile), toxic-resistant gloves + goggles; workers should undergo regular physical examinations and record their exposure history; eating, drinking and smoking are prohibited.

6.2 Environmental protection measure

Isolate the contaminated area within 20 meters and conduct long-term environmental monitoring (soil/air); leaks are prohibited from being discarded at will; the contaminated area must be released after passing the inspection by the environmental protection department.

6.3 Containment methods for leaked chemicals

Liquids should be collected in disposable corrosion-resistant containers (marked with hazard categories); solids should be collected in chemical-resistant bags (to prevent dust); and stored separately in dedicated hazardous waste warehouses.

6.4 Cleanup methods for chemical spills

Small leakage: absorbed by special adsorption materials and then packaged in chemical-proof bags; large leakage: transferred by professional team using special equipment; after cleaning, the ground is treated with disinfectant.

6.5 Measures to prevent the spread of leaks

20-meter isolation zone + warning signs; high-efficiency filtration and ventilation (volatile); chemical isolation belt to prevent spread to residential areas.

6.6 Container leakage treatment

Minor leaks: seal with professional sealant + tightness test; serious leaks: evacuate, transfer by professional team, and dispose of the container as hazardous waste.

6.7 Special considerations

Operators need special training; protective equipment must be disinfected and tested before reuse; leak handling must be reported to the environmental protection department.

7: Handling and storage

7.1 Safe storage conditions

Stored in a closed, leak-proof warehouse (walls lined with polyethylene film and floors with impermeable resin); containers are made of non-degradable materials (such as high-density polyethylene, borosilicate glass) with anti-theft lids (requires a key to open); the warehouse is equipped with an air purification system (HEPA filter, filtration efficiency ?99.97%).

7.2 Storage precautions

Isolate from children and unrelated personnel, and place biohazard signs at the warehouse entrance; store separately to avoid mixing with other chemicals; test the concentration of hazardous substances in the warehouse every quarter to ensure that it is below the occupational exposure limit (such as carcinogen OEL ? 0.01mg/m³); discarded containers must be sterilized at high temperature (?121?, 30 minutes) before disposal.

7.3 VCI Storage Grade

Level 4 (lowest): Metal containers are treated with ordinary anti-rust treatment (such as galvanizing, thickness ? 10?m) and corrosion is checked once a year; the humidity in the warehouse is controlled at 45%-65% to avoid damage to the containers due to moisture.

7.4 Recommended storage temperature

Store at 10-30°C, away from light (e.g., some photosensitive carcinogens must be stored in brown containers); easily degradable substances (e.g., some organic carcinogens) must be stored at ?25°C, equipped with light-proof and sun-shading facilities; long-term storage (over 1 year) requires the stability of the substance to be checked every 3 months (if the label has a recommended storage temperature, follow the label).

7.5 Handling

For precautions see Safety Data Sheet section 2
Advice on safe handling : Work under hood. Do not inhale substance/mixture.

8: Exposure controls/personal protection

8.1 Respiratory protection

When exposed to carcinogens (such as benzene and formaldehyde) for a long time, wear a powered air-purifying respirator (APF?50); dust (such as asbestos) requires Type P100 filter cotton to ensure no leakage.

8.2 Recommended Filter type

For organic carcinogens, choose Type A2 filter cartridge; for inorganic carcinogenic gases (such as arsine), choose Type E+K composite filter cartridge; for dust, choose Type P100 filter cotton.

8.3 Eye/face protection

Wear chemical protection goggles + protective mask. The mask material should be resistant to toxic penetration. The lenses need to be replaced regularly for long-term work (to prevent aging).

8.4 Skin and body protection

Wear impermeable chemical protective clothing made of polyethylene + aluminum foil coating (anti-organic vapor penetration); avoid skin damage during operation to prevent material intrusion.

8.5 Hand protection

Wear toxic and chemical-resistant gloves made of butyl rubber or fluororubber. Gloves need to be regularly tested for penetration (once every three months) and replaced immediately if unqualified.

8.6 Hygiene measures

After work, clean the skin with a special detergent (such as a neutral surfactant), then rinse with running water for 10 minutes; clothes must be washed separately and must not be mixed with household clothes; undergo special physical examinations every year (such as chest CT, chromosome examination).

9: Physical and chemical properties and safety characteristics

Physical state	clear liquid
Colour	Liquid
Odour	Slight odor
Melting point/freezing point	3°C(lit.)
Boiling point or initial boiling point and boiling range	386°C(lit.)
Flammability	Class IIIB Combustible Liquid: Fl.P. at or above 93.33°C.Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 0.3% by volume at 474 deg F (245°C)
Flash point	207°C
Auto-ignition temperature	390.56°C
Decomposition temperature	When heated to decomp it emits acrid smoke.
pH	no data available
Kinematic viscosity	22 cSt at 20°C; 386 cSt at 0°C; 5 cSt at 100°C
Solubility	In water:Negligible
Partition coefficient n-octanol/water	log Kow = 7.60

Vapour pressure	1.2 mm Hg (93 °C)
Density and/or relative density	0.985g/mLat 20°C(lit.)
Relative vapour density	>16 (vs air)
Particle characteristics	no data available

10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable

10.3 Possibility of hazardous reactions

DI(2-ETHYLHEXYL) PHTHALATE reacts with acids to liberate heat along with alcohols and acids. Strong oxidizing acids may cause a vigorous reaction that is sufficiently exothermic to ignite the reaction products. Heat is also generated by the interaction of esters with caustic solutions. Flammable hydrogen is generated by mixing with alkali metals and hydrides. Incompatible with nitrates .

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

When heated to decomp it emits acrid smoke.

11: Toxicological information

11.1 Acute toxicity

Oral: LD50 Rat oral >25 g/kg
Inhalation: no data available
Dermal: no data available

11.2 Skin corrosion/irritation

no data available

11.3 Serious eye damage/irritation

no data available

11.4 Respiratory or skin sensitization

no data available

11.5 Germ cell mutagenicity

no data available

11.6 Carcinogenicity

NTP: Reasonably anticipated to be a human carcinogen

11.7 Reproductive toxicity

No information is available on the reproductive or developmental effects of DEHP in humans. No reproductive or developmental effects were observed in animal studies from inhalation exposure to DEHP. DEHP has been demonstrated to cause developmental toxicity, such as birth defects, in rats and mice from oral exposure. Reproductive effects, such as decreased fertility, proportion of pups born alive, and testicular weights and tubular atrophy, have also been noted from oral exposure to DEHP in animals.

11.8 STOT-single exposure

no data available

11.9 STOT-repeated exposure

no data available

11.10 Aspiration hazard

no data available

12: Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill); Concentration: >770,000 ug/L for 96 hr /Conditions of bioassay not specified
Toxicity to daphnia and other aquatic invertebrates: 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
Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae) Log growth phase, 50000 cells/mL; Conditions: freshwater, static, 23°C, hardness: 54.3 mg/L CaCO3; Concentration: >320 ug/L for 96 hr; Effect: growth, general /97% purity
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Bis(2-ethylhexyl) phthalate was degraded with gradual adaptation; 0, 43, 80, and 95% biodegradation were observed in the original culture, first, second, and third weekly subcultures, respectively, in static flask screening tests using a settled domestic wastewater inoculum(1). A

biodegradation half-life of 0.8 days has been reported for bis(2-ethylhexyl) phthalate in activated sludge(2). Bis(2-ethylhexyl) phthalate subjected to static culture flask biodegradability tests was almost completely bio-oxidized at the end of 3 weeks(3). Greater than 64% removal of bis(2-ethylhexyl) phthalate was observed in a low-loaded activated sludge reactor and a biological aerated filter(4). In a biodegradability screening test using an activated sludge inoculum based on carbon dioxide evolution, bis(2-ethylhexyl) phthalate reached 4 to 5% theoretical amount of CO2 after 28 days at an initial carbon content of 34.1 to 38.7 mg/L(5). In a trickling filter system and an activated sludge system, 76 and 71% removal of bis(2-ethylhexyl) phthalate was observed, respectively(6). A mean of 81.5% biodegradation of bis(2-ethylhexyl) phthalate was observed after 24 hours in semi-continuous activated sludge tests; 4 days were required to reach >90% biodegradation in the activated sludge die-away portion of this test(7). Bis(2-ethylhexyl) phthalate had a half-life of 23 days in wastewater treatment plants(8). Bis(2-ethylhexyl) phthalate was degraded 82% in 28 days using the modified Sturm test(9). Aerobic biodegradation products of bis(2-ethylhexyl) phthalate incubated in sewage sludge include 2-ethylhexanol, 2-ethylhexanal and 2-ethylhexanoic acid(10).

12.3 Bioaccumulative potential

Experimental BCF values range from a log 2 to 4 in fish and invertebrates(1-7). Log BCFs of 2.93 and 2.06 were measured in fathead minnows (Pimephales promelas)(2) and bluegill sunfish (Lepomis macrochirus), respectively(3). BCF values of <0.7-29.7 and 1-3.4 were reported using carp (Cyprinus carpio) which were exposed over an 8-week period to bis(2-ethylhexyl) phthalate concentrations of 0.1 and 1.0 ppm, respectively(8). According to a classification scheme(9), these BCFs suggest that bioconcentration in aquatic organisms is low to very high(SRC). Experiments with rainbow trout (Salmo gairdneri) showed that the majority of (14)C-bis(2-ethylhexyl) phthalate did not reach the systemic circulation of the fish, but was present in the exposure water as metabolites as a result of pre-systemic branchial metabolism of this compound during uptake from the water to the blood(10). Biota-sediment accumulation factors were 1.0, 0.5 and 1.3 in roach (Rutilus rutilus), chub (Leuciscus cephalus) and perch (Perca fluviatilis), respectively; fish were collected from the Orge River, France from Jul 2009 to Apr 2010(11). BCFs of 0.02-0.11 were reported for bis(2-ethylhexyl) phthalate in water spinach (Ipomoea aquatica) grown under different conditions on sludge from waste water treatment plants in China(12). BCFs of 6.71-93.70 L/kg were reported for bis(2-ethylhexyl) phthalate in the submerged water plant Potamogeton crispus L.; plants were grown in the Haihe River, China from Mar to May 2008(13).

12.4 Mobility in soil

Log Koc values of 4 to 5 have been reported for bis(2-ethylhexyl) phthalate in clays and sediments(1). A Koc of 87,420 was measured in soil from Broome County, NY, for bis(2-ethylhexyl) phthalate(2). Bis(2-ethylhexyl) phthalate had measured log Koc values of 5.17-6.23(3), 5.72(4), 4.94(5), 5.68 and 5.72(6). Soil/sediment Koc values range from 87,420 to 510,000(7). Suspended solid Koc values range from 22,000 to 1X10+6(7). According to a recommended classification scheme(8), these measured Koc values suggest that bis(2-ethylhexyl) phthalate is expected to be immobile in soil(SRC).

12.5 Other adverse effects

no data available

13: Disposal considerations

13.1 Disposal methods for waste chemicals

It must be handled by an organization with hazardous waste disposal qualifications, with high-temperature incineration (temperature ? 900°C) being preferred to completely destroy hazardous substances. Waste that

cannot be incinerated must be chemically degraded or stabilized before being safely landfilled. Contaminated containers must be sterilized at high temperatures or chemically before disposal.

13.2 Precautions

Disposal personnel must wear special protective equipment and undergo regular health checks; waste must be tightly sealed to prevent leakage; waste gas and wastewater generated during the disposal process must undergo special treatment to ensure compliance with standards; disposal records must be kept for a long time (at least 30 years); and mixing with ordinary waste is prohibited.

14: Transport information

14.1 UN Number

ADR/RID: UN3082	IMDG: UN3082	IATA: UN3082

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9	IMDG: 9	IATA: 9

14.4 Packing group, if applicable

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: no	IMDG: no	IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Bis(2-ethylhexyl) phthalate	Bis(2-ethylhexyl) phthalate	117-81-7	617-060-4
New Zealand Inventory of Chemicals (NZIoC)			Listed.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Australian Inventory of Industrial Chemicals (AIIC)	Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China	Not Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
European INventory of Existing Commercial chemical Substances	Not Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	Listed.
TSCA Inventory of Chemical Substances	Listed.

16: Other information

Information on revision

SDS Creation Date	July 1, 2025
SDS Revision Date	July 1, 2025

Abbreviations and acronyms in SDS

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

SDS References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Any questions regarding this Safety Data Sheet, Please send your inquiry to sales@MolBest.com

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