

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Bis(2-ethylhexyl) Adipate

1.2 Other means of identification

Product number CPAE111728

Other names Bis(2-ethylhexyl)adipat; Dioctyl Adipate; Bis(2-ethylhexyl) adipate

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Not classified.

2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.

Signal word No signal word

Hazard statement(s) none

Precautionary statement(s)

Prevention none

Response none

Storage none

Disposal none

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Bis(2-ethylhexyl) Adipate	Bis(2-ethylhexyl) adipate	103-23-1	203-090-1	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

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

4.2 Most important symptoms/effects, acute and delayed

Liquid may cause mild eye irritation. Repeated or prolonged skin contact may cause irritation. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Absorption, Distribution and Excretion

The absorption, distribution, and elimination of DEHA were studied in mice and rats. Male Sprague Dawley rats, male NMRI mice, and pregnant female NMRI mice on day 17 of gestation were administered (14)C labeled DEHA dissolved in dimethyl sulfoxide or corn oil iv or intragastrically. The DEHA was labeled on the carbonyl or alcohol moiety. Animals were killed 5 min to 4 days after dosing, and the tissue distribution of (14)C activity was determined by whole body autoradiography. The tissue distribution of (14)C activity from carbonyl labeled DEHA was similar in all animals. Highest levels of radioactivity were observed in the body fat, liver, and kidney after intragastrically or iv administration. (14)C activity from alcohol labeled DEHA was found in the bronchi of male mice. In pregnant mice, (14)C activity was observed in the fetal liver, intestine, and bone marrow during the first 24 hr after carbonyl labeled DEHA was given. Very little radiolabel was found in fetuses of mice given alcohol labeled DEHA. No DEHA derived radioactivity was found in mice 4 days after dosing. Blood DEHA concn in rats increased faster and were two or three times higher when the dose was given in DMSO rather than corn oil. Significant amounts of DEHA were excreted in the bile of rats treated with DEHA in DMSO. Very little biliary elimination of radiolabel occurred in animals given carbonyl labeled DEHA. DEHA was excreted in the urine, the amounts being smaller in animals used in the bile collection experiments. The vehicle had very little effect on the amount excreted. DEHA is poorly absorbed from an oil solution.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Foam, carbon dioxide, dry chem .

5.2 Specific hazards arising from the chemical

Behavior in Fire: Use water spray to cool exposed containers. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and strong acids. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access. IN GENERAL, MATERIALS ... TOXIC AS STORED OR WHICH CAN DECOMP INTO TOXIC COMPONENTS ... SHOULD BE STORED IN COOL ... VENTILATED PLACE, OUT OF ... SUN, AWAY FROM ... FIRE HAZARD ... BE PERIODICALLY INSPECTED & MONITORED. INCOMPATIBLE MATERIALS SHOULD BE ISOLATED.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	Bis(2-ethylhexyl) adipate			
CAS No.	103-23-1			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Poland		400		

Component	Bis(2-ethylhexyl) adipate
CAS No.	103-23-1
	Remarks

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Light colored.
Odour	SLIGHT AROMATIC SMELL
Melting point/freezing point	-67.8 °C.
Boiling point or initial boiling point and boiling range	377.88 °C. Atm. press.:1 013 hPa. Remarks:Extrapolated value.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	LOWER FLAMMABLE LIMIT: 0.4% BY VOLUME @ 242 DEG C
Flash point	196 °C. Atm. press.:1 013.25 hPa.
Auto-ignition temperature	377 °C. Atm. press.:1 013.25 hPa.
Decomposition temperature	no data available
pH	Acidity: 0.25 (meg/100 gm. max)
Kinematic viscosity	dynamic viscosity (in mPa s) = 13.7. Temperature:20°C.
Solubility	less than 0.1 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 8.94. Temperature:25 °C. Remarks:PH value is not reported.
Vapour pressure	Ca. 0 hPa. Temperature:20 °C. Remarks:Extrpolated value.
Density and/or relative density	0.92 g/cm³. Temperature:20 °C.
Relative vapour density	12.8 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts with strong oxidants and strong acids. This generates fire hazard.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

SLIGHT, WHEN EXPOSED TO HEAT OR FLAME; CAN REACT WITH OXIDIZING MATERIALS.BIS(2-ETHYLHEXYL) ADIPATE is an ester. Esters react 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 esters with alkali metals and hydrides. Can generate electrostatic charges. [Handling Chemicals Safely 1980. p. 250]. This chemical is incompatible with oxidizing materials and water. It is also incompatible with nitrates. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - > 20 000 mg/kg bw. Remarks:The estimated LD50 was 45 g/kg for males and 24 .6 g/kg for females.
- Inhalation: LC50 - rat (male/female) - > 5.7 mg/L air.
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

No data are available in humans. Limited evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes. If swallowed the substance easily enters the airways and could result in aspiration pneumonitis.

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss, Lepomis macrochirus, Pimephales promelas - > 0.78 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 500 mg/L - 48 h.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - > 500 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge - > 350 mg/L - 3 h. Remarks:Respiration rate.

12.2 Persistence and degradability

AEROBIC: In a semi-continuous activated sludge method used to simulate sewage treatment plant biodegradation, bis(2-ethylhexyl) adipate was observed to undergo primary degradation of 65-96% (at concns of 5 and 20 mg added/24 hr)(1); in a CO2 evolution study, bis(2-ethylhexyl) adipate was observed to undergo an ultimate degradation of 94% over a 35-day incubation period which corresponds to a first-order half-life of 2.7 days(1). Bis(2-ethylhexyl) adipate, present at 100 mg/l, reached 67-74% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test(2).

12.3 Bioaccumulative potential

A whole-fish BCF of 27 was observed for blue-gill fish exposed to bis(2-ethylhexyl) adipate levels of 250 ug/l for a 28-day period(1). According to a classification scheme(2), this measured BCF value suggests the potential for bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for bis(2-ethylhexyl) adipate can be estimated to be 49,000(SRC). According to a classification scheme(2), this estimated Koc value suggests that bis(2-ethylhexyl) adipate is expected to be immobile in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

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

SECTION 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) adipate	Bis(2-ethylhexyl) adipate	103-23-1	203-090-1
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

Abbreviations and acronyms

- 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



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- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

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/>

Other Information

Refer for medical attention if breathing difficulties and/or fever develop.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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