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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

Identification

1.1GHS Product identifier

Bis(2-ethylhexyl) adipate, puriss, 99%

Code B 1811

2.Hazard identification

2.1Classification of the substance or mixture

Not classified.

2.2GHS 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

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
bis(2-ethylhexyl) adipate	bis(2-ethylhexyl) adipate	103-23-1	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

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

In case of eye contact

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

If swallowed

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

4.2Most important symptoms/effects, acute and delayed

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

4.3Indication 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 (¹⁴C) 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 (¹⁴C) activity was determined by whole body autoradiography. The tissue distribution of (¹⁴C) 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. (¹⁴C) activity from alcohol labeled DEHA was found in the bronchi of male mice. In pregnant mice, (¹⁴C) 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.

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

FOAM, CARBON DIOXIDE, DRY CHEM ...

5.2Specific hazards arising from the chemical

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

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental 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.

6.3Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage

7.1Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2Conditions 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.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2Appropriate engineering controls

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

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

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	colorless or light yellow oily liquid with special odour
Colour	COLORLESS OR VERY PALE AMBER LIQ
Odour	SLIGHT AROMATIC SMELL
Melting point/ freezing point	110\u00b0C(dec.)(lit.)
Boiling point or initial boiling point and boiling range	175\u00b0C/2mmHg(lit.)
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	LOWER FLAMMABLE LIMIT: 0.4% BY VOLUME @ 242 DEG C
Flash point	196\u00b0C
Auto-ignition temperature	376.67\u00b0C
Decomposition	no data available

temperature	
pH	Acidity: 0.25 (meg/100 gm. max)
Kinematic viscosity	13.7 cP @ 20\u00b0C
Solubility	In water:immiscible
Partition coefficient n-octanol/water (log value)	8.1 (calculated)
Vapour pressure	8.35E-06mmHg at 25\u00b0C
Density and/or relative density	0.925g/mL at 20\u00b0C(lit.)
Relative vapour density	12.8 (Relative to Air)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility 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.

10.4Conditions to avoid

no data available

10.5Incompatible materials

no data available

10.6Hazardous decomposition products

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

11.Toxicological information

Acute toxicity

Oral: LD50 Rat oral 5.6 g/kg

Inhalation: no data available

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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2Persistence 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

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.

14. Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

14.2 UN Proper Shipping Name

ADR/RID: unknown

IMDG: unknown

IATA: unknown

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

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 Annex II of MARPOL 73/78 and the IBC Code

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) adipate	bis(2-ethylhexyl) adipate	103-23-1	none
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.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.