

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 11, 2017

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1. Identification

1.1 GHS Product identifier

Product name Bis(2-ethylhexyl) phosphate

1.2 Other means of identification

Product number -

Other names escaid100

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only. Lubricants and lubricant additives, Process regulators, Processing aids, not otherwise listed, Surface active agents

Uses advised against no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

Skin corrosion, Category 1C

Serious eye damage, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

Precautionary
statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe
dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye
protection/face protection.

Response

P301+P312 IF SWALLOWED: Call a POISON
CENTER/doctor/...if you feel unwell.

P330 Rinse mouth.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT
induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off
immediately all contaminated clothing. Rinse skin with
water [or shower].

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and
keep comfortable for breathing.

P310 Immediately call a POISON CENTER/doctor/...

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with
water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Bis(2-ethylhexyl) phosphate	Bis(2-ethylhexyl) phosphate	298-07-7	none	100%

4. First-aid measures

4.1 Description 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. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.
Refer for medical attention .

In case of eye contact

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

If swallowed

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Contact with liquid irritates eyes and may cause serious injury; consult an eye specialist. Also causes skin irritation on contact. Ingestion produces irritation similar to that caused by strong vinegar. (USCG, 1999)

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

/SRP:/ Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary Monitor for shock and treat if necessary Anticipate seizures and treat if necessary For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool Cover skin burns with dry sterile dressings after decontamination /Poison A and B/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguish with dry chemical, alcohol foam or carbon dioxide; water or foam may cause frothing.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating phosphorus oxides may be released. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal 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.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking liquid in covered dry plastic containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Collect leaking liquid in covered dry, plastic containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place.

7. Handling and storage

7.1 Precautions 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from metals.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual 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	Odorless light yellow liquid.
Colour	Viscous liquid
Odour	ODORLESS
Melting point/ freezing point	-50°C(lit.)
Boiling point or initial boiling point and boiling range	214°C
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	196°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	240°C
pH	no data available

Kinematic viscosity	47.320 Centipoise at 70 deg F (est)
Solubility	In water:slightly soluble
Partition coefficient n-octanol/water (log value)	log Kow = 6.07 (est)
Vapour pressure	0mmHg at 25°C
Density and/or relative density	0.97
Relative vapour density	no data available
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Slight, when exposed to heat or flame.Organophosphates, such as DI-(2-ETHYLHEXYL)PHOSPHORIC ACID, are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides. Mildly corrosive to most metals; may form flammable hydrogen gas (USCG, 1999).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition emits toxic fumes of /phosphorus oxides/.

11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 4,940 mg/kg bw
- 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 available

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

12.1 Toxicity

- Toxicity to fish: LC50 Danio rerio (Zebra danio) >56 mg/L/96 hr; static /formulated product
- Toxicity to daphnia and other aquatic invertebrates: LC50 Daphnia magna

(Water flea) >42 mg/L/24 hr; static /formulated product

- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Bis(2-ethylhexyl) phosphate, present at 100 mg/L, reached 0-17% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(1); therefore, this compound is not expected to biodegrade rapidly(SRC).

12.3 Bioaccumulative potential

BCF values of 1-2.4 and 2.7-6.0 were measured for bis(2-ethylhexyl) phosphate at concentrations of 1 and 0.1 mg/L, respectively, using carp which were exposed over an 6-week period(1). According to a classification scheme(2), these BCF values suggest the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of bis(2-ethylhexyl) phosphate can be estimated to be 1.7×10^4 (SRC). According to a classification scheme(2), this estimated Koc value suggests that bis(2-ethylhexyl) phosphate is expected to be immobile in soil. The estimated pKa of bis(2-ethylhexyl) phosphate is 1.47(3), indicating that this compound will primarily exist in anion form in the environment and anions generally do not adsorb more strongly to organic carbon than their neutral counterparts(4). The sorption of organophosphorus compounds in soil depends on both organic matter and clay content of soil and the sorption increases as the pH of soil decreases(5). In a study on the sorption of bis(2-ethylhexyl) phosphate on kaolinite and amectite, the acidic phosphoric group reacted rapidly and almost irreversibly with the surface cations of the clay mineral structure(5).

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: UN1902

IMDG: UN1902

IATA: UN1902

14.2 UN Proper Shipping Name

ADR/RID: DIISOOCTYL ACID PHOSPHATE

IMDG: DIISOOCTYL ACID PHOSPHATE

IATA: DIISOOCTYL ACID PHOSPHATE

14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

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 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) phosphate	Bis(2-ethylhexyl) phosphate	298-07-7	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			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.

16. Other information

Information on revision

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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
- 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/>

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