Safety Data Sheet

According to the UN GHS revision 8

Creation Date: April 28, 2026
Revision Date: April 28, 2026

1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Dibutyl phthalate

Catalog Number: TN1162

CAS Number: 84-74-2

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Reproductive toxicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s):

Signal word: Danger

Hazard statement(s): H400 Very toxic to aquatic life

Precautionary statement(s):

Prevention:	P273 Avoid release to the environment. P203 Obtain, read and follow all safety instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Response:	P391 Collect spillage. P318 IF exposed or concerned, get medical advice.
Storage:	P405 Store locked up.
Disposal:	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 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
Dibutyl phthalate	-	84-74-2	201-557-4

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Fresh air, rest.

Following skin contact

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

Following eye contact

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

Following ingestion

Rinse mouth. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Remove to fresh air. Wash affected skin areas with water. Flush eyes with water.

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

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguish with dry chemicals ... or carbon dioxide.

5.2 Specific hazards arising from the chemical

Combustible. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use foam, dry powder, carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in vermiculite, sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in vermiculite, sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

1) Remove all ignition sources. 2) Ventilate area ... 3) for small quant, absorb on paper towels. Evaporate in a safe place (such as fume hood). Allow sufficient time for evaporating vapors to completely clear hood ductwork. Burn paper in a suitable location ... large quant ... atomized in ... combustion chamber.

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.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 at low temperature,Keep away from direct sunlight
Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

TLV: 5 mg/m3, as TWA.MAK: 0.58 mg/m3, 0.05 ppm; peak limitation category: I(2); carcinogen category: 3B; pregnancy risk group: C

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 goggles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Color	Transparent
Odour	Slight, aromatic odor
Melting point/freezing point	-35°C
Boiling point or initial boiling point and boiling range	340°C(lit.)
Flammability	Class IIIB Combustible Liquid: Fl.P. at or above 200°F.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 0.5% by volume at 456 deg F (235 deg C)
Flash point	171°C
Auto-ignition temperature	756°F
Decomposition temperature	no data available

pH	no data available
Kinematic viscosity	0.203 poise at 20 deg C
Solubility	Ethanol: 30 mg/mL (107.78 mM),Sonication is recommended. DMSO: 250 mg/mL (898.18 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
N-octanol-water partition coefficient	log Kow = 4.50
Vapour pressure	1 mm Hg (147 °C)
Density and/or relative density	1.043 g/cm3 at 25℃ (lit.)
Relative vapour density	9.6 (vs air)
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Decomposes on burning. This produces toxic and irritating fumes (phthalic anhydride - see ICSC 0315). Reacts with strong oxidants.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

CombustibleAs a result of flow, agitation, etc., electrostatic charges can be generated.N-BUTYL PHTHALATE 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. Avoid contact with strong oxidizing agents and strong bases. Will not polymerize. (USCG, 1999). Can generate electrostatic charges. [Handling Chemicals Safely 1980. p. 250].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Liquid chlorine reacts explosively with ...dibutyl phthalate.

10.6 Hazardous decomposition products

When heated to decomp it emits acrid smoke and fumes.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Mouse oral 5289 mg/kg.
Inhalation: LC50 Mouse inhalation 25 g/cu m/2 hr
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

Cancer Classification: Group D Not Classifiable as to Human Carcinogenicity

Reproductive toxicity

No studies are available regarding the reproductive or developmental effects of dibutyl phthalate in humans from inhalation or oral exposure. Animal studies have reported developmental effects, such as reduced fetal weight, decreased number of viable litters, and birth defects (neural tube defects) in mice exposed orally to dibutyl phthalate. Reproductive effects, such as decreased spermatogenesis and testes weight, have also been reported in oral animal studies.

STOT-single exposure

no data available

STOT-repeated exposure

Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Aspiration hazard

A harmful contamination of the air will not or will only very slowly be reached on evaporation of this substance at 20°C.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50; Species: Brachydanio rerio (Zebrafish); Conditions: semi-static; Concentration: 2.2 mg/L for 96 hr /From table
Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea); Conditions: freshwater, renewal, 25 deg C, pH >7; Concentration: 17000 ug/L for 24 hr; Effect: behavior, equilibrium /formulated product
Toxicity to algae: LC50; Species: Scenedesmus acutus var. acutus (Green Algae) 5-6x 10+5 cells/mL; Conditions: freshwater, static, 25 deg C; Concentration: 210 ug/L for 96 hr
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: In a shake flask biodegradation test, after 28 days 68 to >99% of the dibutyl phthalate had disappeared and 80.6 to >99% was converted to CO2 with a lag period averaged 4.5 days(1). Dibutyl phthalate was removed 60-70% in three treatment plants using activated sludge(2). A synthetic waste feedstock degraded 94% of an initial concentration of dibutyl phthalate in 12 days(3). Microbial cultures isolated from an industrial wastewater facility completely degraded dibutyl phthalate within 40 to 220 days depending upon the strain of the microorganisms used and concentration of the dibutyl phthalate sample(4). Batch experiments using enriched microbial cultures completely degraded dibutyl phthalate in 15 hours(5). Enriched microbial cultures isolated from a wastewater treatment facility resulted in 85% degradation of a 200 mg/L sample of dibutyl phthalate in 90 days(6). Dibutyl phthalate had a half-life of 1-23 days in wastewater treatment plants(7). Dibutyl phthalate was degraded 81% in 28 days using the modified Sturm test(8). Dibutyl phthalate, present at 100 mg/L, had a biodegradation rate of 0.17/hour at 25 deg C using an activated sludge inoculum at 30 mg/L taken from Little Miami wastewater treatment plant in Cincinnati, OH(9). Dibutyl phthalate, present at 10-100 mg/L, biodegraded >90% in 8 days using an inoculum of 6 g/L of activated sludge, giving a half-life of 45.6 hours(10). Dibutyl phthalate had biodegradation half-lives in acclimated sludge of 45.3, 45.3, 46.8, and 47.5 hours at starting concentrations of 50, 100, 150, and 200 mg/L, respectively(11). Dibutyl phthalate, present at 100 mg/L, reached 69% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(12).

12.3 Bioaccumulative potential

Experimental BCF values of 12(1), 167(2) and 172(2) were reported for fathead minnows (Pimephales promelas) for dibutyl phthalate. BCF values of 5.2-176 and 3.1-21.2 were reported using carp (Cyprinus carpio) which were exposed over an 8-week period to dibutyl phthalate concentrations of 0.015 and 0.05 ppm, respectively(3). Other reported BCF values for dibutyl phthalate were 3.6 in carp(2) and 117 in bluegill fish (Lepomis macrochirus)(4). According to a classification scheme(5), BCF values of zero to 30 are low and from 100 to 1,000 are high(SRC). The log BCF of oysters exposed to 100 ug/L of dibutyl phthalate for 1 day was measured as 1.32(6). Dibutyl phthalate BCF values of 22 and 42 were reported for oysters(1). Experimental BCF values of 1,500, 31 and 3 were reported in shrimp for dibutyl phthalate(1). Other BCF values of 662, 624 and 3399 were reported for dibutyl phthalate in crustaceans, insects and algae, respectively(2). Biota-sediment accumulation factors for dibutyl phthalate were 5.5, 6.0 and 11.8 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(7). BCFs of 0.02-1.99 were reported for dibutyl phthalate in water spinach (Ipomoea aquatica) grown under different conditions on sludge from waste water treatment plants in China(8). BCFs of 4.82-83.65 L/kg were reported for dibutyl phthalate in the submerged water plant Potamogeton crispus L.; plants were grown in the Haihe River, China from Mar to May 2008(9). The BCF of dibutyl phthalate in the algae, Chlorella vulgaris was a maximum of 10,800 when grown in lake water(10).

12.4 Mobility in soil

A log Koc value of 3.14 was determined from measurements on soil samples from Broome County, NY(1-2). An experimental log Koc of 3.05 was determined from unsaturated soil columns(3). Dibutyl phthalate had measured log Koc values of 3.05-3.06 in Typic Haplaquept type loamy, sandy soil(4). According to a classification scheme(5), these Koc values suggest that dibutyl phthalate is expected to have low mobility in soil(SRC). A mean sediment log Koc value of 3.8 was calculated from the mean dibutyl phthalate concentration in water and suspended particulate matter from Lake Yssel, The Netherlands(6).

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

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

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

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.

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/

Other Information

no data available
