

## Chemical Safety Data Sheet MSDS / SDS

## Dibutyl phosphate

Revision Date:2024-11-02 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : Dibutyl phosphate  
CBnumber : CB1489161  
CAS : 107-66-4  
EINECS Number : 203-509-8  
Synonyms : dibutyl phosphate,dibutyl hydrogen phosphate

## Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P234 Keep only in original container.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continuerinsing.

P314 Get medical advice/attention if you feel unwell.  
P390 Absorb spillage to prevent material damage.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P406 Store in corrosive resistant/... container with a resistant inner liner.  
P501 Dispose of contents/container to.....

#### **Hazard statements**

H290 May be corrosive to metals  
H314 Causes severe skin burns and eye damage  
H318 Causes serious eye damage  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness  
H351 Suspected of causing cancer  
H373 May cause damage to organs through prolonged or repeated exposure

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## SECTION 3: Composition/information on ingredients

### **Substance**

|              |   |
|--------------|---|
| Product name | : Dibutyl phosphate                               |
| Synonyms     | : dibutyl phosphate, dibutyl hydrogen phosphate   |
| CAS          | : 107-66-4  |
| EC number    | : 203-509-8                                       |
| MF           | : C <sub>8</sub> H <sub>19</sub> O <sub>4</sub> P |
| MW           | : 210.21  |

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor

#### **If inhaled**

After inhalation: fresh air. Call in physician.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### **If swallowed**

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### **Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

## Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Carbon oxides Oxides of phosphorus Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

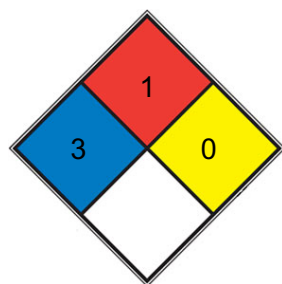
### Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

■ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

□ SPEC.  
□ HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemizorb?). Dispose of properly. Clean up affected area.

### Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### Conditions for safe storage, including any incompatibilities

#### Storage conditions

Tightly closed.

#### Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### control parameter

#### Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

## Exposure controls

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

#### Body Protection

Acid-resistant protective clothing

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|  |  |
|--|--|
| Appearance                                   | colorless liquid   |
| Odour  | No data available  |
| Odour Threshold                              | No data available  |
| pH   | 1,4 at 23 °C   |
| Melting point/freezing point                 | Melting point: -13 °C  |
| Initial boiling point and boiling range      | >200 °C at 1.013 hPa - Decomposes below the boiling point.   |
| Flash point                                  | 178 °C - closed cup - ISO 2719   |
| Evaporation rate                             | No data available  |
| Flammability (solid, gas)                    | No data available  |
| Upper/lower flammability or explosive limits | No data available  |
| Vapour pressure                              | < 0,00 hPa at 25 °C  |
| Vapour density                               | No data available  |
| Relative density                             | 1.1  |
| Water solubility                             | 17,2 g/l at 25 °C - completely soluble   |
| Partition coefficient: n-octanol/water       | No data available  |
| Autoignition temperature                     | 420 °C   |
| Decomposition temperature                    | No data available  |
| Viscosity                                    | Viscosity, kinematic: No data available Viscosity, dynamic: 75,75 mPa.s at 20 °C - OECD Test Guideline 114 |
| Explosive properties                         | No data available  |

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Oxidizing properties

No data available

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### Other safety information

Surface tension 52,73 mN/m at 1g/l at 20 °C

- OECD Test Guideline 115

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## SECTION 10: Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

No data available

### Conditions to avoid

Strong heating.

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 401) Inhalation: Lung irritation

#### Skin corrosion/irritation

Skin - in vitro test Result: Corrosive

(OECD Test Guideline 431)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive to eyes - 7 Days Remarks: (ECHA)

#### Respiratory or skin sensitization

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow Application Route: Oral

Method: OECD Test Guideline 474 Result: negative

### **Carcinogenicity**

No data available

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

No data available

### **Aspiration hazard**

No data available

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

static test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (Directive 67/548/EEC, Annex V, C.1.)

#### **Toxicity to daphnia and other aquatic invertebrates**

semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h

(OECD Test Guideline 202)

#### **Toxicity to algae**

static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h

(OECD Test Guideline 201)

#### **Toxicity to bacteria**

static test EC50 - activated sludge - > 10.000 mg/l - 3 h (OECD Test Guideline 209)

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 28 d

Result: > 98 % - Inherently biodegradable. (OECD Test Guideline 302B)

### **Bioaccumulative potential**

Bioaccumulation Cyprinus carpio (Carp) - 6 Weeks

at 25 °C - 2 mg/l(dibutyl hydrogen phosphate)

Bioconcentration factor (BCF): < 0,7 Remarks: Does not bioaccumulate.

#### **Mobility in soil**

No data available

#### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### **Other adverse effects**

No data available

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## **SECTION 13: Disposal considerations**

### **Waste treatment methods**

#### **Incompatibilities**

Incompatible with oxidizers (chlorates, nitrates, per-oxides, permanganates, perchlorates, chlorine, bromine, fluorine, etc.); contact may cause fires or explosions. Keep away from alkaline materials, strong bases, strong acids, oxoacids, and epoxides. Attacks many metals forming flammable and explosive hydrogen gas. Attacks some plastics, rubber, and coatings.

#### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## **SECTION 14: Transport information**

### **UN number**

ADR/RID: 3265 IMDG: 3265 IATA: 3265

### **UN proper shipping name**

ADR/RID: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (dibutyl hydrogen phosphate) IMDG: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (dibutyl hydrogen phosphate) IATA: Corrosive liquid, acidic, organic, n.o.s. (dibutyl hydrogen phosphate)

### **Transport hazard class(es)**

ADR/RID: 8 IMDG: 8 IATA: 8

### **Packaging group**

ADR/RID: II IMDG: II IATA: II

### **Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

### **Special precautions for user**



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## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

EC Inventory:Listed.

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

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## SECTION 16: Other information

### 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

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

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