ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Decabromodiphenyl oxide

Revision Date:2025-06-14 Revision Number:1

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

Product identifier

Product name	: Decabromodiphenyl oxide
CBnumber	: CB9705445
CAS	: 1163-19-5
EINECS Number	: 214-604-9
Synonyms	: Deca,Decabromodiphenyl Ether

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	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Not classified.

Label elements

Pictogram(s)

Signal word	Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H302 Harmful if swallowed

H304 May be fatal if swallowed and enters airways

H312 Harmful in contact with skin

H315 Causes skin irritation

H318 Causes serious eye damage

H320 Causes eye irritation

H336 May cause drowsiness or dizziness

H341 Suspected of causing genetic defects

H351 Suspected of causing cancer

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

H413 May cause long lasting harmful effects to aquatic life

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P273 Avoid release to the environment.

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

P331 Do NOT induce vomiting.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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

Continuerinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P370+P378 In case of fire: Use … for extinction.

P405 Store locked up.

P501 Dispose of contents/container to.…

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Decabromodiphenyl oxide
Synonyms	: Deca,Decabromodiphenyl Ether
CAS	: 1163-19-5
EC number	: 214-604-9
MF	: C12Br10O

MW : 959.17

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest.

Following skin contact

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.

Most important symptoms and effects, both acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and upper respiratory tract. It may also cause diarrhea, liver damage and kidney damage. Chronic exposure may cause intoxication. ACUTE/CHRONIC HAZARDS: This compound is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. It may be harmful by inhalation, ingestion and skin absorption. When heated to decomposition it emits toxic fumes of carbon monoxide and carbon dioxide. It may also emit fumes of hydrogen bromide. (NTP, 1992)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Firefighting measures

Extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

Advice for firefighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Avoid breathing dust.; Environmental precautions: Do not let product enter drains.; Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

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.

Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs.Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure controls

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

Individual protection measures

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

Information on basic physicochemical properties

Physical state	Solid
Colour	White to Light Brown
Odour	Odorless
Melting point/freezing point	304 °C. Remarks:Measurement performed at sea level and room temperature.
Boiling point or initial boiling point and boiling range	256°C(lit.)
Flammability	Not combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	96°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	<0.0001mg/l
Partition coefficient n-octanol/water	log Pow = 6.625. Temperature:25 °C.
Vapour pressure	0 Pa. Temperature:21 °C.
Density and/or relative density	2.63. Temperature:20 °C.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

On combustion, forms toxic fumes.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

DECABROMODIPHENYL OXIDE is incompatible with strong oxidizers (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen bromide/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: LC50 - rat (male/female) - > 48.2 mg/L air (nominal).
- 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

Evaluation: No epidemiological data relevant to the carcinogenicity of decabromodiphenyl oxide. There is limited evidence in experimental animals for the carcinogenicity of decabromodiphenyl oxide. Overall evaluation: Decabromodiphenyl oxide is not classifiable as to its carcinogenicity to humans (Group 3).

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

The substance may have effects on the thyroid.

Aspiration hazard

A nuisance-causing concentration of airborne particles can be reached quickly.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Oryzias latipes - > 500 mg/L - 48 wk.

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: EC50 - S. costatum (72 hr), T. pseudonana (72 hr) , Chlorella sp (96 hr). - > 1 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 15 mg/L - 3 h. Remarks:Respiration rate.

Persistence and degradability

AEROBIC: Decabromodiphenyl ether was judged to be moderate to hard to degrade according to results obtained by the "cultivation method" in which 27% and 4% degradation occurred in 3 days in river water and coastal sea water inoculum, respectively, in Japan(1). Decabromodiphenyl ether, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test which classified the compound as not readily biodegradable(2). A soil degradation study found that soils spiked with 1, 10, and 100 mg/kg decabromodiphenyl ether showed no degradation after 160 days of incubation(3).

Bioaccumulative potential

BCF values of <5 to <50 were measured in fish for decabromodiphenyl ether(SRC) using carp (Cyprinus carpio) which were exposed over a 6-week period(1). Forty-eight hour fish (species not reported) bioconcentration studies with C14-labeled decabromodiphenyl ether revealed no measurable bioconcentration in fish filets; the measured BCF was 0.3(2). Rainbow trout (Onchorhynchus mykiss) exposed to decabromobiphenyl ether during a 120-day study contained this compound at 38 ng/g of fresh weight in muscle tissue and up to 870 ng/g of fresh weight in the liver(3). An uptake of approximately 0.005% was calculated from decabromodiphenyl ether concentrations in muscle tissue and the mean dietary dose of decabromodiphenyl ether; this value does not include the sum of the metabolites of this compound(3). Using juvenile lake trout (Salvelinus namaycush) and a 56-day period, decabromodiphenyl ether had a BCF of <1(4). According to a classification scheme(5), these BCF values suggest the potential for bioconcentration in aquatic organisms is low. Wild blue mussels (Mytilus edulis) collected on the Dutch coast were put through depuration for 24 hours; decabromodiphenyl ether concentrations dropped from 3350 to 50 ng/g of extractable lipids in one test and from 1580 to 480 ng/g of extractable lipids in another(6). Plankton, Diporeia, lake whitefish, lake trout, and Chinook salmon were collected from Lake Michigan in 2006 between April and August to study the bioaccumulation and biomagnification of polybrominated diphenyl ethers in a food web of Lake Michigan(7); decabromodiphenyl ether did not biomagnify in the food web(7). A microcosm study using carp (Cyprinus carpio) found no bioaccumulation of decabromodiphenyl ether after 20 and 50-day exposure periods(8).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of decabromodiphenyl ether can be estimated to be 2.8X10+5(SRC). According to a classification scheme(2), this estimated Koc value suggests that decabromodiphenyl ether is expected to be immobile in soil.

Toxics Screening Level

The Initial Threshold Screening Level (ITSL) for decabromodiphenyl ether (DBDPE) is 25 µg/m3 with 24-hr averaging time. The Initial Risk Screening Level (IRSL) for DBDPE is 5 µg/m3 and the Secondary Risk Screening Level (SRSL) is 50 µg/m3; both with annual averaging time.

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

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.)

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.)

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.)

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.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

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

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

The substance has a variable melting and boiling range, reflecting the nature of the material and the individual manufacturing processes.

Disclaimer:
The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.