Chemical Safety Data Sheet MSDS / SDS

Diphenyl ether SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Diphenyl ether

CAS: 101-84-8

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.in

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SECTION 2: Hazards identification

Classification of the substance or mixture

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H319 Causes serious eye irritation
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P273 Avoid release to the environment.

Response

P391 Collect spillage.

Storage

none

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Diphenyl ether

Common names and synonyms: Diphenyl ether

CAS number:	101-84-8
EC number:	202-981-2
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

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

Following eye contact

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

Following ingestion

Rinse mouth.

Most important symptoms/effects, acute and delayed

Inhalation may cause nausea because of disagreeable odor. Contact of liquid with eyes causes mild irritation. Prolonged exposure of skin to liquid causes reddening and irritation. Ingestion produces nausea. (USCG, 1999)

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

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 as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on 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. Ethers and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. If solid: sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

Environmental precautions

Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. If solid: sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

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. Ensure adequate ventilation. Avoid breathing dust.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; 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

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.

Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.Conditions for safe storage, including any incompatibilities. Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Non Combustible Solids.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1 ppm as TWA; 2 ppm as STEL.MAK: 7.1 mg/m3, 1 ppm; peak limitation category: I(1); pregnancy risk group: C.EU-OEL: 7 mg/m3, 1 ppm as TWA; 14 mg/m3, 2 ppm as STEL

Biological limit values

no data available

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.

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

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation. Use local exhaust.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Diphenyl oxide is a colorless liquid with a mild pleasant odor. May float or sink in water. Freezing point is 81°F. (USCG, 1999)
Colour:	Colorless crystals or liquid
Odour:	Geranium-like odor
Melting point/freezing point:	26-30°C
Boiling point or initial boiling point and boiling range:	259°C
Flammability:	Combustible Solid Class IIIB Combustible Liquid: Fl.P. at or above 200°F.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 0.7% by volume; Upper flammable limit: 6.0% by volume
Flash point:	115°C
Auto-ignition temperature:	1148° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	3.4909X10-3 Pa-sec at melting point
Solubility:	Insoluble (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 4.21
Vapour pressure:	<1 mm Hg (20 °C)
Density and/or relative density:	1.073

Relative vapour density:	>5.86 (25 °C, vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Reacts with strong oxidants. The substance can form explosive peroxides on exposure to air.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Combustible when exposed to heat or flame.DIPHENYL OXIDE can react with oxidizing materials. (NTP, 1992). A vigorous reaction occurred between the ether and chlorosulfuric acid.

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 2830 mg/kg body weight (95% confidence limits 2490-3210 mg/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 available

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes, skin and upper respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

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.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Pimephales promelas (Fathead minnow) weight 0.12 g; Conditions: flow-through bioassay, water hardness 45.5 mg/L CaCO3, temp: 25 + or - 1 deg C, pH 7.5, dissolved oxygen greater than 60% of saturation; Concentration: 4.0 mg/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water Flea) age < or =24 hr; Conditions: freshwater, static, 22 deg C, pH 7.4-9.4, dissolved oxygen 6.5-9.1 mg/L; Concentration: 1400 ug/L for 24 hr (95% confidence limit: 1100-1900 ug/L) /> or =80% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: In a river die-away test using Ohio River water with weekly additions of settled sewage inoculum (1% by volume), diphenyl ether's theoretical CO2 evolution was found to be only 20% after 75 days of incubation(1); re-dosing tests found that diphenyl ether was oxidized slightly better after re-dosing(1); however, the overall test results indicated that diphenyl ether was resistant to biological action(1). Diphenyl ether, present at 100 mg/L, reached 6.3% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test and is considered not readily biodegradable(2). Using a die-away study with spiked soil and sludge, diphenyl ether dissipated to below detectable levels after 3 months, loss processes were not confirmed and may have included volatilization and adsorption(3).

Bioaccumulative potential

Using a 4-day exposure period, a diphenyl ether steady-state BCF of 195 was measured in rainbow trout (Salmo gairdneri)(1). A steady-state BCF of 470 has also been reported for rainbow trout after 7 day exposure period at 16 ug/L(2). Using a 4-day exposure period a BCF of 590 was measured in rainbow trout(3). BCF ranges of 112-583 and 49-594 were calculated using carp (Cyprinus carpio) which were exposed to 0.3 and 0.03 ppm, respectively, over an 8-week period(4). According to a classification scheme(5), these data suggest that bioconcentration in aquatic organisms is moderate to high(SRC).

Mobility in soil

A Koc of 1950 for diphenyl ether can be determined(SRC) from a measured soil/water partition coefficient (Kd) of 12.4 in an Australian soil (organic matter content of 1.09%)(1). A log Koc of 3.29 has been reported(2), corresponding to a Koc of 1949(SRC). According to a classification scheme(3), these Koc values suggest that diphenyl ether is expected to have low mobility in soil.

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: UN3077 (For reference only, please check.)
IMDG: UN3077 (For reference only, please check.)
IATA: UN3077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)
IMDG: 9 (For reference only, please check.)
IATA: 9 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)
IMDG: III (For reference only, please check.)
IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

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

Health effects of exposure to the substance have not been investigated adequately.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any