Chemical Safety Data Sheet MSDS / SDS

Dimethyl phthalate

Revision Date:2024-03-16 Revision Number:1

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

Product identifier

Product name	: Dimethyl phthalate
CBnumber	: CB9472655
CAS	: 131-11-3
EINECS Number	: 205-011-6
Synonyms	: DMP,Dimethyl phthalate

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

Classification of the substance or mixture

Not classified.

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H370 Causes damage to organs

Precautionary statement(s)

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

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

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

P311 Call a POISON CENTER or doctor/physician.

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

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Dimethyl phthalate
Synonyms	: DMP,Dimethyl phthalate
CAS	: 131-11-3
EC number	: 205-011-6
MF	: C10H10O4
MW	: 194.18

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

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

Following ingestion

Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms unlikely from any exposure. (USCG, 1999)

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 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. Esters and related compounds

SECTION 5: Firefighting measures

Extinguishing media

Water or foam may cause frothing.

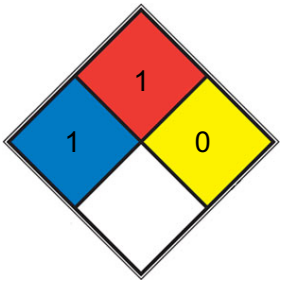
Specific Hazards Arising from the Chemical

This chemical is combustible. (NTP, 1992)

Advice for firefighters

Use water spray, foam, powder, carbon dioxide.

NFPA 704



■	HEALTH	1	Exposure would cause irritation with only minor residual injury (e.g. acetone, sodium bromate, potassium chloride)
■	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,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

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Methods and materials for containment and cleaning up

This study investigated the feasibility of using ozone-GAC process to remove phthalate esters from drinking water through a batch-scale study and adsorption isotherms. Dimethyl phthalate (DMP), diethyl phthalate (DEP) and dibutyl phthalate (DBP) were selected as the representative

of phthalate esters. Results indicated that ozonation removes more than 40% DMP, DEP and DBP, GAC absorbed all the DMP, DEP and DBP that had not been oxidized by ozone at the condition of the Empty Bed Contact Time (EBCT) from 4 minutes to 12 minutes. The isotherms for GAC were successful correlated by Freundlich equation, and the date was used to estimate GAC service time. The results indicated that ozone-GAC process is a feasible way to remove DMP, DEP and DBP from drinking water.

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

Store in an area without drain or sewer access.Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 5 mg/m3, as TWA

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	Liquid
Colour	Clear

Odour	Slight aromatic odor
Melting point/freezing point	5.5 °C. Atm. press.:101.3 kPa.
Boiling point or initial boiling point and boiling range	282 °C. Atm. press.:760 mm Hg.
Flammability	Class IIIB Combustible Liquid: Fl.P. at or above 200°F.; however, ignition is difficult.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 0.9% by volume at 358 deg F (180 deg C)
Flash point	149 °C. Atm. press.:760 mm Hg.
Auto-ignition temperature	555 °C. Atm. press.:760 mm Hg.
Decomposition temperature	no data available
pH	7 (H_2O, 20℃)
Kinematic viscosity	17.2 cP at 25 deg C
Solubility	4.0g/l
Partition coefficient n-octanol/water	log Pow = 1.56. Remarks:No data on temp. and pH.
Vapour pressure	0.008 hPa (20 °C)
Density and/or relative density	1.194 (20/4℃)
Relative vapour density	1.194 (20/4℃)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. This produces irritating fumes.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Combustible.DIMETHYL PHTHALATE reacts 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 with caustic solutions. Flammable hydrogen is generated by mixing with alkali metals and hydrides. Can generate electrostatic charges by swirling or pouring [Handling Chemicals Safely, 1980. p. 250].

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Oxidizing agents, acids

Hazardous decomposition products

Hazardous decomposition products: toxic gases and vapors (such as carbon monoxide) may be released in a fire involving dimethylphthalate.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - mouse - 7 200 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

CLASSIFICATION: D; not classifiable as to human carcinogenicity. BASIS FOR CLASSIFICATION: Pertinent data regarding carcinogenicity data was not located in the available literature. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Inadequate. Classification based on former EPA guidelines

Reproductive toxicity

No information is available on the reproductive or developmental effects of dimethyl phthalate in humans. In one animal study, exposure to dimethyl phthalate via gavage had no effects on reproduction.

STOT-single exposure

no data available

STOT-repeated exposure

no data available

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: Lepomis macrochirus (bluegill); Conditions: static, hardness 28 to 44 mg/L at CaCO3, Alkalinity 20 to 30 mg/L CaCO3, pH 6.7 to 7.4, Dissolved oxygen concn 5.3 to 7.0 mg/L, 20 to 24 deg C; Concentration: 350 mg/L for 24 hr /> or = 80% purity

Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 150 mg/L - 24 h.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 39.8

mg/L - 96 h.

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: After a 2.7 day lag, dimethyl phthalate was degraded in a shake-flask biodegradation test utilizing a soil/sewage inoculum with a half-life of 1.9 days(1). After 28 days, >99% of the dimethyl phthalate had disappeared and 86% mineralization had occurred(1). Dimethyl phthalate was completely degraded within 7 days in a static flask screening test with a wastewater inoculum(2). In two operating plants, 88 and 58% of the dimethyl phthalate was mineralized by the digested municipal sludge(3). In waste water treatment plants, essentially 100% removal resulting from biodegradation was reported(4-6). In a survey of publicly owned treatment works, an average removal of 97% was attributed to biodegradation(7). Dimethyl phthalate, present at 100 mg/L, reached 93% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(8). In activated sludge die-away tests and in a semi-continuous activated sludge test >90% and >81.0% degradation, respectively, was achieved in 1 day(9). Dimethyl phthalate removal of >96 to >99% was observed at the Cedar Creek Wastewater Reclamation - Recharge Facilities, Nassau County, NY(10). Dimethyl phthalate, at a starting concentration of 10-100 mg/L, was biodegraded 90% in 3 days and 100% in 5 days, and had a half-life of 21 hours in acclimated activated sludge from a coke plant waste water treatment system(11). Aerobic degradation studies indicated primary degradation for the lower molecular weight phthalate esters (including dimethyl phthalate) occurred rapidly, typically exceeding 90% degradation within a week, even if unacclimated inocula were used(12).

Bioaccumulative potential

The mean BCF of dimethyl phthalate in sheepshead minnows was 5.4, after 24 hr(1). Bluegill sunfish showed a bioconcentration factor of 57(2) which may be elevated because only carbon-14 was measured in the experiment and metabolites may be included in the measurement of the parent compound(SRC). The depuration half-life was between 1 and 2 days(2). According to a classification scheme(3), these measured BCFs suggest that bioconcentration in aquatic organisms is low to moderate(SRC). The mean BCF of dimethyl phthalate in brown shrimp was 4.7, after 24 hr(1). Bioaccumulation factors of 3.1 and 6.3 were measured in shrimp (Peneaus aztecus) following 1 day of exposure(4). BCFs of 0.14-0.57 were reported for dimethyl phthalate in water spinach (Ipomoea aquatica) grown under different conditions on sludge from waste water treatment plants in China(5).

Mobility in soil

Dimethyl phthalate had a Koc of 55 in soil (89% sand, 11% silt/clay, 20% organic carbon) taken from Calumet, MI(1). Koc values ranging from 80 to 360 were calculated for dimethyl phthalate from its low carbon subsurface core sorption isotherms at different depths(2). Dimethyl phthalate had measured log Koc values of 1.88 to 1.89 in Typic Haplaquept type loamy, sandy soil(3). Dimethyl phthalate also had a reported Koc of 200(4) and log Koc value of 2.3(5). According to a classification scheme(6), these Koc values suggest that dimethyl phthalate is expected to have moderate to high mobility in soil(SRC). An average dimethyl phthalate removal of 79% was observed on a 14 m experimental overland flow slope(7). Relative to the average linear groundwater velocity, 18% retardation was calculated for dimethyl phthalate in a natural gradient tracer test using an unconfined sandy aquifer, assuming an organic carbon content of 0.05%(8). A mean sediment log Koc value of >5.2 was calculated from the mean dimethyl phthalate concentration in water and suspended particulate matter from Lake Yssel, The Netherlands(9). Adsorption of dimethyl phthalate is enhanced in the presence of salt: at a dimethyl phthalate concentration of 700 ug/L, 0.9 ug/g was adsorbed on suspended particulates in seawater, 0.6 ug/g was adsorbed on suspended particulates in 50% sea water, and <0.2 ug/g was adsorbed on suspended particulates in distilled water(10).

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

Other melting points: ≈0°C (commercial product).