Dimethyl phthalate SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

* Product Name: Dimethyl phthalate
* Catalog Number: S5378
* CAS Number: 131-11-3
* IUPAC Name: 1,2-Benzenedicarboxylic acid, 1,2-dimethyl ester

Relevant identified uses and uses advised against

* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

* Company: Selleck Chemicals
* TollFree: +1 877 796-6397
* Tel: +1 832 582-8158
* Fax: +1 832 582-8590

Emergency telephone number

* Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Not classified. H242

Acute toxicity (oral): Category 4. H302

Skin corrosion: Category 1. H314

Skin sensitization: Category 1. H317

Eye irritation: Category 2. H320

Specific target organ toxicity (single exposure): Category 3. H335

Specific target organ toxicity (single exposure): Category 3. H336

Acute aquatic toxicity: Category 3. H402

Chronic aquatic toxicity: Category 2. H411

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word Danger

Hazard statement(s)	H242: Heating may cause a fire H302: Harmful if swallowed H314: Causes severe skin burns and eye damage H317: May cause an allergic skin reaction H320: Causes eye irritation H335: May cause respiratory irritation H336: May cause drowsiness or dizziness H402: Harmful to aquatic life H411: Toxic to aquatic life with long lasting effects
Precautionary statement(s)	None.
Prevention	P210: Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking. P234: Keep only in original container. P235: Keep cool. P240: Ground/bond container and receiving equipment. P260: Do not breathe dust/fume/gas/mist/vapors/spray. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P264: Wash hands thoroughly after handling. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Response	P301+P317: IF SWALLOWED: Get medical help. P301+P330: IF SWALLOWED: Rinse mouth. P302+P352: IF ON SKIN: wash with plenty of water. P302+P361: IF ON SKIN: Take off immediately all contaminated clothing. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P305+P354: IF IN EYES: Immediately rinse with water for several minutes. P316: Get emergency medical help immediately. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P330: Rinse mouth. P331: Do NOT induce vomiting. P333+P317: If skin irritation or rash occurs: Get medical help. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P354: Immediately rinse with water for several minutes. P362+P364: Take off contaminated clothing and wash it before reuse. P363: Wash contaminated clothing before reuse. P370+P378: In case of fire: Use water spray, dry chemical, carbon dioxide, or appropriate foam to extinguish. P391: Collect spillage.

Storage	P403: Store in a well-ventilated place. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P410: Protect from sunlight. P411: Store at appropriate temperatures(see Section 7). P420: Store separately.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Dimethyl phthalate

CAS Number: 131-11-3

PubChem CID: 8554

Molecular formula: C10H10O4

Molecular weight: 194.18 g/mol

IUPAC name: dimethyl benzene-1,2-dicarboxylate

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Rinse and then wash skin with water and soap.

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

Ingestion: Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO2), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

CAUTION: Fire involving Safety devices (UN3268) and Fire suppressant dispersing devices (UN3559) may have a delayed activation and a risk of hazardous projectiles. Extinguish the fire at a safe distance.

SMALL FIRE: Dry chemical, CO2, water spray or regular foam.

LARGE FIRE: Water spray, fog or regular foam. Do not scatter spilled material with high-pressure water streams. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal.

FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. (ERG, 2024)

Use water spray, foam, powder, carbon dioxide.

Water or foam may cause frothing.

Extinguishant: Dry chemical, foam, or carbon dioxide

Depending upon the concentration of dimethylphthalate, the following respiratory protection information is provided: Fire fighting: Self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode.

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide.

For more Fire Fighting Procedures (Complete) data for DIMETHYL PHTHALATE (6 total), please visit the HSDB record page.

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 295 °F (NTP, 1992)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

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.

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.

1. Remove all ignition sources. 2. Ventilate area of spill or leak. 3. For small quantities, abosrb on paper towels, evaporate in safe place (such as fume hood), allow sufficient time for evaporating vapors to completely clear hood ductwork.

Accidental Release Measures. Personal precautions, protective equipment and emergency procedures: Avoid breathing vapors, mist or gas. Ensure adequate ventilation. 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: Keep in suitable, closed containers for disposal.

Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U102, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

/Small quantities/ absorb with paper, then burn the paper in a suitable location away from other combustible materials.

A good candidate for rotary kiln incineration at a temperature range of 820 to 1,600 °C and residence times of seconds for liquids and gases, and hours for solids. A good candidate for liquid injection incineration at a temperature range of 650 to 1,600 °C and a residence time of 0.1 to 2 seconds. A good candidate for fluidized bed incineration at a temperature range of 450 to 980 °C and residence times of seconds for liquids and gases, and longer for solids.

Chemical Treatability of Dimethyl Phthalate; Concentration Process: Resin Adsorption; Chemical Classification: Phthalates; Scale of Study: Batch flow, Laboratory scale; Type of Wastewater Used: Pure compound (one solute in a solvent); Results of Study: 100% reduction; 62% desorbed from resin by elutriation with solvent. (Amberlite XAD-2 used. Solvents included pentane-acetone, diethyl ether, methylene chloride-acetone, chloroform-acetone).

For more Disposal Methods (Complete) data for DIMETHYL PHTHALATE (9 total), please visit the HSDB record page.

SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. Ensure that the local ventilation moves the contaminant away from the worker.

SRP: Contaminated protective clothing should be segregated in a manner such that there is no direct personal contact by personnel who handle, dispose, or clean the clothing. The completeness of the cleaning procedures should be considered before the decontaminated protective clothing is returned for reuse by the workers. Contaminated clothing should not be taken home at the end of shift, but should remain at employee's place of work for cleaning.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent dust cloud. For Asbestos, avoid inhalation of dust. Cover spill with plastic sheet or tarp to minimize spreading. Do not clean up or dispose of, except under supervision of a specialist.

SMALL DRY SPILL: With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.

SMALL SPILL: Pick up with sand or other non-combustible absorbent material and place into containers for later disposal.

LARGE SPILL: Dike far ahead of liquid spill for later disposal. Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent entry into waterways, sewers, basements or confined areas. (ERG, 2024)

Store in an area without drain or sewer access.

Keep container tightly closed in a dry and well-ventilated place.

7.2 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.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

Store in original container. Keep upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles and face shield.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: Dimethyl phthalate appears as a water-white liquid without significant odor. Denser than water and insoluble in water. Hence sinks in water. Flash point 300 °F. Eye contact may produce severe irritation and direct skin contact may produce mild irritation. Used in the manufacture of a variety of products including plastics, insect repellents, safety glass, and lacquer coatings.

b) Odor: Slight aromatic odor

c) Odor threshold: No data available

d) pH: No data available

e) Melting point/freezing point: 32 °F (NTP, 1992)

f) Initial boiling point and boiling range: 542.7 °F at 760 mmHg (NTP, 1992)

g) Flash point: 295 °F (NTP, 1992)

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: 1 mmHg at 212.5 °F ; 5 mmHg at 269.2 °F; 10 mmHg at 297.7 °F (NTP, 1992)

l) Vapor density: No data available

m) Relative density: 1.1905 at 68 °F (USCG, 1999) - Denser than water; will sink

n) Water solubility: less than 1 mg/mL at 68 °F (NTP, 1992)

o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 1.6

p) Auto-ignition temperature: 915 °F (USCG, 1999)

q) Decomposition temperature: No data available

r) Viscosity: 17.2 cP at 25 °C

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 52.6 Å²

Complexity: 200

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Incompatible materials: Oxidizing agents, acids

Nitrates; strong oxidizers, alkalis & acids.

Nitrates; strong oxidizers, alkalis & acids

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO□).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

Causes severe skin burns and eye damage (H314).

Serious eye damage/eye irritation:

No data available.

Respiratory or skin sensitization:

May cause an allergic skin reaction (H317).

Germ cell mutagenicity:

No data available.

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.

11.2 Additional information

Carcinogen classification:

No indication of carcinogenicity to humans (not listed by IARC).

Exposure routes:

inhalation, ingestion, skin and/or eye contact

Oral (L1903) ; inhalation (L1903) ; dermal (L1903)

Signs and symptoms of exposure:

irritation eyes, upper respiratory system; stomach pain

Phthalate esters are endocrine disruptors and can cause a number of developmental malformations termed 'phthalate syndrome'. (A2883)

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50; Species: Allolobophora tuberculata (Earthworm) adult; multiple environmental routes of exposure 773 (376-1591) ug/sq cm for 48 hr

LC50; Species: Eisenia fetida (Earthworm) adult; multiple environmental routes of exposure 550 (440-690) ug/sq cm for 48 hr

LC50; Species: Allolobophora tuberculata (Earthworm) adult; direct application 3335 (2124-5235) mg/kg for 48 hr; artificial soil

LC50; Species: Eisenia fetida (Earthworm) adult; direct application 3160 (2450-3820) mg/kg for 48 hr; artificial soil

For more Ecotoxicity Values (Complete) data for DIMETHYL PHTHALATE (43 total), please visit the HSDB record page.

/AQUATIC SPECIES/ /In a 21-day experiment in Daphnia magna (water flea)/ reproduction was not significantly different from the control in any exposure concentration. Therefore the NOEC and LOEC are based on survival, which was the more sensitive endpoint. LOEC = 23 mg/L, NOEC = 9.6 mg/L. ... /Water/ hardness was 150 to 180 mg/L as CaC03; alkalinity ranged from 100 to 130 mg/L CaC03; pH ranged from 7.9 to 8.3; and temperature was 21 + or - 2 °C. Dissolved oxygen concentration was greater than 60% saturation and specific conductance was 400 to 600 ... /umoh/cm/.

/AQUATIC SPECIES/ /In a 60-day flow-through experiment/ Oncorhynchus mykiss (rainbow trout) fry survival and growth (length and weight) were evaluated as the biological endpoints. ... The NOEC was reported as 11 mg/L; the LOEC was reported as 24 mg/L ...

/AQUATIC SPECIES/ Tests were performed with the freshwate

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): 1.6

Low potential for bioaccumulation (Log P < 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Not classified as dangerous goods for transport (research quantities).

DOT label: Class 9

14.4 Packing group

Not applicable (not regulated as dangerous goods in typical research quantities).

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

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

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Environmental hazard

Reactive hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: 1,2-Benzenedicarboxylic acid, 1,2-dimethyl ester Specific Information Requirement: Obligations to provide information apply. These obligations are: 1. A person introducing this chemical must

- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Developmental Toxicity; Endocrine Toxicity; Environmental tox; Immunotoxicity; Ocular Toxicity; Reproductive Toxicity; Respiratory Toxicity Authoritative List - CA TACs; CECBP - Priori

- EFSA Legal Basis: Regulation (EC) No 178/2002 (amended)

- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)

- Atmospheric Standards: Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in spec

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.