

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 15, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Diisopropyl methylphosphonate

1.2 Other means of identification

Product number C1305527

Other names DIISOPROPYL METHYLPHOSPHONATE; Phosphonic acid, methyl-, bis(1-methylethyl) ester; Diisopropyl methylphosphonate

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning
Hazard statement(s) H302 Harmful if swallowed

Precautionary statement(s)

Prevention P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.

Response

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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Diisopropyl methylphosphonate	Bis(1-methylethyl) methylphosphonate	1445-75-6	215-896-0	~ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

no data available

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

No studies were located for reducing absorption in humans or animals exposed to diisopropyl methylphosphonate. Standard methods such as cathartics or activated carbon could be used. However, exposure would have to be identified within 4-6 hr since diisopropyl methylphosphonate is rapidly absorbed for the GI tract ... Common methods for reducing dermal absorption ... incl removing contaminated clothes and washing contacted skin with soap and water ... Following eye contact ... eyes should be flushed with copious amt of water.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

5.2 Specific hazards arising from the chemical

no data available

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 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.

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

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	no data available
Colour	no data available
Odour	no data available
Melting point/freezing point	no data available
Boiling point or initial boiling point and boiling range	50°C (1 torr)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	97.7°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water, 1.50X10+3 mg/l @ 25 deg C
Partition coefficient n-octanol/water	log Kow= 1.03
Vapour pressure	0.000475mmHg at 25°C
Density and/or relative density	0.976
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 826 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

CLASSIFICATION: D; not classifiable as to human carcinogenicity. BASIS FOR CLASSIFICATION: No data from cancer bioassays or epidemiological studies are available. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: There are no lifetime (chronic) bioassays evaluating carcinogenicity.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

No biodegradation was observed when diisopropyl methylphosphonate was incubated in natural water for 12 weeks or in aqueous medium inoculated with soil microorganisms for 6 weeks(1). Additionally, diisopropyl methylphosphonate degradation was not observed when other carbon sources such as glucose, glycerol and succinate were added to the medium. When diisopropyl methylphosphonate was incubated in soil at 25 degC, slow biodegradation occurred as was evidenced by the evolution of 14-CO₂(1). Approximately 1.5% and 5% of the carbon was released as CO₂ after 17 weeks in unacclimated and acclimated soil, respectively. The rate limiting step is the enzymatic hydrolysis of diisopropyl methylphosphonate to isopropyl methylphosphonic acid. The estimated half-lives are 1 and 3 years in acclimated and unacclimated soil, respectively(1). When the soil temperature was reduced to 10 degC, no biodegradation was observed. Another soil sample released 13.4% of its original activity as CO₂ after 34 weeks of incubation, indicating a half-life of 2 years(1).

12.3 Bioaccumulative potential

An estimated BCF of 1.2 was calculated for diisopropyl methylphosphonate(SRC), using a log K_{ow} of 1.03(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low. Experimental results with bluegill sunfish confirm that diisopropyl methylphosphonate does not bioconcentrate in fish(5). Diisopropyl methylphosphonate did not concentrate in the adipose tissue of ducks or quail(4). The lack of bioconcentration may be a result of metabolism, which is known to occur in mammals and birds(6,7).

12.4 Mobility in soil

The K_{oc} of diisopropyl methylphosphonate is estimated as 87(SRC), using a log K_{ow} of 1.03(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated K_{oc} value suggests that diisopropyl methylphosphonate is expected to have high mobility in soil. A 13% reduction in diisopropyl methylphosphonate concn occurred when diisopropyl methylphosphonate-containing medium was circulated for 32 days in a soil percolator to acclimate the soil microorganisms(5). The investigators speculated that adsorption, rather than biodegradation, was responsible for the diisopropyl methylphosphonate reduction because no further diisopropyl methylphosphonate loss occurred during an additional 18 weeks of operation(5). The mobility of diisopropyl methylphosphonate in soil is evidenced by the detection of diisopropyl methylphosphonate in groundwater at the Rocky Mountain Arsenal(4,6). The source of contamination was a waste-disposal pond.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.2 UN Proper Shipping Name

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.3 Transport hazard class(es)

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.4 Packing group, if applicable

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Bis(1-methylethyl) methylphosphonate	Bis(1-methylethyl) methylphosphonate	1445-75-6	215-896-0
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)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024

Revision Date January 15, 2025

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:



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- 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/>

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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