

Chemical Safety Data Sheet MSDS / SDS

Parathion-methyl SDS

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

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

Product name: Parathion-methyl

CAS: 298-00-0

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**

Flammable liquids, Category 3

Acute toxicity - Category 2, Oral

Acute toxicity - Category 3, Dermal
Acute toxicity - Category 2, Inhalation
Specific target organ toxicity - repeated exposure, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapour
H300 Fatal if swallowed
H311 Toxic in contact with skin
H330 Fatal if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P273 Avoid release to the environment.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P316 Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P320 Specific treatment is urgent (see ... on this label).
P319 Get medical help if you feel unwell.
P391 Collect spillage.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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:	Parathion-methyl
Common names and synonyms:	Parathion-methyl
CAS number:	298-00-0
EC number:	206-050-1
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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

Induce vomiting (ONLY IN CONSCIOUS PERSONS!). See Notes. Give a slurry of activated charcoal in water to drink. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

This material is extremely toxic; the probable oral lethal dose is 5-50 mg/kg, or between 7 drops and 1 teaspoonful for a 150-lb. person. Chronic toxicity does not appear to be a major consideration. (EPA, 1998)

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. Organophosphates and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Advice for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

Specific hazards arising from the chemical

Poisonous gases are produced in fire and when heated. Decomposition may lead to sufficient internal pressure to cause the container to rupture violently. Avoid oxidizing materials. Unstable. High temperatures (120F) cause decomposition. (EPA, 1998)

Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Personal precautions, protective equipment and emergency procedures: Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. 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

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

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.02 mg/m³, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued

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 face shield or eye protection in combination with breathing protection if powder.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Methyl parathion is a white crystalline solid which is often dissolved in a liquid solvent carrier. The commercial product is a tan liquid (xylene solution) with a pungent odor. It is slightly soluble to insoluble in water. Usually with the liquid solvent it is a combustible liquid. It is toxic by inhalation, ingestion and skin absorption. It is used as an insecticide.
Colour:	Crystals
Odour:	Pungent, garlic-like odor
Melting point/freezing point:	36 °C
Boiling point or initial boiling point and boiling range:	143 °C (1.0 mmHg)
Flammability:	Combustible Solid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	46.1 °C
Auto-ignition temperature:	120 deg C (248 deg F) /Methyl parathion 80% in xylene/
Decomposition temperature:	120 °C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 73° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 2.86
Vapour pressure:	9.7e-06 mm Hg at 68° F (EPA, 1998)
Density and/or relative density:	1.36

Relative vapour density:	9.1 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes including nitrogen oxides, phosphorus oxides and sulfur oxides. This generates fire and explosion hazard.

Chemical stability

Hydrolyzes slowly in weak acid, rapidly in alkali

Possibility of hazardous reactions

METHYL PARATHION is half decomposed in 8 days at 40°C. When a sample was heated in a small test tube it decomposed in a few minutes and the residue exploded (Food Chem. 4(1):42. 1956).

Conditions to avoid

no data available

Incompatible materials

Strong oxidizers, water [Note: Explosive risk when heated above 122 degrees F].

Hazardous decomposition products

When heated to decomp it emits very toxic fumes of /nitrogen oxides, phosphorous oxides, and sulfur oxides/.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Mouse oral 18 mg/kg

Inhalation: LC50 Mouse inhalation 120 mg/cu m/4 hr

Dermal: LD50 Rat percutaneous 67 mg/kg

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

Cancer Classification: Not Likely to be Carcinogenic to Humans

Reproductive toxicity

no data available

STOT-single exposure

The substance may cause effects on the nervous system. This may result in convulsions and respiratory depression. Cholinesterase inhibition. Exposure far above the OEL could cause death. Medical observation is indicated.

STOT-repeated exposure

Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly on spraying or when dispersed, especially if powdered.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: /*Oncorhynchus mykiss*/ (rainbow trout) weight 1.1 g; Conditions: static bioassay, 12 deg C; Concentration: 3,700 ug/L for 96 hr (95% confidence limit 3,130-4,380 ug/L) /Technical material, 80-99%

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (daphnid) 1st instar; Conditions: static bioassay, 21 deg C; Concentration: 0.14 ug/L for 48 hr (95% confidence limit 0.09-0.20 ug/L); Effect: immobilization. /Technical material, 80-99%

Toxicity to algae: EC50; Species: *Anabaena inaequalis* (Blue-Green Algae) age 3 days, exponential growth phase (Log) 1×10^5 Hormogonia/mL; Conditions: freshwater, static, 25 deg C, pH 7.5; Concentration: 19200 ug/L for 96 hr; Effect: population abundance /100% purity

Toxicity to microorganisms: no data available

Persistence and degradability

Methyl parathion is degraded in soil, water and sediment(1,2). Products include aminomethylparathion, p-nitrophenol and O-methyl-O'-p-nitrophenylthiophosphoric acid(1). Biodegradation may be fairly rapid especially when microorganisms are acclimated to methyl parathion(2). Comparison of degradation rates in sterile versus nonsterile estuarine systems indicated that biodegradation was the primary route of methyl parathion degradation(3). In a die-away test using water and sediment cores from three sites (Escambia River, FL), methyl parathion had half-lives of 77 to 154 hrs, while in a sterile control the half-life was 367 hrs(4). In strongly reducing anaerobic sediments, the degradation rate was found to be about two orders of magnitude faster than in the same sediments which had been heat-sterilized(5). Biodegradation is significantly faster in sediment containing water than in water alone(4,5). ¹⁴C-Methyl parathion was degraded rapidly to carbon dioxide in Cecil sandy loam and Webster silty clay loam maintained at 10 and 33 kPa soil-water tension; >40% mineralization was observed in 14 days, leveling off to approximately 50% by day 28(6). After 32 days incubation in static sediment/water microcosms, 24% of the (¹⁴C)-methyl parathion had been mineralized to (¹⁴)CO₂; degradation products included aminomethyl parathion, 4-aminophenol, and 4-nitrophenol(7).

Bioaccumulative potential

A BCF of 8.3 was determined for (¹⁴C)-methyl parathion in *Oreochromis niloticus* (Nile tilapia) fingerlings(1). A BCF (calculated on an extractable lipid weight basis) of 959 was determined for methyl parathion in guppies (*Poecilia reticulata*)(2). According to a classification scheme(3), these BCF values suggest bioconcentration in aquatic organisms is low to high. However, methyl parathion does not bioconcentrate but rather is rapidly metabolized(4). An elimination rate constant of 2.38/day was measured(2), corresponding to a half-life of 7.0 hours(SRC). Methyl parathion was hydrolyzed by several shrimp and crayfish species(5).

Mobility in soil

Koc values of 366 to 423 were reported for methyl parathion(1). Average Koc values of 1,374 and 1,516 were measured for methyl parathion on 19 soil and sediment materials after 2 and 24 hours equilibration, respectively, using a batch equilibration technique; organic matter was the most important factor affecting adsorption of methyl parathion(2). According to a classification scheme(3), these Koc values suggest that methyl parathion is expected to have moderate to 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: UN3017 (For reference only, please check.)

IMDG: UN3017 (For reference only, please check.)

IATA: UN3017 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IMDG: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IATA: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (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

Not Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not 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

If the pesticide is present in a formulation containing hydrocarbon solvents, vomiting should not be induced. Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home.

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