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SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 17, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Parathion-methyl Solution Reference Material in Methanol

1.2 Other means of identification

Product number CPRM5038
Other names METHYL PARATHION; O,O-dimethyl O-(4-nitrophenyl) phosphorothioate; Metacid 50

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

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

2.2 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.

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
Parathion-methyl Solution Reference Material in Methanol	Parathion-methyl	298-00-0	206-050-1	100%

SECTION 4: First-aid measures

4.1 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.

4.2 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)

4.3 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: Fire-fighting measures

5.1 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.

5.2 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)

5.3 Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

6.1 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.

6.2 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.

6.3 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

7.1 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.

7.2 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

8.1 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

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 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

10.1 Reactivity

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

10.2 Chemical stability

Hydrolyzes slowly in weak acid, rapidly in alkali

10.3 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).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

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

10.6 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

12.1 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 X 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

12.2 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 (14)C-methyl parathion had been mineralized to (14)CO2; degradation products included aminomethyl parathion, 4-aminophenol, and 4-nitrophenol(7).

12.3 Bioaccumulative potential

A BCF of 8.3 was determined for (14)C-methyl parathion in Oreochromis niloticus (Nile talapia) 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).

12.4 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.

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

14.2 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.)

14.3 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.)

14.4 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.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

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
Parathion-methyl	Parathion-methyl	298-00-0	206-050-1
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 17, 2024

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.

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

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