

MSDS Revision Date (dd/mm/yyyy): 02/07/2009

MATERIAL SAFETY DATA SHEET**SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION**

Product identifier : **METHYL PARATHION 4 EC**

Product Code(s) : None reported.

Product Use : Insecticide

Chemical Family : Mixture

Supplier's name and address:
Cheminova Inc.
 PO Box 110566
 One Park Drive
 Research Triangle Park, NC, USA
 27709

Manufacturer's name and address:
 Refer to Supplier

Information Telephone No. : 919-474-6600 (8:00 AM - 5:00 PM, EST, Monday-Friday)

24 Hr. Emergency Tel # : Chemtrec 1-800-424-9300 (Within Continental U.S.); Chemtrec 703-527-3887 (Outside U.S.).
 For Medical Emergencies: (800) 303-6950

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS #</u>	<u>% (weight)</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
			<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Parathion methyl	298-00-0	30.00 - 60.00	0.2 mg/m ³	N/Av	N/Av	N/Av
Heavy aromatic solvent naphtha	64742-94-5	30.00 - 60.00	N/Av	N/Av	N/Av	N/Av
Xylene	1330-20-7	7.00 - 13.00	100 ppm	150 ppm	100 ppm ; 435 mg/m ³	N/Av
Valeric acid	109-52-4	0.50 - 1.50	N/Av	N/Av	N/Av	N/Av

SECTION 3 - HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

Amber liquid. Rancid odor.

DANGER! Flammable liquid and vapor. Dangerous exothermic decomposition may occur at temperatures greater than 212°F / 100° C. May be fatal if inhaled or swallowed. Can enter the lungs and cause damage. Harmful if absorbed through the skin. Contains material which can cause nervous system damage. Contains material which may be a teratogen. May cause long-term adverse effects in the environment. This material is toxic to birds, insects and aquatic invertebrates.

*****POTENTIAL HEALTH EFFECTS*****

Target organs : Eyes, skin, respiratory system, digestive system, central nervous system.

Routes of exposure : *Inhalation:* YES *Skin Absorption:* YES *Skin & Eyes:* YES *Ingestion:* YES

Signs and symptoms of short-term (acute) exposure

Inhalation : May be fatal if inhaled. This material can cause organophosphorous poisoning. Symptoms of poisoning may include headache, nausea, vomiting, blurred vision, tightness in chest, drooling and frothing of mouth and nose, convulsions, coma and death.

Skin : May cause mild skin irritation. Readily absorbed through the skin. Causes symptoms similar to those listed for inhalation.

Eyes : May cause mild eye irritation. Readily absorbed through eye surfaces. Causes symptoms similar to those listed for inhalation.

Ingestion : May be fatal if ingested. Causes symptoms similar to those listed for inhalation. Material is an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

Effects of long-term (chronic) exposure

: Prolonged or repeated overexposure may cause behavioral changes. Prolonged or repeated skin exposure may cause redness, a burning sensation, drying and cracking of the skin (dermatitis). Prolonged or repeated overexposure could cause adverse liver effects.

Conditions aggravated by overexposure

: Pre-existing skin, eye, respiratory and central nervous system disorders.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : Potential teratogen. See TOXICOLOGICAL INFORMATION, Section 11.

MSDS Revision Date (dd/mm/yyyy): 02/07/2009

Potential environmental effects

: This material is highly toxic to fish and wildlife. See ECOLOGICAL INFORMATION, Section 12.

Cholinesterase inhibitor. May cause central nervous system depression. May cause damage to the peripheral nervous system. See TOXICOLOGICAL INFORMATION, Section 11.

SECTION 4 - FIRST AID MEASURES

- Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. Obtain medical attention immediately.
- Skin contact** : Immediately flush skin with running water for at least 15 minutes, while removing contaminated clothing. Obtain medical attention immediately. Wash contaminated clothing before reuse.
- Eye contact** : Immediately flush eyes thoroughly with running water for at least 20 to 30 minutes. Obtain medical attention immediately.
- Ingestion** : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration. Obtain medical attention immediately.
- Notes For Physician** : This product contains a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing respiratory depression. Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required. If symptoms are present, administer atropine sulphate in large doses. Two to four mg intravenously or intramuscularly as soon as possible. Repeat at 5 to 10 minute intervals until signs of atropinization appear. Maintain full atropinization until all organophosphate is metabolised. Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), may be administered as an adjunct to, but not a substitute for atropine, which is a symptomatic and often life-saving antidote. Treatment with oxime should be maintained as long as atropine sulphate is administered. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption may occur and relapse may occur after initial improvement. **VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS, DEPENDING ON THE SEVERITY OF POISONING.**

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

: Flammable liquid and vapor. This material may burn when exposed to extreme heat, flame and other ignition sources. Material may decompose rapidly when exposed to heat and flame. Heat of decomposition may cause closed containers to build up pressure and explode.

Flammability classification (OSHA 29 CFR 1910.1200)

: OSHA Combustible Liquid II.

Flash point

: 122°F / 50°C

Flash point Method

: Pensky Martens Closed Cup

Auto-ignition temperature

: 830°F / 443°C (based on ingredients)

Lower flammable limit (% by vol.)

: 0.7 (based on ingredients)

Upper flammable limit (% by vol.)

: 7.0 (based on ingredients)

Oxidizing properties

: None known.

Flame Projection Length

: N/Ap

Flashback observed

: N/Ap

Explosion data: Sensitivity to mechanical impact / static discharge

: Not expected to be sensitive to mechanical impact or static discharge.

Suitable extinguishing media

: Carbon dioxide or dry chemical for small fires. For large fires, use water spray or foam.

Special fire-fighting procedures/equipment

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Avoid spreading burning liquid with water spray used for cooling purposes.

Hazardous combustion products

: Carbon oxides; nitrogen oxides (NOx); Oxides of phosphorus; sulfur oxides; irritating fumes and smoke.

NFPA Rating

0 - Minimal	1 - Slight	2 - Moderate	3 - Serious	4 - Severe
<i>Health:</i> 3	<i>Flammability:</i> 2	<i>Instability:</i> 1	<i>Special Hazards:</i>	None

MSDS Revision Date (dd/mm/yyyy): 02/07/2009

SECTION 6 - ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.
- Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.
- Spill response/cleanup** : Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Contain and absorb spilled material with inert, non-combustible absorbent material, such as sand. Sweep up and shovel into suitable containers for disposal. For a water spill, confine the spill immediately with booms. Notify the appropriate authorities as required.
- Prohibited materials** : None known.
- Special spill response procedures** : In case of a transportation accident, in the United States contact CHEMTREC at 1-800-424-9300 or International at 1-703-527-3887. If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002).
US CERCLA Reportable quantity (RQ): Methyl parathion (100 lbs / 45.4 kg); Xylene (100 lbs / 45.4 kg); This product may also contain trace amounts of: Naphthalene (100 lbs / 45.4 kg)

SECTION 7 - HANDLING AND STORAGE

- Safe Handling procedures** : This material is a toxic liquid. Wear chemically resistant protective equipment during handling. Use only in well-ventilated areas. Avoid contact with eyes, skin and clothing. Do not breathe fumes or mists. Keep away from children and all unprotected persons. Do not use near sources of heat, flame or direct sunlight. Do not heat above 131°F / 55°C, and avoid local heating above this temperature. Keep away from incompatibles. Use caution when opening cap. Keep containers tightly closed when not in use. Wash thoroughly after handling.
- Storage requirements** : Store in a cool, dry, well ventilated area. Keep away from excessive heat, open flames, sparks and other possible sources of ignition. Avoid storage above 77°F / 25°C for prolonged period of time. Keep away from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.
- Incompatible materials** : Strong alkalis; Strong oxidizing agents.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Ventilation and engineering measures** : Provide sufficient ventilation to keep vapour concentration below the given TLV and/or PEL.
- Respiratory protection** : Respiratory protection is required. Wear a pesticide respirator jointly approved by the MSHA and NIOSH. Advice should be sought from respiratory protection specialists.
- Skin protection** : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers.
- Eye / face protection** : Chemical splash goggles must be worn when handling this material.
- Other protective equipment** : Wear impervious chemical apron and protective clothing (water-proof pants, coat, hat and boots) to prevent skin contact. An eyewash station and safety shower should be made available in the immediate working area.
- General hygiene considerations** : Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Always wash hands, face and arms with soap and water before smoking, eating or drinking. After work, take off all protective equipment, work clothes and shoes, and wash with soap and water. Respirator should be cleaned and filter replaced according to manufacturer's instructions. Wear only clean, uncontaminated clothes when leaving place of work. Persons working with this product for a longer period should have frequent blood tests for cholinesterase levels. If the cholinesterase levels fall below a critical point, no further exposure should be allowed until it has been determined, by means of blood tests, that cholinesterase levels have returned to normal.
- Permissible exposure levels** : For individual ingredient exposure levels, see Section 2.

MSDS Revision Date (dd/mm/yyyy): 02/07/2009

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid	Appearance	: Amber liquid.
Odour	: Rancid odor.	Odour threshold	: N/Av
pH	: N/Av		
Boiling point	: >228°F / >109°C	Specific gravity	: 1.06 g/mL
Melting/Freezing point	: <63°F / <17°C	Coefficient of water/oil distribution	: 3300 (Methyl parathion)
Vapour pressure (mmHg @ 20° C / 68° F)	: N/Av	Solubility in water	: 55-60 mg/L @ 20°C (Methyl parathion); <0.1% @ 20°C (Aromatic solvent naphtha)
Vapour density (Air = 1)	: N/Av	Evaporation rate (n-Butyl acetate = 1)	: N/Av
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: N/Av

SECTION 10 - REACTIVITY AND STABILITY DATA

Stability and reactivity	: Stable if handled below 131°F / 55°C and stored below 77°F / 25°C. At higher temperatures decomposition will take place and lower the quality of the product. The released heat from decomposition can raise the temperature further and accelerate decomposition. May corrode iron, steel, tin plate and copper. May be hydrolyzed in water by heating and adjusting the pH (alkaline).
Hazardous polymerization	: May decompose rapidly when heated to temperatures above 212°F / 100°C, significantly increasing the risk of inducing explosions. The decomposition is to a considerable extent dependant on time as well as temperature due to exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerisation.
Conditions to avoid	: Keep this product away from heat, sparks, flame, and other sources of ignition (e.g. pilot lights, electric motors, static electricity).
Materials To Avoid And Incompatibility	: Avoid contact with incompatible materials. See Section 7 (Handling and Storage) for further details.
Hazardous decomposition products	: None known, refer to hazardous combustion products in Section 5.

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicological data	: LD50 Oral (rat): 13 mg/kg LD50 Dermal (rat): 662 mg/kg LC50 Inhalation (rat): 0.119 mg/L/4 hrs
Carcinogenic status	: No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
Reproductive effects	: Not expected to have other reproductive effects.
Teratogenicity	: This product contains Xylene. Xylene may cause fetotoxic effects at doses which are not maternally toxic, based on animal data.
Mutagenicity	: Not classifiable as a mutagen.
Epidemiology	: Not available.
Sensitization to material	: Not expected to be a skin or respiratory sensitizer.
Synergistic materials	: Not available.
Irritancy	: Irritating to eyes and skin.
other important hazards	: See Section 3 for additional information.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental effects	: The ecological characteristics of this product have not been fully investigated. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. Do not discharge product unmonitored into the environment. This material is highly toxic to fish and wildlife.
Important environmental characteristics	: This product is a pesticide. The active ingredient is: Methyl parathion The active ingredient is readily biodegradable. The active ingredient undergoes rapid degradation in the environment and, without problems, in sewage treatment plants. No adverse effects are found at concentrations up to 100 g/L in waste water treatment plants. Degradation occurs both aerobically and anaerobically, and biologically as well as abiologically.



MSDS Revision Date (dd/mm/yyyy): 02/07/2009

- Ecotoxicological** : The active ingredient is: Methyl parathion
 The toxicity of the active ingredient to wildlife species is measured to be:
 Fish - 96-Hr LC50 (95% CI), Rainbow trout (*Salmo gairdneri*) = 3.70 mg/L.
 Invertebrates - 48-Hr EC50, Daphnids (*Daphnia magna*) = 7.3 µg/L.
 Birds - LD50, Mallard = 10.0 mg/kg.
 Bees - 24-Hr LD50, worker honey-bees (*Apis mellifera*), acute oral = 0.013 µg/bee.
 24-Hr LD50, worker honey-bees (*Apis mellifera*), topical = 0.04 µg/bee

SECTION 13 - DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle waste according to recommendations in Section 7.
Methods of Disposal : Do not contaminate water, foodstuffs, feed or seed by storage or disposal. For disposable containers, triple rinse (or equivalent) containers and add rinse material to disposal tank. Follow any additional local, state or federal requirements for cleaning containers prior to disposal. Make the empty, rinsed container unusable for further use by puncturing. Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.
RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 - TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
49CFR/DOT	UN3017	Organophosphorus pesticides, liquid, toxic, flammable (Methyl parathion; Aromatic solvent naphtha)	6.1	II	
49CFR/DOT Additional information	None.				
TDG	UN3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Methyl parathion; Aromatic solvent naphtha)	6.1	II	
TDG Additional information	None.				

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

OSHA: This material is classified as hazardous under OSHA regulations (29CFR 1910.1200).

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): See Section 6

SARA TITLE III: Sec. 302, Extremely Hazardous Substances, 40 CFR 355: No Extremely Hazardous Substances are present in this material.

SARA TITLE III: Sec. 311 and 312, MSDS Requirements, 40 CFR 370 Hazard Classes: Fire Hazard; Immediate (Acute) health hazard; Chronic Health Hazard. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This product may be subject to SARA notification requirements, since it contains Toxic Chemical constituents above their de minimus concentrations. This product contains: Methyl parathion; Xylene. This product may also contain trace amounts of: Naphthalene.

US State Right to Know Laws:

California Proposition 65: To the best of our knowledge, this product does not contain any chemicals known to the State of California to cause cancer or reproductive harm.

International Information:

MSDS Revision Date (dd/mm/yyyy): 02/07/2009

This product is a Pest Control Product and is not regulated as a Controlled Product under the Hazardous Products Act (HPA). For informational purposes, this product would have the following WHMIS classification:
 Class B3 (Combustible Liquids)
 Class D1A (Materials Causing Immediate and Serious Toxic Effects, Very Toxic Material)
 Class F (Dangerously Reactive Material)


This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

SECTION 16 - OTHER INFORMATION

HMIS Rating : * - Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe
*Health: *3 Flammability: 2 Reactivity: 1*

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
 CA: California
 CAS: Chemical Abstract Services
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 CFR: Code of Federal Regulations
 DOT: Department of Transportation
 EPA: Environmental Protection Agency
 HMIS: Hazardous Materials Identification System
 HSDB: Hazardous Substances Data Bank
 IARC: International Agency for Research on Cancer
 Inh: Inhalation
 N/Ap: Not Applicable
 N/Av: Not Available
 NFPA: National Fire Protection Association
 NIOSH: National Institute of Occupational Safety and Health
 NTP: National Toxicology Program
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible exposure limit
 RCRA: Resource Conservation and Recovery Act
 RTECS: Registry of Toxic Effects of Chemical Substances
 SARA: Superfund Amendments and Reauthorization Act
 STEL: Short Term Exposure Limit
 TDG: Canadian Transportation of Dangerous Goods Act & Regulations
 TLV: Threshold Limit Values
 TPQ: Threshold Planning Quantity
 TSCA: Toxic Substance Control Act
 TWA: Time Weighted Average
 WHMIS: Workplace Hazardous Materials Identification System

References : 1. ACGIH, Threshold Limit Values and Biological Exposure Indices
 2. International Agency for Research on Cancer Monographs
 3. Canadian Centre for Occupational Health and Safety, CInfoWeb databases (Chempendium, HSDB, RTECs).
 4. Material Safety Data Sheet from manufacturer.
 5. US EPA Title III List of Lists
 6. California Proposition 65 List

<p>Prepared for: Cheminova Inc PO Box 110566 One Park Drive, Suite 150 Research Triangle Park, NC 27709 Please direct all enquiries to Cheminova.</p>	
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MSDS Revision Date (dd/mm/yyyy): 02/07/2009

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Revision Information

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