Material Safety Data Sheet

Version 3.2
Revision Date 12/03/2008
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Parathion-methyl

Product Number : 36187
Brand : Fluka

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C8H10NO5PS
Molecular Weight : 263.21 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Parathion - methyl			
298-00-0	206-050-1	015-035-00-7	-

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Highly toxic by inhalation, Highly toxic by ingestion, Toxic by skin absorption

HMIS Classification
Health Hazard: 4
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 3

NFPA Rating
Health Hazard: 4
Fire: 0
Reactivity Hazard: 3

Potential Health Effects

Inhalation May be fatal if inhaled. May cause respiratory tract irritation.
Skin Toxic if absorbed through skin. May cause skin irritation. May be fatal if absorbed through skin.
Eyes May cause eye irritation.
Ingestion May be fatal if swallowed.

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point	no data available
Ignition temperature	no data available

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

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 for cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Parathion - methyl	298-00-0	TWA	0.2 mg/m3	1996-05-18	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)
Remarks	Skin contact does contribute to exposure. The agent (mixture , or exposure circumstance) is not classifiable as to its carcinogenicity to humans . Substances for which there is a Biological Exposure Index or Indices. 1996 Adoption Refers to Appendix A -- Carcinogens.				
		TWA	0.2 mg/m3	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
	Skin contact does contribute to exposure.				

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form solid

Safety data

pH	no data available
Melting point	no data available
Boiling point	119 °C (246 °F) at 0.1 hPa (0.1 mmHg)
Flash point	no data available
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	< 0.001 hPa (< 0.001 mmHg) at 20 °C (68 °F)
Density	1.360 g/cm3 at 20 °C (68 °F)
Water solubility	insoluble
Partition coefficient: n-octanol/water	log Pow: 2.8

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 6.01 mg/kg

LC50 Inhalation - rat - 4 h - 34 mg/m3
Remarks: Behavioral:Tremor. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea.

LC50 Inhalation - mouse - 4 h - 120 mg/m3
Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levelsTrue cholinesterase.

LD50 Dermal - rabbit - 300 mg/kg

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

IARC:	Group 3 - Not classifiable as to carcinogenicity to humans (Parathion - methyl)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as

a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Genotoxicity in vitro - mouse - lymphocyte
Mutation in mammalian somatic cells.

Genotoxicity in vitro - Hamster - Lungs
Sister chromatid exchange

Genotoxicity in vitro - Human - lymphocyte
Sister chromatid exchange

Genotoxicity in vivo - mouse - Oral
Cytogenetic analysis

Genotoxicity in vivo - mouse - Oral
sperm

Genotoxicity in vivo - rat - Intraperitoneal
Micronucleus test

Genotoxicity in vivo - rat - Intraperitoneal
Cytogenetic analysis

Genotoxicity in vivo - mouse - Intraperitoneal
Micronucleus test

Genotoxicity in vivo - mouse - Oral
Micronucleus test

Developmental Toxicity - rat - Intraperitoneal
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Developmental Toxicity - rat - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Developmental Toxicity - mouse - Intraperitoneal
Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Musculoskeletal system.

Reproductive toxicity - rat - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Reproductive toxicity - rat - Oral
Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4). Effects on Newborn: Behavioral.

Potential Health Effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Skin	Toxic if absorbed through skin. May cause skin irritation. May be fatal if absorbed through skin.
Eyes	May cause eye irritation.
Ingestion	May be fatal if swallowed.

Additional Information
RTECS: TG0175000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 14 d Bioconcentration factor (BCF): 26,268.00

Ecotoxicity effects

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 2.2 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	mortality LOEC - Daphnia - 0.001 mg/l - 7 d
	mortality NOEC - Daphnia - 0.99 µg/l - 7 d
	EC50 - Daphnia magna (Water flea) - 0.14 mg/l - 48 h

Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Parathion - methyl)
Marine pollutant: Severe marine pollutant
Poison Inhalation Hazard: No

IMDG
UN-Number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Parathion - methyl)
Marine pollutant: Severe marine pollutant

IATA
UN-Number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic n.o.s. (Parathion - methyl)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Highly toxic by inhalation, Highly toxic by ingestion, Toxic by skin absorption

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
Parathion - methyl	298-00-0

SARA 302 Components

	CAS-No.	Revision Date
Parathion - methyl	298-00-0	1991-07-01

SARA 313 Components

	CAS-No.	Revision Date
Parathion - methyl	298-00-0	1991-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Parathion - methyl	298-00-0	1991-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Parathion - methyl	298-00-0	1991-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Parathion - methyl	298-00-0	1991-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Further information

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. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.