Chemical Safety Data Sheet MSDS / SDS

Azinphos-methyl SDS

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

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

Product identifier

Product name: Azinphos-methyl

CAS: 86-50-0

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

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 2, Oral
Acute toxicity - Category 3, Dermal

Skin sensitization, Category 1
Acute toxicity - Category 2, Inhalation
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)

H300 Fatal if swallowed
H311 Toxic in contact with skin
H317 May cause an allergic skin reaction
H330 Fatal if inhaled
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
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

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.

P333+P317 If skin irritation or rash occurs: Get medical help.
P362+P364 Take off 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).
P391 Collect spillage.

Storage

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:	Azinphos-methyl
Common names and synonyms:	Azinphos-methyl
CAS number:	86-50-0
EC number:	201-676-1
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!). Refer for medical attention .

Most important symptoms/effects, acute and delayed

Acute: extremely toxic. Probable oral lethal dose in humans is 5-50 mg/kg, or between 7 drops and 1 teaspoon for a 70 kg (150 lb.) person. A potent cholinesterase inhibitor which can cause death. (EPA, 1998)

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

A comatose patient who is diaphoretic, has pinpoint pupils and the odor of an insecticide on clothing or breath, and is noted to have muscle fasciculations represents the classic presentation of organophosphate poisoning. ... Specific steps in management include the following. 1. Decontamination. ... 2 Airway. Establish an airway if necessary. ... 3. Respiratory Status. Respiratory distress, in fact, is commonly found in these patients from multiple causes. ... 4. Cardiac Monitoring. ... 5. Cholinesterase Level. ... 6. Pralidoxime. Pralidoxime is the treatment of choice for organophosphate poisoning and should be used for nearly all patients with clinically significant orgnophosphate poisoning, particularly whose patients with muscular fasciculations and weakness. ... 7. Atropine. Atropine is the physiologic antidote for organophosphate poisoning. A trial dose of atropine should be instituted on clinical ground when one suspects organophosphate intoxication. Organophosphate poisoning

SECTION 5: Firefighting measures

Suitable extinguishing media

Self contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode /when fighting fire/.

Specific hazards arising from the chemical

Some of the formulations may burn, but none of them ignite easily. Container may explode in the heat of the fire. Rapidly hydrolyzed by cold alkali or cold acid. Unstable at temperatures above 390F. (EPA, 1998)

Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Personal protection: complete protective clothing including self-contained breathing apparatus.

Methods and materials for containment and cleaning up

Environmental considerations: Air spill: Apply water spray or mist to knock down vapors. Organophosphorus pesticides, liquid, flammable, toxic; Organophosphorus pesticides, liquid, toxic; Organophosphorus pesticides, solid, toxic

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

Separated from food and feedstuffs. Well closed.Store in a cool dry area, away from excessive heat or open flame. Store 2L formulation above 45 deg F; others above 32 deg F. Store in an area designated specifically for pesticides.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 2 mg/m3, as TWA; (skin); (SEN); BEI issued.MAK: (inhalable fraction): 1 mg/m3; peak limitation category: II(8); skin absorption (H); sensitization of skin (SH); pregnancy risk group: B

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 ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Azinphos methyl is a colorless brown, waxy or white crystalline solid dissolved in a liquid carrier. It is used as a pesticide. It is added to water to create a water emulsifiable liquid. It is toxic by inhalation, skin absorption, and/or ingestion. It is heavier than and insoluble in water. In case of damage to, leaking from containers of this material contact CHEMTREC, 800-424-9300.
Colour:	Yellowish crystals
Odour:	Odorless

Melting point/freezing point:	72-74°C
Boiling point or initial boiling point and boiling range:	421.3°C at 760 mmHg
Flammability:	Noncombustible solid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	208.6°C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 2.75
Vapour pressure:	Negligible at 20C (EPA, 1998)
Density and/or relative density:	1.51g/cm3
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes above 200°C . Decomposes on burning. This produces toxic and corrosive fumes including nitrogen oxides, phosphorus oxides and sulfur oxides.

Chemical stability

Solutions in ethanol and propylene glycol are stable for at least 3 weeks.

Possibility of hazardous reactions

The BPS Pesticide incident in Helena resulted in an explosion and death of three firemen. The burning of a 1,000 pound sack of Azinphos Methyl or the flashing of Maneb which was present on the facility may have caused the explosion. Azinphos Ethyl may behave similarly. At elevated temperatures, it will decompose generating toxic gases.

Conditions to avoid

no data available

Incompatible materials

Incompatibilities: Contact with strong oxidizers may cause fires and explosions.

Hazardous decomposition products

Decomposes at elevated temperatures.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Guinea pig male oral 80 mg/kg

Inhalation: LC50 Rat inhalation 0.15 mg/L air/4 hr

Dermal: LD50 Rat percutaneous 150-200 mg/kg/24 hr

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 failure. Cholinesterase inhibition. Exposure could cause unconsciousness and death. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

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

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Ictalurus melas (Black bullhead) weight 1.2 g; Conditions: static without aeration, 18 deg C, pH 7.2-7.5, alkalinity 30-35 mg/L, hardness 40-50 mgL as CaCO3; Concentration: 3,500 ug/L for 96 hr (95% confidence interval: 2,920-4,950 ug/L) /Technical material, 88-100%

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) 1st instar larvae; Conditions: freshwater, flow through; Concentration: 4.4 ug/L for 48 hr (95% confidence interval: 3.9-5.8 ug/L); Effect: intoxication, immobilization /50% purity wettable powder formulation

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Azinphosmethyl was degraded in batch and continuous culture by mixed enrichment cultures of microorganisms that were collected from soil, raw sewage, a trickling filter, activated sludge, and settled sludge(1). Azinphosmethyl concentration decreased from 99 mg/L to 49 mg/L after 4 days incubation in a stirred flask containing azinphosmethyl as the sole carbon source and a mixed culture(1). The main degradation products of azinphosmethyl in soil and by selected soil microorganisms are benzazimide, thiomethylbenzazimide, bis-(benzazimidyl-methyl) disulfide, and anthranilic acid(2). Using analytical grade and diluted emulsifiable concentrated azinphosmethyl, at a concentration of 15 ppm, incubated at 30 deg C in Carrington silt loam degradation was 95% in 6 and 22 days, respectively(3). After 10 weeks, no residual azinphosmethyl was detected(3). The half-life of azinphosmethyl in seawater (pH 8.1) was 26 days when incubated in the absence of light, while the half-life in river water (pH 7.3) was 42 days, 35 days (pH 7.3) in filtered river water when incubated in closed 2.5 Liter amber bottles at 22 deg C(4).

Bioaccumulative potential

An estimated BCF of 30 was calculated in fish for azinphosmethyl(SRC), using a log Kow of 2.75(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is moderate(SRC).

Mobility in soil

The Koc of azinphosmethyl in five European soils was measured in the range of 487 to 4,644(1). Azinphosmethyl also had Koc values of 1990 (75.0% clay, 3.29% organic carbon), 783 (22.6% clay, 2.39% organic carbon), 570 (17.0% clay, 3.32% organic carbon), 630 (20.3% clay, 1.36% organic carbon) and 1700 (6.0% clay, 4.43% organic carbon) in five European soils(2). Using data from the 1993 UK database, Koc values for azinphosmethyl were 298 to 3406(3). According to a classification scheme(4), this Koc data suggests that azinphosmethyl is expected to have moderate to slight mobility in soil. Measurable residues were found in sediment samples after application to the surface of littoral enclosure mesocosms; the sediment and water were identified as the most important sorptive compartments(5). The compound is not likely to leach to groundwater except in areas of high recharge such as karst(6).

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: UN2784 (For reference only, please check.)
IMDG: UN2784 (For reference only, please check.)
IATA: UN2784 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)
IMDG: ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)
IATA: ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (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)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Not 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

The technical material is a brown waxy solid. Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of acute poisoning do not become manifest until 0.5 to several hours. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Do NOT take working clothes home. Carrier solvents used in commercial formulations may change physical and toxicological properties. If the substance is formulated with solvents also consult the ICSCs of these materials.