

Chemical Safety Data Sheet MSDS / SDS

Acephate

Revision Date:2025-11-01 Revision Number:1

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

Product identifier

Product name : Acephate
CBnumber : CB5249028
CAS : 30560-19-1
EINECS Number : 250-241-2
Synonyms : ACEPHATE,N-(Methoxy(methylthio)phosphinoyl)acetamide

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
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Label elements

Pictogram(s)

□

Signal word Warning

Hazard statement(s)

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

Response

P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.

Storage

none

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

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Acephate
Synonyms	: ACEPHATE, N-(Methoxy(methylthio)phosphinoyl)acetamide
CAS	: 30560-19-1
EC number	: 250-241-2
MF	: C ₄ H ₁₀ NO ₃ PS
MW	: 183.17

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

Following skin contact

Rinse skin with plenty of water or shower.

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

Rinse mouth. Rest. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

Indication of any immediate medical attention and special treatment needed

FIRST AID MEASURES EYES: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. SKIN: If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice. INGESTION: If swallowed, call a poison control center or doctor immediately for treatment advice. Have person sip glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Never give anything by mouth to an

unconscious person. INHALATION: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration ... Call a poison control center or doctor for further treatment advice. NOTES TO PHYSICIAN: This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure. If signs and/or symptoms of cholinesterase inhibition appear, atropine sulfate is antidotal. ... PROTOPAM is also antidotal and may be used in conjunction with atropine but should not be used alone. Orthene Fire Ant Killer 1 (50% acephate)

SECTION 5: Firefighting measures

Extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped or safely confined. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, carbon dioxide or dry chemical. Organophosphorus pesticides, liquid, NOS

Specific Hazards Arising from the Chemical


Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Combustible material: may burn but does not ignite readily. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2016)


Advice for firefighters


In case of fire in the surroundings, use appropriate extinguishing media.

NFPA 704


0
2 0

 HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

 FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

 REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

 SPEC.

 HAZ.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. 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: particulate filter respirator adapted to the airborne concentration of the substance. 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

Environmental considerations- land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents.

Organophosphorus pesticides, liquid and solid, NOS

SECTION 7: Handling and storage

Precautions for safe handling

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. Rooms used for storage only should be soundly constructed & fitted with secure locks. Floors should be kept clear & pesticides clearly identified. If repacking is carried out in storage rooms, adequate light should be available; floors should be impervious & sound . Pesticides

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Acephate			
CAS No.	30560-19-1			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
People's Republic of China	?	0,3	?	?
	Remarks			

Biological limit values

no data available

Exposure 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

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	solid
Colour	Colorless crystals
Odour	no data available
Melting point/freezing point	93°C
Boiling point or initial boiling point and boiling range	2°C
Flammability	Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	2°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Solubilities in various solvents. Solvent g/L at 20 deg C Acetone 151 Ethanol >100 Ethyl acetate 35 Benzene 16 Hexane 0.1
Partition coefficient n-octanol/water	log Kow = -0.85
Vapour pressure	2.26×10^{-4} Pa (24 °C)
Density and/or relative density	1.35
Relative vapour density	no data available
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.

Chemical stability

Relatively stable

Possibility of hazardous reactions

A thiophosphate ester. Organothiophosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat male oral 945 mg/kg Technical grade
- Inhalation: no data available
- Dermal: no data available

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

CLASSIFICATION: C; possible human carcinogen. BASIS FOR CLASSIFICATION: The classification is based on increased incidence of hepatocellular carcinomas and adenomas in female mice. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Limited.

Reproductive toxicity

no data available

STOT-single exposure

The substance may cause effects on the nervous system and blood. This may result in cholinesterase inhibition. Medical observation is

indicated. The effects may be delayed.

STOT-repeated exposure

no data available

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 /Oncorhynchus mykiss/ (Rainbow trout, weight 1.5 g) 1,100 ug/L/96 hr at 10 deg C. Static bioassay without aeration, pH 7.2-7.5, water hardness 40-50 mg/L as calcium carbonate and alkalinity of 30-35 mg/L. Technical material, 94%.

Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna /(water flea)/ 309.82 uM/48 hrs; immobility.

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: River die-away studies determined that acephate degraded more rapidly in non-sterile creek water as compared to sterilized creek water(1); after 50 days of incubation, 54.8% of initial acephate was degraded in non-sterile water while only 23.6% had degraded in sterile water(1); in water plus sediment tests, 74.5% degraded in non-sterile media while only 45% degraded in sterile media(1). Acephate degraded in aerobic soils with half-lives of generally < 3 days(2). Acephate, applied at concentrations of 1 or 10 ppm was rapidly degraded from a wide variety of soils (eight soils - 3 clays, loam, loamy sand, sandy clay loam, silty clay loam, muck) when incubated at 24 deg C at field capacity open to the air (volatiles not trapped and degradates other than methamidophos were not identified). In all cases, half-lives in mineral soils were <3 days at 10 ppm and about 1.5 days at 1 ppm(2). Half-lives in an Ocoee muck soil (pH 5.3, 68% organic matter) were 6 days at 1 ppm and 13 days at 10 ppm(2). Average maximum concentrations of methamidophos were approximately 10% of the initially applied radioactivity. In sterile controls (Norwalk silty clay loam and Greenville clay), after 4 days, approximately 90-100% of the applied amount remained as acephate, compared to approximately 20 % in the non-sterile(2). The effect of varying moisture contents (5 and 15%) was tested with the Hanford loamy sand treated with 20 ppm acephate; volatiles were not trapped. Degradation was more rapid at 15% moisture content than at 5%(2). Acephate degraded with a first-order half-life of 6.6 days in anaerobic flooded clay sediment(2). The initial pH of the system was 7.0, increasing to pH 7.9 by the final sampling interval (day 20). Acephate, applied as a wettable powder at 0.75 lbs/A, dissipated with an observed half-life of 1-3 days in the upper 5 cm of a field plot of silt loam soil used for growing tobacco in Greenville, Mississippi, after six foliar applications (6- to 9-day intervals)(2).

Bioaccumulative potential

Acephate residues did not bioaccumulate in the edible tissues or viscera of bluegill sunfish continuously exposed to 0.007 or 0.7 ppm acephate for 35 days(1). The average bioconcentration factor in edible tissues during the study was 10. In a model ecosystem study, acephate did not bioaccumulate in any of the organisms in the ecosystem that included algae, clam, crab, daphnia, elodea, fish, mosquito and snail(2). According to a classification scheme(3), this BCF value suggests bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

In batch equilibrium studies using four soils, acephate was not sufficiently adsorbed in 3 of the soils to permit determination of the adsorption coefficient(1). The Koc of acephate in the fourth soil, a clay loam with pH 5.8 and 3.3% organic matter was reported as 4.7(1). Based on a classification scheme(2), this Koc value indicates that acephate is expected to have very high mobility in soil(SRC).

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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

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

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

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?pagelD=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

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. If the substance is formulated with solvents also consult the ICSCs of these materials. Carrier solvents used in commercial formulations may change physical and toxicological properties.

Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.