

Chemical Safety Data Sheet MSDS / SDS

Aldicarb SDS

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

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

Product name: Aldicarb
CAS: 116-06-3

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

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
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/...
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.
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: Aldicarb

Common names and synonyms: Aldicarb

CAS number: 116-06-3

EC number: 204-123-2

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. See Notes.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention . See Notes.

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

Give a slurry of activated charcoal in water to drink. Refer for medical attention . See Notes.

Most important symptoms/effects, acute and delayed

Aldicarb is a carbamate pesticide. It is super toxic; the probable oral lethal dose for humans is less than 5 mg/kg, or a taste (less than 7 drops) for a 150-lb. person. It is extremely toxic by both oral and dermal routes. (EPA, 1998)

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

Symptomatic treatment of the carbamate insecticide-poisoned patient, including aggressive respiratory support & the use of atropine to reverse severe muscarinic manifestations, is the same as with organophosphate insecticide poisoning. Because of the shorter duration of effect, atropine therapy is usually required for <24 hr. The principal difference in therapy for carbamate & organophosphate insecticide exposure involves pralidoxime. 2-PAM is relatively contraindicated in carbamate insecticide poisoning, because it may enhance acetylcholinesterase inactivation. After mixed or combined exposures involving both organophosphate & carbamate insecticides or in severe poisonings with an unidentified anticholinesterase agent, it is reasonable cautiously to administer 2-PAM. Carbamate insecticides

SECTION 5: Firefighting measures

Suitable extinguishing media

Move the container of aldicarb from the fire area, if possible, and fight the fire from the maximum distance, using agents suitable for the type of surrounding fire. In case of small fires, use dry chemical powder, carbon dioxide, water spray, or standard foam. For larger fires, use water spray, fog, or standard foam. Thermal decomposition products may include toxic oxides of nitrogen, sulfur, and carbon. Avoid breathing toxic dusts and fumes from burning material.

Specific hazards arising from the chemical

When heated to decomposition, it emits very toxic fumes of nitrogen oxides and sulfur oxides. Incompatible with highly alkaline substances. Unstable in alkali; poor stability at 122F. (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: 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.

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.

Methods and materials for containment and cleaning up

In case of spillage during storage or transport, isolate the affected area, cover the spills with a sweeping compound, and post danger signs. Cover the area with suitable sheets, transfer spoiled material in reclaim containers for disposal. Decontaminate the area with 5% sodium hydroxide solution. Use all personal protective devices for handling spills. All tools and equipment should be decontaminated, rinsed, and dried. All clothing should be laundered.

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

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Store aldicarb indoors in an isolated, well-ventilated, clean, dry, cool area (not above 46 deg C). Store away from incompatible substances, such as highly alkaline materials. Aldicarb should be stored in a manner that will preclude mixing with water, because the resultant solution may be seriously hazardous. Do not store near food, animal feed, or other items intended for human or animal consumption. Make certain that the storage area is inaccessible to children.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: (inhalable fraction and vapour): 0.005 mg/m³, as TWA; (skin); BEI issued; A4 (not classifiable as a human carcinogen)

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.

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:	Aldicarb is a white crystals with a slightly sulfurous odor. Commercial formulations are granular Used as an insecticide, acaricide, and nematocide. (EPA, 1998)
Colour:	Crystals from isopropyl ether
Odour:	Slightly sulfurous odor
Melting point/freezing point:	100° C

Boiling point or initial boiling point and boiling range:	Decomposes (NTP, 1992)
Flammability:	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	>100°C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	0.1 to 1.0 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 1.13
Vapour pressure:	Less than 0.5 at 68F (EPA, 1998)
Density and/or relative density:	1.08 g/cm ³
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

On combustion, forms toxic fumes including nitrogen oxides and sulfur oxides.

Chemical stability

Aldicarb is stable under normal storage conditions and in acidic media but decomposes rapidly in alkaline media and at temperatures above 100 deg C.

Possibility of hazardous reactions

Aldicarb is ... considered a negligible fire hazard. It is non-flammable and is difficult to ignite, but may burn if exposed to flames. Aldicarb should be kept away from open flames. ALDICARB is a carbamate ester. This chemical decomposes at temperatures greater than 212° F. This chemical is incompatible with highly alkaline substances. It is rapidly converted by oxidizing agents. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Incompatible with alkaline materials.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 0.650 mg/kg

Inhalation: LC50 Rat inhalation 200 mg/cu m/5 hr

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

Evaluation: No data were available from studies in humans. There is inadequate evidence for the carcinogenicity of aldicarb in experimental animals. Overall evaluation: Aldicarb is not classifiable as to its carcinogenicity to humans (Group 3).

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 could cause death. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air will not or will only very slowly be reached on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Pimephales promelas (Fathead minnow); Conditions: flow through bioassay; Concentration: 1370 ug/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea) 1st instar; Conditions: freshwater, static; Concentration: 410.7 ug/L for 48 hr (95% confidence interval: 338.3-498.6 ug/L); Effect: intoxication, immobilization /100% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

Aldicarb has been extensively studied both in the laboratory under controlled conditions and in the field(1). Under aerobic conditions, it has been shown to oxidize at the sulfur atom to form first the sulfoxide, followed by further oxidation to the sulfone. Under anaerobic conditions, reduction to the corresponding aldehyde and nitrile is the proposed degradation pathway. It has not been definitively shown that these reactions are abiotic or biotic(1). Mineralization half-lives for the aerobic incubation of aldicarb were 20-361 days in surface soils up to 30 cm depth, and 131-233 days (223-1130 days anaerobic) in subsurface soils between 20 and 183 cm in depth(2). Metabolites detected in aerobic soils included aldicarb sulfoxide and sulfone and their oximes and aldicarb sulfoxide nitrile; under anaerobic conditions no aldicarb sulfone or its degradation products were detected(2). Aldicarb did not degrade in sterile or unsterile groundwater under anaerobic conditions in 60-65 days at pH 5.2 and 6.0 or in 40 days in aerated groundwater at pH 7.6 (with or without added sieved limestone)(3). In unfiltered anaerobic groundwater and anaerobic groundwater amended with limestone and filtered with membrane filters to remove microorganisms, the half-lives of aldicarb were 62 and 433 days, respectively(4). Using this same groundwater, but aerated with sterile air under laboratory conditions, the half-life of aldicarb ranged from 34 to 94 days at pH 8.5(4). Aldicarb sulfoxide and aldicarb sulfone degraded more rapidly, with half-lives in the range of 10-47 days (sulfoxide) and 4-32 days (sulfone) under aerobic conditions. Under anaerobic conditions the half-lives ranged from 25-32 days (sulfoxide) and 26-109 days (sulfone)(4). Aldicarb sulfoxide has been shown to be reduced to aldicarb in groundwater under anaerobic conditions in groundwater to which glucose had been added(4). Aldicarb degraded faster in soil which had been previously treated with carbofuran. After 1 day, 68% of aldicarb applied remained in soil not treated with carbofuran, whereas 16% remained in soil treated 4 times with carbofuran between 1-13 weeks prior to treatment with aldicarb. Zero% remained in soil treated once with carbofuran 13 weeks prior to treatment with aldicarb(5).

Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for aldicarb(SRC), using a log Kow of 1.13(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC). Aldicarb had mean log bioconcentration ratios of 0.263 and -0.92 for plant/soil in above and below ground plants, respectively(4).

Mobility in soil

Koc values for aldicarb have been reported from data in the UK database in 1993 to range from 7 to 80(1). Measured Koc values have also been reported as 30(2) and 32(3). In Valois sand (30.1% sand, 55.2% silt, 14.7% clay, 1.64% organic carbon) the Koc was 22(4). According to a classification scheme(5), these Koc values suggest that aldicarb is expected to have very high to high mobility in soil. Aldicarb and its metabolites are rapidly degraded in soils, which can limit the mobility and leaching potential of

these compounds(6-8).

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: UN2757 (For reference only, please check.)

IMDG: UN2757 (For reference only, please check.)

IATA: UN2757 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CARBAMATE PESTICIDE, SOLID, TOXIC (For reference only, please check.)

IMDG: CARBAMATE PESTICIDE, SOLID, TOXIC (For reference only, please check.)

IATA: CARBAMATE PESTICIDE, SOLID, TOXIC (For reference only, please check.)

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.)

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

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not 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

Temperature of decomposition is unknown in the literature. 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.

Disclaimer: 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. We as supplier shall not be held liable for any