

## Chemical Safety Data Sheet MSDS / SDS

## Naled

Revision Date:2025-02-01 Revision Number:1

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

## Product identifier

Product name : Naled  
CBnumber : CB9202010  
CAS : 300-76-5  
EINECS Number : 206-098-3  
Synonyms : naled,Dibrom

## 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  
Acute toxicity - Category 4, Dermal  
Skin irritation, Category 2  
Eye irritation, Category 2  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

## Label elements

## Pictogram(s)

Signal word Danger

## Hazard statement(s)

H301 Toxic if swallowed  
H312 Harmful in contact with skin  
H315 Causes skin irritation  
H319 Causes serious eye irritation

H400 Very toxic to aquatic life

#### Precautionary statement(s)

P273 Avoid release to the environment.

P391 Collect spillage. Hazardous to the aquatic environment

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 IF eye irritation persists: Get medical advice/attention.

#### 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/...

P273 Avoid release to the environment.

#### Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P317 If skin irritation occurs: Get medical help.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P391 Collect spillage.

#### 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

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## SECTION 3: Composition/information on ingredients

#### Substance

|              |                 |
|--------------|-----------------|
| Product name | : Naled         |
| Synonyms     | : naled,Dibrom  |
| CAS          | : 300-76-5      |
| EC number    | : 206-098-3     |
| MF           | : C4H7Br2Cl2O4P |
| MW           | : 380.78        |

## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest. 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

Rinse mouth. Rest. Refer for medical attention .

### Most important symptoms and effects, both acute and delayed

INHALATION OR INGESTION: Symptoms secondary to cholinesterase inhibition are: headache, giddiness, nervousness, blurred vision, weakness, nausea, cramps, diarrhea, chest discomfort, sweating, miosis, tearing, salivation, and other excessive respiratory tract secretion, vomiting, cyanosis, muscle twitching, and convulsions. EYES: Irritating. SKIN: Irritating-can cause dermatitis. (USCG, 1999)

### Indication of any immediate medical attention and special treatment needed

If this chemical gets into the eyes, remove any contact lenses at once and irrigate immediately for at least 15 min, occasionally lifting upper and lower lids. Seek medical attention immediately. If this chemical contacts the skin, remove contaminated clothing and wash immediately with soap and water. Speed in removing material from skin is of extreme importance. Shampoo hair promptly if contaminated. Seek medical attention immediately. If this chemical has been inhaled, remove from exposure, begin rescue breathing (using universal precautions, including resuscitation mask) if breathing has stopped and CPR if heart action has stopped. Transfer promptly to a medical facility. When this chemical has been swallowed, get medical attention. Give large quantities of water and induce vomiting. Do not make an unconscious person vomit. Effects may be delayed. Medical observation is recommended.

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## SECTION 5: Firefighting measures

### Extinguishing media

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

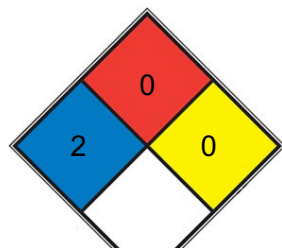
### Specific Hazards Arising from the Chemical

May be combustible. (NOAA, 2007)

### Advice for firefighters

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

### NFPA 704





|          |   |  |
|----------|---|--|
| ■ HEALTH | 2 | Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. <a href="#">diethyl ether</a> , ammonium phosphate, iodine)   |
|          |   | 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) |
| ■ FIRE   | 0 | Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, <a href="#">N2</a> )  |
| ■ REACT  | 0 |  |
| □ SPEC.  |   |  |
| □ HAZ.   |   |  |

## 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 sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations. If liquid: collect leaking liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. 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 sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations. If liquid: collect leaking liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. 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 and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 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 strong oxidants, strong acids and food and feedstuffs. Dry. Well closed. Store in an area without drain or sewer access.Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature 2 - 8 deg C. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

TLV: 0.1 mg/m<sup>3</sup>, as TWA; (skin); (SEN); A4 (not classifiable as a human carcinogen); BEI issued.MAK: (inhalable fraction): 0.5 mg/m<sup>3</sup>; peak limitation category: II(2); skin absorption (H); sensitization of skin (SH); pregnancy risk group: C

#### 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 face shield or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|  |   |
|--|---|
| Physical state   | solid   |
| Colour   | Pure compound is a solid; technical compound is moderately volatile |
| Odour  | Slightly pungent odor   |
| Melting point/freezing point                             | 26.5-27.5°C   |
| Boiling point or initial boiling point and boiling range | 273.8°C at 760 mmHg   |
| Flammability   | Noncombustible Solid  |
| Lower and upper explosion limit/flammability limit       | no data available   |
| Flash point  | 119.4°C   |
| Auto-ignition temperature                                | no data available   |
| Decomposition temperature                                | no data available   |
| pH   | no data available   |
| Kinematic viscosity                                      | no data available   |

|                                       |  |
|---------------------------------------|--|
| Solubility                            | Freely soluble in ketone, alcohols, aromatic and chlorinated hydrocarbons but sparingly soluble in petroleum solvents and mineral oils (Windholz et al., 1983) |
| Partition coefficient n-octanol/water | log Kow = 1.38   |
| Vapour pressure                       | 2 (quoted, Verschueren, 1983)  |
| Density and/or relative density       | 1.96 (20°C)  |
| Relative vapour density               | 1.96 (20°C)  |
| Particle characteristics              | no data available  |

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating and on contact with acids and oxidants. This produces toxic and corrosive fumes including hydrogen bromide, hydrogen chloride and phosphorus oxides. Decomposes on contact with water. This produces dichlorvos and dichloroacetaldehyde. Attacks metals, plastics, rubber and coatings.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. NALED is incompatible with the following: Strong oxidizers, acids, sunlight, water [Note: Corrosive to metals. Hydrolyzed in presence of water.] (NIOSH, 2016). Unstable in presence of Iron (USCG, 1999). Organophosphates 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

Incompatible materials: Strong oxidizing agents

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides, oxides of phosphorus, hydrogen chloride gas, hydrogen bromide gas.

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Mouse (female) oral 360 mg/kg
- 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**

Cancer Classification: Group E Evidence of Non-carcinogenicity for Humans

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the nervous system. This may result in convulsions and respiratory depression. Cholinesterase inhibition. Exposure far above the OEL could cause 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**

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.

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## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50; Species: /Oncorhynchus mykiss/ (rainbow trout); Concentration: 132 ug/L for 96 hr /Conditions of bioassay not specified in source examined

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea); Conditions: freshwater, static; Concentration: 0.3 ppb for 48 hr; Effect: intoxication, immobilization /91.6% purity

Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green Algae); Conditions: freshwater, static; Concentration: 20 ug/L for 5 days (95% confidence interval: 15-33 ug/L); Effect: population abundance /94.4% purity

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: As a chemical class, the organophosphorus insecticides, such as naled, are generally considered to be biodegradable(1). The metabolism of naled in unsterile sandy loam was 3 times faster than in sterile sandy loam, and was 2-3 times faster than in sand, loam, and silt soils(2). The half-lives were 1.4 and 4 hours, respectively, for unsterile and sterile sandy loams. The half-lives for naled ranged from 2.6 to 4.0

hours for other soil types; DDVP was detected in all soil samples(2). The metabolism of 14C-labelled naled in Oakly sandy loam soil under aerobic conditions showed that degradation of naled to 14C-carbon dioxide was rapid with a half-life of 3 days(2). In a cranberry bog, the half-life for the aerobic metabolism of 14C-labelled naled was about 6 hours with most of the naled metabolized to carbon dioxide (71% in 30 days)(2).

### **Bioaccumulative potential**

An estimated BCF of 0.4 was calculated for naled(SRC), using a log Kow of 1.38(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).

### **Mobility in soil**

Koc values of 180(1) and 344(2) have been reported for naled. According to a classification scheme(3), these Koc values suggest that naled is expected to have moderate mobility in soil.

### **Other adverse effects**

no data available

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## **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.

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## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: UN2783 (For reference only, please check.)

IMDG: UN2783 (For reference only, please check.)

IATA: UN2783 (For reference only, please check.)

### **UN Proper Shipping Name**

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

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

IATA: ORGANOPHOSPHORUS 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

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## 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**

Not Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC**

Not Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

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## 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](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

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. Carrier solvents used in commercial formulations may change physical and toxicological properties. See ICSC 0690 Dichlorvos (decomposition product of Naled).

### 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.