

Naled -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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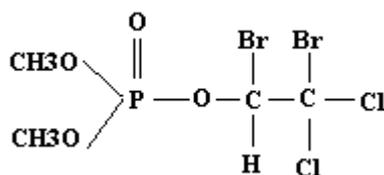
1. Chemical Product Identification

Product Name: Naled

Molecular Formula: C₄H₇Br₂Cl₂O₄P

Molecular Weight: 380.80

Structural Formula:



Chemical Name: 1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate

Form: Liquid.

Color: Yellow.

Odor: Odorless.

CAS No.:300-76-5

2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Naled	300-76-5	90.0
Other ingredients		10.0

3. Hazards Identification

Inhalation Pupillary constriction, muscle cramp, excessive salivation.

Sweating. Nausea. Vomiting. Dizziness. Convulsions. Unconsciousness.

Skin MAY BE ABSORBED! Redness. Pain. (Further see Inhalation).

Eyes Redness. Pain. Blurred vision.

Ingestion Abdominal cramps. Vomiting. Diarrhoea. (See inhalation).

4. First Aid Measures

Eyes: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Contact a physician immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

Inhalation: Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Contact a physician immediately.

Ingestion: Do not induce vomiting. If victim is conscious, administer an 8 oz. glass of water containing 2 tbsp. activated charcoal. Have person lie on their left side to slow down absorption of the ingested material. Never give anything by mouth to an unconscious person. Contact a physician immediately.

Skin: Immediately flush all affected areas with large amounts of clear water for at least 15 minutes.

Remove contaminated clothing. Do not attempt to neutralize with chemical agents. Wash clothing before reuse. Contact a physician immediately.

5. Fire-Fighting Measures

Extinguishing media

Suitable: If involved in fire: In case of a small fire: dry chemical, carbon dioxide. In case of a large fire : Water spray, fog or regular foam.

Protection of fire-fighters: Wear suitable protective clothing. Self-contained breathing apparatus.

6. Accidental Release Measures

Personal precautions: Use appropriate protection (see section 8).

Environmental precautions : Dispose of this material and its container at hazardous or special waste collection point, In accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities. Contaminated soil layers have to be dug out.

Methods for cleaning up: In the event of minor spillage: Absorb in sand or other inert material. Use appropriate containment to avoid environmental contamination. In the event of major spillage: Collect and contain as much free liquid as possible. Dike spills using absorbent or impervious materials such as sand or clay for later disposal.

7. Handling and Storage

Handling: Do not breathe fumes. Avoid contact with skin and eyes.

Storage: Keep locked up. Keep container tightly closed. Keep only in the original container in a cool, well-ventilated place . Keep container dry.

8. Exposure Controls/Personal Protection

Engineering controls: A well-ventilated area is recommended for handling. Use of mechanical or local exhaust systems is recommended.

Respiratory protection: When respiratory protection is required, or concentrations may exceed the PEL, use a air-purifying respirator equipped with new organic vapor cartridges or canisters. A maximum use of eight hours is recommended. For emergency and other conditions where the exposure limit may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

Skin protection: Prevent skin contact. Chemical resistant gloves , body

covering clothing that has long sleeves and long pants, and chemical resistant shoes or boots, are required to prevent skin contamination. Replace gloves every eight hours or sooner if exposure has been heavy. A chemical resistant apron will provide additional protection when there is a risk of spillage or splashing. Wear clean clothes daily. Wash soiled clothes separately from other laundry. Wash thoroughly after handling this product. See the label for more specific instructions.

Eye protection: Safety glasses should be worn whenever working with chemicals. Goggles or a faceshield should be used if there is a chance of mist formation or splashing.

9. Physical and Chemical Properties

Water Solubility: <1 mg/L @ 20°C

Solubility in Other Solvents: v.s. in alcohols, aromatic solvents,; s. in aliphatic hydrocarbons, aromatic hydrocarbons, chlorinated hydrocarbons, and ketones; s.s. in mineral oils and petroleum solvents

Melting Point: 26-27.5°C

Vapor Pressure: 260 mPa @ 20°C

Partition Coefficient: Not Available

Adsorption Coefficient: 180

10. Stability and Reactivity

Stability: Stable under normal conditions.

Materials to avoid : Avoid contact with: strong acids.

Hazardous reactions: Hazardous polymerization will not occur.

11. Toxicological Information

Acute oral LD50 : rat 300mg/kg

Acute dermal LD50 : 923mg/kg

Chronic toxicity: Chronic exposure to organophosphates may also cause the neurological and neuromuscular effects associated with cholinesterase inhibition. Rats have tolerated a dosage of 28 mg/kg/day for 9 weeks with no visible signs of poisoning and with only moderate inhibition of cholinesterase.

Reproductive effects: No data are currently available.

Teratogenic effects: No data are currently available.

Mutagenic effects: Naled did not affect the ability of one bacterial species (*Proteus mirabilis*) to repair DNA damage, but did increase the frequency of mutations in another bacterial species (*Salmonella typhimurium*). These data are insufficient to determine its potential for mutagenicity.

Carcinogenic effects: No data are currently available.

Organ toxicity: Naled primarily affects the nervous system through cholinesterase inhibition.

12. Ecological And Ecotoxicological Information

Effects on birds: Naled is highly to moderately toxic to birds. The reported acute oral LD50 for naled is 52 mg/kg in mallard ducks, 65 mg/kg in sharp-tailed grouse, 36-50 mg/kg in Canadian geese, 120 mg/kg in ring-neck pheasants, and 59 mg/kg in chickens. Reported 5- to 8-day dietary LC50 values indicate slight toxicity in species studied. These were 1328 ppm in Japanese quail, 2724 ppm in mallard duck, 2117 ppm in northern bobwhite, and 2538 ppm in ring-neck pheasant.

Effects on aquatic organisms: Naled is highly to moderately toxic to fish. Reported 96-hour LC50 values range from 0.127 mg/L in cutthroat trout, 0.195 mg/L in rainbow trout, and 0.087 mg/L in lake trout to higher values of 3.3 mg/L in fathead minnow, 2.2 mg/L in bluegill sunfish, and 1.9 mg/L in largemouth bass. The reported LC50 for goldfish is 2 to 4 mg/L. Naled may be very highly toxic to aquatic invertebrate species, with reported 96-hour LC50 values of 0.4 ug/L in *Daphnia*, 8 ug/L in stoneflies, and 18 ug/L in scuds and sideswimmers.

Effects on other organisms: Naled is toxic to bees . The reported acute oral LD50 in mule deer is 200 mg/kg.

13. Disposal Considerations

Disposal according to the local legislation.

14. Transport Information

Not applicable.

15. Regulatory Information

Not applicable.

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.