

One word...
Versatility.



Powerful pest & decay fungi control.

Nibor-D® is a borate powder used as a dust or liquid in crack and crevice applications. It effectively prevents and controls carpenter ants, crickets, cockroaches, silverfish, earwigs, boxelder bugs, cluster flies, centipedes, millipedes, ants, mildew and fungi.

- Broad spectrum insecticide and fungicide.
- Use as a dust, liquid or mop solution.
- For both interior and exterior use.
- NO known resistance.
- Available in 1-lb., 5-lb. and 15-lb. containers.
- Colored light green for use in USDA facilities.



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Nibor-D[®]

INSECTICIDE

For the control and prevention of general pests such as
ants, crickets, earwigs, roaches and silverfish.

For both interior and exterior use.

Use NIBOR-D in homes, restaurants, markets, schools, warehouses, factories, offices, hotels, hospitals, nursing homes, garages, grocery stores, apartment buildings, new construction, industrial plants, theaters, ships, trains, trucks, yachts, mobile homes, buses, zoos, kennels, military bases, libraries, utilities and on railroad ties.

ACTIVE INGREDIENT:

Disodium Octaborate Tetrahydrate (CAS No. 12280-03-4).. 98%

OTHER INGREDIENT* 2%

TOTAL 100%

EPA Reg. No. 64405-8

EPA Est. 64405-TN-1

*Contains 2% H₂O Absorbed Moisture

Keep Out of Reach of Children
CAUTION

First Aid

If Swallowed	<ul style="list-style-type: none">• Immediately call a poison control center or doctor for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
If Inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
If in Eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.	

PRECAUTIONARY STATEMENTS

Hazards to Humans & Domestic Animals

CAUTION: Harmful if swallowed or inhaled. Causes moderate eye irritation. Avoid contact with eyes or clothing. Avoid breathing dust. Thoroughly wash with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are barrier laminate; butyl, nitrile, neoprene and natural rubbers \geq 14 mils; polyethylene; polyvinyl chloride; and viton \geq 14 mils. If you want more options, follow the instructions for category C on an EPA chemical-resistance category selection chart.

Applicators, mixers and other handlers must wear long-sleeved shirt, long pants, socks, shoes, chemical-resistant gloves and protective eyewear. When applying this product in confined spaces, provide ventilation or an exhaust system; or use a NIOSH-approved dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) with a prefilter approved for pesticides (MSHA/NIOSH approval prefix TC-23C); or use a canister approved for pesticides (MSHA/NIOSH approval prefix TC-14G) or a NIOSH-approved respirator with any N, R, P or HE prefilter..

User Safety Requirements

Follow manufacturer's instructions for cleaning/ maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet;
Remove clothing immediately if pesticide gets inside, then wash thoroughly and put on clean clothing;
Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is toxic to fish and wildlife. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

NOTICE

Read and understand the entire label before using.

Use only according to label directions.

Before buying or using this product, read the **Warranty Disclaimer** and **Limitation of Remedies** statements found elsewhere on this label. If terms are unacceptable, return unopened package to seller for full refund of purchase price. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under the **Warranty Disclaimer** and **Limitation of Remedies**.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

GENERAL INSECT CONTROL

Product Information

Use NIBOR-D as a dust or liquid crack, crevice, void and spot treatment for the control and prevention of general pests, such as ants, crickets, earwigs, roaches and silverfish. Use only as a crack and crevice treatment in food areas of food handling establishments, restaurants or other places where food is commercially prepared or processed. Do not use in edible product areas of these food-handling establishments. Do not use in serving or other food areas while food is exposed. Do not contaminate feed and foodstuffs. **Applications of this product in the food areas of food handling establishments other than as a crack and crevice treatment are not permitted.**

Use NIBOR-D in homes, restaurants, markets, schools, warehouses, factories, offices, hotels, hospitals, nursing homes, garages, grocery stores, apartment buildings, new construction, industrial plants, theaters, ships, trains, trucks, yachts, mobile homes, buses, zoos, kennels, military bases, libraries, utilities and on railroad ties. Apply NIBOR-D only in areas inaccessible to children and pets. **Do not use NIBOR-D for flea control.**

NIBOR-D is a water soluble inorganic borate salt with insecticidal properties effective against general pests, including the target pests listed below. Apply as a liquid solution, mop solution or dust. Use as a remedial treatment to kill and control existing infestations or as a preventative treatment for possible future infestations of general pests such as, but not limited to, those listed below:

Roaches (including German, Brown-banded, Smokey Brown, Brown, American, Australian and Oriental Roaches), **Silverfish**, **Earwigs**, **Crickets** (including House crickets, Field crickets and Camel crickets), **General Ants** (including Argentine, Thief, Little Black, Pavement, Odorous House, Crazy and Ghost Ants), **Carpenter Ants**, **Boxelder Bugs**, **Cluster Flies**, **Centipedes** and **Millipedes**.

Note: Spraying water on some wood species can mobilize natural wood extractives, raise the grain and leave behind calcium or other deposits. Prior to treating large areas, treat a small area with NIBOR-D solution to ensure that you are -satisfied with the final aesthetics.

Preparation of a Treatment Solution

15% NIBOR-D Liquid Solution: To prepare solution, add approximately 80% of the required volume of water to the mixing vessel. While stirring, gradually add 1.5 pounds of NIBOR-D for each gallon of treating solution required. Add remaining water to the solution and stir until the entire product has dissolved. Use this solution as soon as possible and do not store for an extended length of time.

Wash and rinse all equipment after each use.

Application Instructions

NIBOR-D Application as a Dust: Dust NIBOR-D into wall voids, cracks and crevices, moist areas, openings around pipes and sinks, under refrigerators, behind baseboards and storage shelves to kill and prevent infestations of ants, crickets, cockroaches, silverfish and other insect pests and arthropods. No powder should be visible after application. Remove or brush any powder visible after application into cracks and crevices.

NIBOR-D Application as a Liquid: Apply NIBOR-D 15% liquid solution as a crack and crevice, void and spot treatment to kill and control infestations of ants, crickets, cockroaches, earwigs and silverfish. Apply NIBOR-D 15% liquid solution into cracks and crevices, void areas, between elements of construction, between equipment and floors, openings leading to voids and hollow spaces in walls, equipment legs and bases and areas where insects hide. Do not introduce the material into the air. Apply the NIBOR-D 15% liquid solution for general insect control as a spot treatment to outside areas of structures around windows, doorframes and other areas where insect pests may enter. Product may leave a light residue on dark surfaces. Residual effects of NIBOR-D will last longer in areas protected from weather and elements.

NOTE: Do not apply NIBOR-D liquid solutions in conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.

Directions for Applying NIBOR-D as a Mop Solution:

Add 8 ounces of NIBOR-D to each gallon of rinse water. Apply to floor areas only for the supplemental control of pests including ants and cockroaches. Make only enough for each application. This is to be used as a supplemental treatment in conjunction with other pest management practices and may be reapplied as necessary. Remove or brush any powder visible after application into cracks and crevices. Do not contaminate feed and foodstuffs. Pour up to one quart of mop solution into each floor drain at the end of the work day to control drain fly populations.

Directions for Applying NIBOR-D to Control Mildew and Fungus (Except in California):

Mix NIBOR-D at the rate of 8 ounces of powder to 1 gallon of water. In areas affected by mildew and fungus, apply to certain surfaces to kill and control mildew and fungus in conjunction with conventional moisture control practices such as repairing leaking -structural components or pipes, lowering interior humidity levels and, where possible, providing adequate ventilation. Apply as a spot treatment to affected surfaces including baseboards and wall areas. **DO NOT APPLY NIBOR-D TO CARPET AREAS.** Reapply as necessary.

Wood Treatment

Product Information

NIBOR-D is a water soluble, inorganic borate salt with insecticidal and fungicidal properties effective against wood-destroying organisms including the target pests listed below. Apply NIBOR-D as a liquid solution, powder or foam. NIBOR-D is an effective treatment for wood (and wood-foam composite structural components) to kill and prevent infestations of decay fungi including white rot, brown rot (i.e., *Poria*) and wet rots. This product may be used for preventative treatment (before signs of infestation), for wood in existing structures and for remedial treatment of infested wood in existing structures. This product may also be used for pre-treatment of wood before or during the construction process. NIBOR-D is also effective for the prevention and control of wood destroying insects such as, but not limited to, the following organisms:

Subterranean Termites (*Reticulitermes*, *Heterotermes*, *Coptotermes* (Formosan)), **Drywood Termites** (*Kaloterms*, *Incisitermes*), **Dampwood Termites** (*Zootermopsis*), **Powderpost Beetles** (*Lyctinae*, *Bostrichidae*), **Deathwatch and Furniture Beetles** (*Anobiidae*), **Old House Borers**, **Longhorned Beetles** (*Cerambycidae*), **Carpenter Ants** (*Camponotus*), **Bark and Timber Beetles** (*Scolytidae*).

NIBOR-D is recommended for wood and cellulose material in accordance with the specific treatment methods described herein. NIBOR-D is effective for all interior and exterior wood (and wood-foam composite structural components) that will be protected from excessive rain and not in direct contact with the soil. Types of wood include, but are not limited to, all types of lumber, logs and plywood. This product kills wood-destroying organisms. Some etching of treated wood may occur from organisms before they die. Do not apply NIBOR-D to wood or cellulose material that has been painted, varnished or sealed. For best results, apply NIBOR-D to bare wood. Use soap and water to clean application equipment.

Note: Spraying water on some wood species can mobilize natural wood extractives, raise the grain and leave behind calcium or other deposits. Prior to treating large areas, treat a small area with NIBOR-D solution to ensure that you are satisfied with the final aesthetics.

Preparation of Treatment Solutions

10% NIBOR-D Liquid Solution: To prepare solution, add approximately 80% of the required volume of water to the mixing vessel. While stirring, gradually add 1.0 pound of NIBOR-D for each gallon of treating solution required. Add remaining water to the solution and stir until the entire product has dissolved.

15% NIBOR-D Liquid Solution: Prepare solution as above, but gradually add 1.5 pounds of NIBOR-D for each gallon of treatment solution needed.

15% NIBOR-D Foam: Prepare a 15% liquid solution as described above and also add a surfactant-foaming agent. Generally 1-2 ounces of a foaming agent, added to the 15% liquid solution, produces a dry foam with the desired expansion ratio of approximately 20 to 1 (20 gallons of foam per 1 gallon of liquid solution). The NIBOR-D foam should be of a "dry" consistency that adheres to wood surfaces so that run-off is minimized. A "wet" foam may damage wallboard or other building components. Refer to the individual foam equipment manufacturer's manual and the surfactant's label for specific instructions.

Wash and rinse all equipment after each use.

Product Application Instructions

NIBOR-D as a Liquid Solution: NIBOR-D liquid applications may be made to wood structures including decks, fences, steps, sheds, barns and other outbuildings. On wood with drier than normal moisture content, apply by brush or spray two applications of a 10% solution to wood surfaces. On wood with normal moisture content, apply by brush or spray one application of a 15% solution to wood surfaces. Application may also be made by drilling and then injecting the solution under pressure into sound wood or into the insect galleries of -infested wood. NIBOR-D may be applied as a foam to wood surfaces or injected into wall voids or insect galleries.

Remedial and Preventative Treatment

NIBOR-D Solutions for the Control of Wood Destroying Organisms and to Kill Active Infestations of Termites, Powderpost Beetles and Wood Decay Fungi: For remedial control of wood attacking organisms or for the protection of wood against future infestations, two applications of a 10% liquid solution are required. One application of a 15% liquid solution may be used. Apply NIBOR-D solutions by brush or spray at the rate of 5 gallons of liquid solution per 1000 square feet of wood surface area. Thoroughly wet wood surface area. Application may also be made by drilling and then injecting the liquid solution under pressure into sound wood or until run-off is observed coming from entry/exit holes of infested wood.

NIBOR-D Powder to Kill and Control Wood Destroying Organisms, such as Termites and Carpenter Ants: Apply NIBOR-D as is to wood members by drilling and injecting the powder into galleries or by dusting generously on wood surfaces. NIBOR-D powder can also be injected or dusted into wall voids such as between studs, block voids, box sills, eaves, attics, soffits, etc. Apply NIBOR-D powder to these areas at the rate of 0.5 ounce (12-14 grams) per square foot. NIBOR-D powder can also be injected or dusted into utility poles at a rate of 0.25 pound per cubic foot of area to be treated.

NIBOR-D Foam: In wall voids, inject enough dry foam to contact wood surfaces of studs in the wall or the entire desired target area. Apply foam, where possible, to abutting wood surfaces and between wood joints. Apply the foam so that all accessible wood surfaces are covered with foam. NIBOR-D foam can also be injected into insect galleries until run-off is -observed.

Wood Treatment During Construction for Prevention of Wood Destroying Organisms: Spray, foam or powder applications of NIBOR-D may be made to wood. Apply a NIBOR-D liquid solution to all accessible surfaces of bare wood at a rate of approximately 5 gallons per 1000 square feet of wood surface area. Apply after framing and roofing are in place and before insulation and drywall are installed. Do not spray electrical components or other non-wood components. Treat end-cuts of wood by application methods listed above, or by dipping end-cuts for 1-5 minutes in a NIBOR-D 10% liquid solution. Apply powder applications of NIBOR-D after framing and roofing are in place and before insulation and drywall are installed. Apply powder at the rate of 0.5 ounce (12-14 grams) per square foot to wall stud areas, box sills, roof eaves, attics and soffits.

Protect newly treated wood from excessive rain or moisture.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a dry place. Do not store where children or animals may gain access. **Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Management: Refillable container; refill this -container with only NIBOR-D. Do not reuse this container for any other purpose. Cleaning the container before refilling is the responsibility of the refiller. Cleaning the container before final disposal is the responsibility of the person disposing of the container. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with a pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times, then offer container for recycling, if available; or reconditioning, if appropriate; or dispose of container in a sanitary landfill; or, if allowed by state and local authorities, by incineration.

Warranty Disclaimer

Manufacturer warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. **TO THE EXTENT NOT PROHIBITED BY APPLICABLE LAW, MANUFACTURER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

Inherent Risks of Use

The directions for use of this product are believed to be adequate and must be carefully followed. It is impossible to eliminate all risks associated with use of this product. Lack of performance or other unintended consequences may result because of such factors as use of the product contrary to label instructions, abnormal conditions, the presence of other materials, climatic conditions or the manner of use/application, all of which are beyond the control of the Manufacturer. The buyer/user assumes all such risks.

Limitation of Remedies

To the extent not prohibited by applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability or other legal theories) shall be limited to, at Manufacturer's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

To the extent not prohibited by applicable law: a) Manufacturer shall not be liable for losses or damages resulting from handling or use of this product unless Manufacturer is promptly notified of such loss or damage in writing; and b) **IN NO CASE SHALL MANUFACTURER BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OR LOSSES, INCLUDING WITHOUT LIMIT, HEALTH RELATED DAMAGES OR INJURIES.**

The terms of this *Warranty Disclaimer* and *Limitation of Remedies* cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Manufacturer or the seller is authorized to vary or exceed the terms of this *Warranty Disclaimer* or *Limitation of Remedies* in any manner.



Nisus Corporation • 100 Nisus Drive
Rockford, TN 37853
(800) 264-0870

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Made in the U.S.A.

Material Safety Data Sheet

NIBOR-D[®]

Insecticide

Health Emergencies: CHEMTREC[®] (800) 424-9300

SECTION I – COMPANY AND PRODUCT IDENTIFICATION

Manufacturer: Nisus Corporation
100 Nisus Drive
Rockford, TN 37853
(800) 264-0870 Fax: (865) 577-5825
Nibor-D[®]

Product name: Nibor-D[®]

Grade: Technical

Product use: Termiticide, insecticide, fungicide

Chemical formula: Na₂B₈O₁₃ · 4H₂O

Chemical name/synonyms: Disodium octaborate tetrahydrate

Chemical family: Inorganic borates

CAS registry number: 12280-03-4

EPA registration number: 64405-8
(Refer to Section I5 for TSCA/DSL Chemical inventory listing)

SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS

This product contains greater than 98 percent (%) disodium octaborate tetrahydrate, Na₂B₈O₁₃ · 4H₂O, which is hazardous under the OSHA Hazard Communication Standard and under the Canadian Controlled Products Regulations of the Hazardous Products Act (WHMIS), based on animal chronic toxicity studies. Refer to Sections 3 and 11 for details on hazards.

SECTION III – HAZARD IDENTIFICATION

Emergency overview: Nibor-D is a white, odorless, powdered substance that is not flammable, combustible, or explosive and has low acute oral and dermal toxicity.

Potential ecological effects: Large amounts of Nibor-D can be harmful to plants and other species. Therefore, releases to the environment should be minimized.

Potential health effects: Routes of exposure: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because Nibor-D is poorly absorbed through intact skin.

Inhalation: Occasional mild irritation effects to nose and throat may occur from inhalation of Nibor-D dust at levels greater than 10 mg/m³.

Eye contact: Nibor-D is non-irritating to eyes in normal use.

Skin contact: Nibor-D does not cause irritation to intact skin.

Ingestion: Products containing Nibor-D are not intended for ingestion. Nibor-D has a low acute toxicity. Small amounts (e.g., a teaspoonful) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms.

Cancer: Nibor-D is not a known carcinogen.

Reproductive/developmental: Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects. A human study of occupational exposure to borate dust showed no adverse effect on reproduction.

Target organs: No target organ has been identified in humans.

Signs and symptoms of exposure: Symptoms of accidental over-exposure to Nibor-D might include nausea, vomiting, and diarrhea, with delayed effects of skin redness and peeling. These symptoms have been associated with the accidental over-exposure to the chemically related substance boric acid by ingestion or absorption through large area of damaged skin.

Refer to Section 11 for details on toxicological data.

SECTION IV – FIRST AID MEASURES

Inhalation: If symptoms such as nose or throat irritation are observed, remove person to fresh air.

Eye contact: Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

Skin contact: No treatment necessary because non-irritating.

Ingestion: Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.

Note to physicians: Observation only is required for adult ingestion in the range of 4-8 grams of Nibor-D. For ingestion of larger amounts, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment. Refer to Section 11 for details.

SECTION V – FIRE FIGHTING MEASURES

General hazard: None, because Nibor-D is not flammable, combustible or explosive. The product is itself a flame retardant.

Extinguishing Media: Any extinguishing media may be used on nearby fires.

Flammability Classification (29 CFR 1910.1200): Non-flammable solid.

SECTION VI – ACCIDENTAL RELEASE MEASURES

General: Nibor-D is a water-soluble white powder that may, at high concentrations, cause damage to trees or vegetation by root absorption. At low concentrations it is a micronutrient. (Refer to Ecological Information, Section 12, for specific information.)

Land spill: Vacuum, shovel or sweep up Nibor-D and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal.

Spillage into water: Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level.

Nibor-D is a non-hazardous waste when spilled or disposed of, as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261). (Refer to Regulatory information, Section 15, for additional references.)

SECTION VII – HANDLING AND STORAGE

General: No special handling precautions are required, but dry indoor storage is recommended. To maintain package integrity and to minimize caking of the product, bags should be handled on a first-in, first-out basis. Good housekeeping procedures should be followed to minimize dust generation and accumulation.

Storage temperature: Ambient

Storage pressure: Atmospheric

Special sensitivity: Moisture (caking)

SECTION VIII – EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Use local exhaust ventilation to keep airborne concentrations of Nibor-D dust below permissible exposure levels.

Personal protection: Refer to label for actual regulatory personal protection requirements. Where airborne concentrations are expected to exceed exposure limits (e.g. confined spaces), NIOSH/MSHA certified respirators must be used. Eye protection, protective clothing and waterproof gloves may also be warranted under certain high exposure conditions.

Occupational exposure limits: Disodium octaborate tetrahydrate (Nibor-D) is treated by OSHA, Cal OSHA and ACGIH as "Particulate Not Otherwise Classified" or "Nuisance Dust". The OSHA/PEL (Permissible Exposure Level) is 15 mg/m³ total dust and 5 mg/m³ respirable dust. The Cal OSHA/PEL is 10 mg/m³. The ACGIH/TLV (Threshold Limit Value) is 10 mg/m³.

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White, odorless, powder

Bulk density: 320 to 480 kg/m³

Vapor pressure: Negligible @ 20°C

Solubility in water: 9.7% @ 20°C; 34.3% @ 50°C
Melting point: 815°C
pH @ 20°C: 8.3 (3.0% solution)
7.6 (10.0% solution)
Molecular Weight: 412.52

7-day LC₅₀ = 65 mg B/L*
3-day LC₅₀ = 71 mg B/L*

*Test substance: sodium tetraborate

Environmental Fate Data

Persistence/degradation: Boron is naturally occurring and ubiquitous in the environment. **Nibor-D** decomposes in the environment to natural borate.

Octanol/water partition coefficient: No value. In aqueous solution disodium octaborate tetrahydrate is converted substantially into undissociated boric acid.

Soil Mobility: **Nibor-D** is soluble in water and is leachable through normal soil.

SECTION X – STABILITY AND REACTIVITY

General: **Nibor-D** is a stable product.

Incompatible materials and conditions to avoid: Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create explosive hazard.

Hazardous decomposition: None.

SECTION XI – TOXICOLOGICAL INFORMATION

Acute toxicity

Ingestion: Low acute oral toxicity; LD₅₀ in rats is 2,550 mg/kg of body weight.

Skin/dermal: Low, acute dermal toxicity; LD₅₀ in rabbits is greater than 2,000 mg/kg of body weight. **Nibor-D** is poorly absorbed through intact skin.

Inhalation: Low acute inhalation toxicity; LD₅₀ in rats is greater than 2.0 mg/L (or g/m³).

Skin irritation: Non-irritant.

Eye irritation: Draize test in rabbits produced mild eye irritation effects. Years of occupational exposure to **Nibor-D** indicates no adverse effects on human eye. Therefore **Nibor-D** is not considered to be a human eye irritant in normal industrial use.

Sensitization: **Nibor-D** is not a skin sensitizer.

Other

Reproductive/developmental toxicity: Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed.

Carcinogenicity/mutagenicity: No evidence of carcinogenicity in mice. No such effects have been observed in humans for boric acid in a battery of short-term mutagenicity assays.

Human data: Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.

SECTION XII – ECOLOGICAL INFORMATION

Ecotoxicity Data

General: Boron (B) is the element in disodium octaborate tetrahydrate (**Nibor-D**) which is used by convention to report borate product ecological effects. It occurs naturally in seawater at an average concentration of 5 mg B/L and generally occurs in freshwater at concentrations up to 1mg B/L. In dilute aqueous solutions the predominant boron species present is undissociated boric acid. To convert disodium octaborate tetrahydrate into the equivalent boron (B) content, multiply by 0.2096.

Phytotoxicity: Boron is an essential micronutrient for healthy growth of plants; however, it can be harmful to boron sensitive plants (e.g. grass and ornamentals) in high quantities. Care should be taken to minimize the amount of **Nibor-D** accidentally spilled and released to the environment.

Algal Toxicity: Green algae, *Scenedesmus subspicatus*
96-hr EC₁₀ = 24 mg B/L*

Invertebrate Toxicity: Daphnids, *Daphnia magna straus*
24-hr EC₅₀=242 mg B/L*

Fish Toxicity:

Seawater:

Dab, *Limanda limanda*
96-hr LC₅₀ 74 MG B/L*

Freshwater:

Rainbow trout, *S. gairdneri* (embryo-larval stage)
24-day LC₅₀ = 88 mg B/L*
32-day LC₅₀ = 54 mg B/L*

Goldfish, *Carassius auratus* (embryo-larval stage)

SECTION XIII – DISPOSAL CONSIDERATIONS

Disposal Guidance: Small quantities of **Nibor-D** can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

RCRA (40 CFR 261): **Nibor-D** is not listed under any sections of the Federal Resource Conservation and Recovery Act (RCRA).

Refer to Section 15 for additional regulatory information.

SECTION XIV – TRANSPORT INFORMATION

DOT HAZARDOUS CLASSIFICATION: Disodium octaborate tetrahydrate (**Nibor-D**) is not regulated by the U.S. Department of Transportation (DOT) and is therefore not considered a hazardous material/substance.

International transportation: Disodium octaborate tetrahydrate (**Nibor-D**) has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

SECTION XV – REGULATORY INFORMATION

OSHA/Cal OSHA: This MSDS document meets the requirements of both OSHA (29 CFR 1910.1200) and Cal OSHA (Title 8 CCR 5194 (g)) hazard communication standards. Refer to Section 8 for regulatory exposure limits.

FIFRA: **Nibor-D** is registered with the EPA (EPA Reg. No. 64405-8), in accordance with Section 3 of the Federal Professional, Fungicide and Rodenticide Act (FIFRA), as a pesticide product. Refer to EPA approved product label for additional product hazard and precautionary information.

Chemical Inventory Listing: Disodium octaborate tetrahydrate (**Nibor-D**), 12280-03-4, appears on several chemical inventory lists, including the EPA TSCA inventory, under the CAS No. representing the anhydrous form of this inorganic salt.

U.S. EPA TSCA Inventory 12008-41-2

RCRA: Disodium octaborate tetrahydrate is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act (RCRA) or regulations (40 CFR 261 *et seq.*)

California Proposition 65: Disodium octaborate tetrahydrate (**Nibor-D**) is not listed on the Proposition 65 list of carcinogens or reproductive toxicants.

Superfund: CERCLA/SARA. Disodium octaborate tetrahydrate is not listed under CERCLA or its 1986 amendments, SARA, including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65, Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355, or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302..

Safe Drinking Water Act (SDWA): Disodium octaborate tetrahydrate is not regulated under the SDWA, 42 USC 300g-I, 40 CFR 141 *et seq.* Consult state and local regulations for possible water quality advisories regarding boron compounds.

Clean Water Act (CWA) (Federal Water Pollution Control Act):

33 USC 1251 *et seq.*

- Disodium octaborate tetrahydrate (**Nibor-D**) is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314.
- It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129.

c) It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

IARC: The International Agency for Research on Cancer (IARC) (a unit of the World Health Organization) does not list or categorize disodium octaborate tetrahydrate as a carcinogen.

NTP Biennial Report on Carcinogens: Disodium octaborate tetrahydrate is not listed.

OSHA carcinogen: Disodium octaborate tetrahydrate is not listed.

Clean Air Act (Montreal Protocol): Nibor-D was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

SECTION XVI – OTHER INFORMATION

REFERENCES

For general information on the toxicity of inorganic borates, see Patty's Industrial Hygiene and Toxicology, 4th Ed. Vol. II (1994), Chap. 42, Boron; ECETOC Tech. Report No. 63 (1995).

Product label text hazard information:

Refer to EPA (United States) approved product specimen label for additional product hazard and precautionary information.

For further information contact:

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